

# Monitoring the Future

NATIONAL SURVEY RESULTS ON DRUG USE, 1975–2008

VOLUME I

## Secondary School Students 2008

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**MONITORING THE FUTURE**  
**NATIONAL SURVEY RESULTS ON DRUG USE, 1975–2008**

Volume I  
Secondary School Students

by

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## Chapter 1

### INTRODUCTION

The Monitoring the Future (MTF) study is an ongoing series of national surveys of American adolescents and adults that has provided the nation with a vital window into the important, but largely hidden, problem behaviors of illegal drug use, alcohol use, tobacco use, anabolic steroid use, and psychotherapeutic drug use. For a third of a century, the study has provided a clearer view of the changing topography of these problems among adolescents and adults, a better understanding of the dynamics of factors that drive some of these problems, and a better understanding of some of their consequences. It has also given policymakers and nongovernmental organizations in the field some practical approaches for intervening.

MTF is an investigator-initiated study that originated with, and is conducted by, a team of research scientists at the University of Michigan's Institute for Social Research. It has been continuously funded since its onset in 1975 by the National Institute on Drug Abuse—one of the National Institutes of Health—under a series of peer-reviewed, competitive research grants. The 2008 survey, reported here, is the 34th in this series.

A widespread epidemic of illicit drug use emerged in the 1960s among American youth, and since then dramatic changes have occurred in the use of nearly all drugs involved, as well as alcohol and tobacco. Of particular importance, as discussed in detail below, many new illicit drugs have emerged, along with some new forms of cigarettes and alcoholic beverages. Among the newly abused substances are some new classes, including over-the-counter medications and drugs taken for strength enhancement. Unfortunately, while many new substances have been added to the list, very few have been removed. Throughout these many changes, substance use among the nation's youth has remained a major concern for parents, teachers, youth workers, health professionals, law enforcement, and policymakers, largely because substance use is one of the greatest, and yet most preventable, causes of morbidity and mortality among young people.

This annual monograph series has been the primary vehicle for disseminating the epidemiological findings from the study. This latest two-volume monograph presents the results of the 34th survey of drug use and related attitudes and beliefs among American high school seniors, the 29th such survey of American college students, and the 18th such survey of 8th- and 10th-grade students. Results are also reported for high school graduates followed in a series of panel studies through age 50.

Results from the samples of 8th, 10th, and 12th graders are contained in *Volume I*, which is preceded by two national press releases and an advance summary report.<sup>1</sup> Results on college students and adults are reported each year in *Volume II*, which is published a few months after *Volume I*.

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<sup>1</sup>See the most recent edition: Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2008* (NIH Publication No. 09-7401). Bethesda, MD: National Institute on Drug Abuse. The *Overview* contains a short section on each of the major classes of drugs under study, and can be viewed on the Web at [www.monitoringthefuture.org](http://www.monitoringthefuture.org) or obtained free of charge by contacting the authors at Monitoring the Future, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 48106-1248.

## **SURVEYS OF SECONDARY SCHOOL STUDENTS**

Two of the major topics included in this series of annual reports are (a) the *prevalence and frequency* of drug use among American secondary school students in 8th, 10th, and 12th grades and (b) *historical trends* in use by students in those grades. Distinctions are made among important demographic subgroups in these populations based on gender, college plans, region of the country, population density, parents' education, and race/ethnicity. Data on grade of first use, trends in use at lower grade levels, as well as intensity of drug use are reported in separate chapters. This study has demonstrated that key attitudes and beliefs about use of the various drugs are important determinants of trends in use; therefore, they are also tracked over time, as are students' perceptions of certain relevant aspects of the social environment—in particular, perceived availability, peer norms, use by friends, and exposure to use of the various drugs.

## **SURVEYS OF COLLEGE STUDENTS AND ADULTS THROUGH AGE 50**

Also included in this series are findings on the prevalence and trends in drug use among adults through age 50 who have completed high school. These data are reported primarily in *Volume II*, although a brief summary is given in chapter 2 of this volume, entitled “Key Findings.” The period of young adulthood (here defined as ages 19–28) is particularly important because it has tended to be the period of peak use for many drugs.

The MTF study design calls for biennial follow-ups—through age 30—of a randomly selected subsample of the respondents in each participating senior class, beginning with the class of 1976. In 2008, representative samples of the graduating classes of 1996 through 2007 (corresponding to modal ages 19 to 30) provided the panel data—12 classes in all. Because the questionnaire forms used in 12th grade are matched to those used in each of these follow-ups, it is possible to integrate the data across the 12-year age band. Comprehensive results from this population are presented in *Volume II*.

After age 30, the class cohorts are surveyed at five-year intervals—currently at ages 35, 40, 45, and 50—using somewhat different questionnaires. Prevalence and trend data for these older ages are also presented in *Volume II*. (Panel analyses using all of these various follow-up data points are presented in many other publications from the study, which may be found on the Web site.)

Two chapters in *Volume II* present data specifically on college students (and their noncollege peers). Trend data are provided since 1980, the first year that a national sample of college students one to four years past high school was available from the follow-up survey. College students have not usually been well represented in national household surveys, because many college students live on campus in group dwellings (dormitories, fraternities, and sororities) that often are not included in household surveys. (The National Survey of Drug Use and Health, conducted in earlier years by the National Institute on Drug Abuse and now by the Substance Abuse and Mental Health Services Administration, was revised in 1991 to include such group dwellings.) Twenty-nine MTF surveys on substance use among American college students have

now been completed, allowing an unparalleled view of historical trends in drug use for this important subpopulation, as well as for their noncollege age-mates.

## **CONTENT AREAS COVERED IN THIS REPORT**

### **Drug Classes**

Initially, 11 separate classes of drugs were distinguished for this series of reports: marijuana (including hashish), inhalants, hallucinogens, cocaine, heroin, narcotics other than heroin (both natural and synthetic), amphetamines, sedatives, tranquilizers, alcohol, and tobacco. This particular organization was chosen to heighten comparability with a parallel series of publications based on the National Survey of Drug Use and Health (NSDUH). Separate statistics are now presented for a number of subclasses of drugs within these more general categories: PCP and LSD (both hallucinogens), barbiturates and methaqualone (both sedatives), amyl and butyl nitrites (a class of inhalants), methamphetamine, crystal methamphetamine (“ice”), and crack and other cocaine.

A number of the drugs just mentioned appeared on the American scene after the study began and were added to the 12th-grade questionnaires in subsequent years (and for the most part to the follow-up questionnaires, as well). Trend data for PCP and nitrites have been available since 1979, when questions about their use were added to the study because of increasing concern over their rising popularity and possibly deleterious effects. For similar reasons, a single question about crack cocaine was added to the 1986 survey, and more detailed questions on crack and other cocaine were added in 1987.

Questions about the use of “ecstasy” (methylenedioxymethamphetamine, or MDMA) were added in 1989 to the adult follow-up surveys and in 1996 to the 8th-, 10th-, and 12th-grade surveys. Questions about crystal methamphetamine (“ice”) were added to the 12th-grade and follow-up surveys in 1990. Questions about anabolic steroids were added in 1989 because of reports of their increasing illicit use among young people. Questions about smokeless tobacco were added in 1986, while cigarette use has been covered since the study’s inception. In 1991, questions about “getting drunk” were added to the long-standing set of questions on alcohol use that already contained a measure on the frequency of having five or more drinks in a row during the prior two weeks. A question about the “club drug” Rohypnol was added to the secondary school questionnaires in 1996 and to the follow-up questionnaires in 2002. Special questions on the use of heroin by injection, as well as by other means, were added in 1995 as use by methods other than injection appeared to be rising. The 1999 survey incorporated new questions on the use of methamphetamine, and the 2000 survey added questions on the use of two additional club drugs, GHB and ketamine, as well as bidis (a type of flavored cigarette). Ritalin, kreteks, androstenedione, and creatine were added in 2001; OxyContin and Vicodin were included in the 2002 surveys. For 12th graders only, a question about flavored alcoholic beverages (sometimes called “malternatives” or “alcopops”) was added in the 2003 surveys. In 2004 the standard set of prevalence questions (lifetime, annual, and past 30-day use) replaced the single flavored alcoholic beverage question in the 12th-grade survey and was also added to the surveys for 8th and 10th grades as well as for follow-ups. In 2005, at the suggestion of the sponsor, a new set of questions was introduced on the subject of prescribed stimulant use for the treatment of attention

deficit hyperactivity disorder. In 2006, a question on use of nonprescription cough or cold medicines “to get high” was added—these medicines usually contain dextromethorphan which, when taken in large doses, can alter consciousness. Obviously, as time passes and new trends develop, additional drugs will be added to the study’s coverage.

Most of the information reported here deals with illicit use of controlled substances. The major exceptions are alcohol, cigarettes, smokeless tobacco, inhalants, nonprescription stimulants, creatine, and cough or cold medicines. In the questions about illicit use of psychotherapeutic drugs, respondents are asked to exclude any use under medical supervision.<sup>2</sup>

Throughout this report we have chosen to focus attention on drug use at the higher frequency levels rather than simply to report proportions that have ever used various drugs. This is done to help differentiate levels of seriousness, or extent, of drug involvement. While there is no public consensus on what levels or patterns of use constitute “abuse,” there is surely a consensus that higher levels of use are more likely than lower levels to have detrimental effects for the user and society. We have also introduced indirect measures of dosage per occasion by asking respondents about the duration and the intensity of the highs they usually experience with each type of drug. These items have shown some interesting trends over the years. Chapter 7 of *Volume I* reports those results.

### **Attitudes, Beliefs, and Early Experiences**

Separate chapters are devoted to the following variables related to a number of licit and illicit drugs: grade of first use; the respondents’ own attitudes and beliefs; and their perception of drug availability and related attitudes, beliefs, and behaviors of others in their social environment. Some of these variables have proven to be very important in explaining changes in use.

### **Risk and Protective Behaviors Related to the Transmission of HIV/AIDS**

In 2004, questions were introduced into the panel studies of respondents ages 21 to 30 (and for 35-year-olds beginning in 2007) that seek to determine the extent to which adults in this age range engage in behaviors that put them at particular risk of contracting HIV, the virus responsible for AIDS. The questions also ask about protective behaviors. Having such information on representative samples of the general population should prove particularly valuable in efforts to deal effectively with this important public health problem. Findings for these various risk and protective behaviors were reported in Chapter 10 of *Volume II* from 2005 to 2007. Beginning with the 2008 results, findings are presented in a separate monograph.

### **Over-the-Counter Substances**

Chapter 10 in *Volume I*, “Other Findings from the Study,” discusses use of nonprescription stimulants, including diet pills, stay-awake pills, and the “look-alike” pseudoamphetamines. Questions on these substances were added to the survey beginning in 1982 because use appeared to be on the rise, and it seemed that some respondents inappropriately included these substances in their answers about amphetamine use. That inappropriate inclusion affected some of the

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<sup>2</sup>Medically supervised use of such drugs is addressed in the 1977, 1978, 1981, and 1983 volumes in this series, which provide some data on the topic, as does the following article: Johnston, L. D., O’Malley, P. M., & Bachman, J. G. (1987). Psychotherapeutic, licit, and illicit use of drugs among adolescents: An epidemiological perspective. *Journal of Adolescent Health Care*, 8, 36–51.

observed trends in amphetamine use until the clarification in 1982. Since 2001, tables on the performance-enhancing substances androstenedione—which was an over-the-counter substance when we first measured its use, but is no longer—and creatine have been included in chapter 10 in *Volume I*. That section of chapter 10 also examines the degree of overlap in the reporting of steroid and andro use.

### **Cumulative Lifetime Daily Marijuana Use**

Chapter 10 in *Volume I* also presents trend results from a set of questions about cumulative lifetime marijuana use at a daily or near-daily level. These questions were added to enable us to develop a more complete individual history of daily use over a period of years. They reveal some interesting facts about the frequent users of this drug.

### **Sources of Prescription Drugs**

This study has previously reported on the growing importance of prescription-type psychotherapeutic drugs used without medical supervision. New questions were added to one 12th-grade questionnaire form in 2007 asking about where users secured several such drugs. A section in chapter 10 in *Volume I* reports responses to these questions, and this year for the first time it also contains estimates of the proportion of 12th-grade students who use *any* of the psychotherapeutic drugs in each prevalence period. These estimates can be made only for 12th graders, because measures of sedative and narcotic use are not available for students in the lower grades.

### **Synopses of Other Publications from the Study**

Chapter 10 in *Volume I* contains short synopses of several other publications from the study during the past year (journal articles, chapters, occasional papers, etc.). References are provided, and some are available for download from the MTF Web site.

### **Trends in the Use of Specific Alcoholic Beverages**

In 2003, tables were added to appendix D in *Volume I* giving the prevalence and trend estimates for the use of the specific classes of alcoholic beverages. Twelfth-grade data are reported for beer, liquor, wine, wine coolers, and flavored alcoholic beverages (added in 2003). For 8th and 10th grades, the measures were restricted to beer and wine coolers (though the category of wine coolers was dropped from the questionnaires in 2004 to make space for a more general class of flavored alcoholic beverages). The results on these various beverage classes are discussed in chapters 4 and 5 of *Volume I*.

### **Appendixes**

This volume contains six appendixes. Appendix A addresses the issue of whether missing the absentees and school dropouts from the study's sample coverage affects the results and, if so, to what extent. For illustrative purposes, it provides estimates of prevalence and trend results adjusted for these missing segments of the population for two drugs—marijuana and cocaine. Appendix B gives the exact definitions of the various demographic subgroups discussed in the volume. Appendix C provides a guide on how to calculate confidence intervals for point estimates and also how to calculate statistics that test the significance of changes over time or of differences between subgroups. While many tables in these volumes already contain such

statistics for selected point estimates and change intervals, some readers may wish to conduct additional computations. This appendix contains the necessary formulas and design-effect corrections to permit such computations.

Appendix D presents supplementary tables providing cross-time trends in the use of numerous drugs for the population's various demographic subgroups. Specifically, subgroups are differentiated on the basis of gender, college plans, region of the country, community size, parental education level (a proxy for socioeconomic status), and racial/ethnic group. The tables document a number of important subgroup differences in both levels and cross-time trends in drug use.<sup>3</sup> Appendix E provides trends (for 12th grade only) on individual drugs within the following general classes: hallucinogens other than LSD, amphetamines, tranquilizers, sedatives, and narcotics other than heroin.

Finally, appendix F, which appears for the first time this year, provides trends in drug use for the *three grades combined*. Based on the data from the three grades combined, they also show the absolute decline and the proportional decline in the prevalence of each drug since the most recent *peak* level (since 1991). Such tables have been sought by the Office of National Drug Control Policy in recent years, and are helpful in getting a quick read on the trends. By combining the three grades, however, we also lose a lot of the meaningful detail available from grade-specific estimates; however, those results are available throughout *Volume I*.

## **PURPOSES AND RATIONALE FOR THIS RESEARCH**

Perhaps no social problem has proven more clearly appropriate for, and in need of, the application of systematic research and reporting than that of substance abuse. Many of these behaviors are hidden from public view; also, many of them change rapidly and frequently. They are of great importance to the well-being of the nation, and many legislative and programmatic interventions are aimed at them, particularly in response to the increases in adolescent smoking and illicit drug use we reported in the 1970s and again in the 1990s.

Young people are often at the leading edge of social change, and this has been particularly true of drug use. The massive upsurge in illicit drug use during the last 35 to 40 years has proven to be a youth phenomenon, and this study documented that the relapse in the drug epidemic in the early 1990s initially occurred almost exclusively among adolescents. Adolescents and adults in their 20s fall into the age groups at highest risk for illicit drug use; moreover, for some drug users, use that begins in adolescence continues well into adulthood. The original epidemic of illicit drug use began on the nation's college campuses and then spread downward in age, but the more recent relapse phase first manifested itself among secondary school students and then started moving upward in age as those cohorts matured. From one year to the next, particular drugs rise or fall in popularity, and related problems occur for youth, their families, governmental agencies, and society as a whole.

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<sup>3</sup>Graphic presentations of these trends among the various demographic subgroups are available on the study's Web site ([www.monitoringthefuture.org](http://www.monitoringthefuture.org)) under Occasional Paper No. 71, which is listed under "Publications" and then under "Occasional Papers." Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Monitoring the Future Occasional Paper No. 71 [Online]. Ann Arbor, MI: Institute for Social Research.

One of the many important purposes of the Monitoring the Future series is to develop an accurate description of these important changes as they are unfolding. This is a formidable scientific task in and of itself, given the illegal nature of most of the phenomena under study. A reasonably accurate picture of the basic size and contours of the illicit drug use problem among young Americans is a prerequisite for informed public debate and policymaking. In the absence of reliable *prevalence* data, substantial misconceptions can develop and resources can be misallocated.

In the absence of reliable *trend* data, early detection and localization of emerging problems are more difficult and societal responses more lagged. For example, Monitoring the Future provided early evidence that cigarette smoking among American adolescents was rising sharply in the early 1990s, which helped stimulate and support some extremely important policy initiatives that culminated in the tobacco settlement between the tobacco industry and the states. More recently, Monitoring the Future documented and described the sharp rise and subsequent decline in ecstasy use; documenting the important role that perceived risk played in these changes, as it has done for a number of other drugs in the past. The study also helped draw attention to the rise in steroid and androstenedione use among adolescents in the late 1990s, resulting in some legislative and regulatory action with respect to these drugs; it also exposed a rise in the use of narcotic drugs other than heroin (especially certain prescription-type analgesics), stimulating an initiative at the White House Office of National Drug Control Policy aimed at reducing the use of such drugs. In addition to early detection and localization of problems, valid trend data make assessments of the impact of major historical and policy-induced events much less conjectural.

Finally, the accurate empirical comparison of subgroup differences has challenged conventional wisdom in some important ways. Accurately characterizing not only differences, but also differential changes among subgroups, has been another important scientific contribution of the study. For example, dramatic racial/ethnic differences in cigarette smoking have emerged during the life of the study—differences that were almost nonexistent when the study began in 1975. Further, the conventional wisdom that African-American students use illicit drugs more than white students has been disproven since the beginning of the study, with African Americans actually having lower rates of use of most substances.

MTF also monitors a number of factors—many of which are discussed in this series of volumes, including peer norms regarding drugs, beliefs about the dangers of drugs, and perceived availability—that we believe help explain the historical changes observed in drug use. In fact, monitoring these factors has made it possible to examine a central policy issue in this nation's war on drugs—namely, the relative importance of supply versus demand factors in bringing about some of the observed declines and increases in drug use. We have also developed a general theory of drug epidemics that uses many of these concepts to explain the rises and declines that occur in use and emphasizes the importance of demand-side factors.<sup>4</sup>

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<sup>4</sup>See Johnston, L. D. (1991). Toward a theory of drug epidemics. In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–132). Hillsdale, NJ: Lawrence Erlbaum. (This chapter is also available online at <http://www.monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf>.)

In addition to assessing prevalence and trends accurately and trying to determine their causes, MTF has a substantial number of other important research objectives that include (a) helping to determine which young people are at greatest risk for developing various short- and long-term patterns of drug abuse; (b) gaining a better understanding of the lifestyles and value orientations associated with various patterns of drug use, and monitoring how subgroup differences are shifting over time; (c) determining the immediate and more general aspects of the social environment associated with drug use and abuse; (d) determining how major transitions in social environment (e.g., entry into military service, civilian employment, college, homemaking, or unemployment) or in social roles (e.g., engagement, marriage, pregnancy, parenthood, divorce, and remarriage) affect drug use; (e) determining the life course and comorbidity of the various drug-using behaviors from early adolescence to adulthood, and distinguishing such age effects from cohort and period effects; (f) evaluating possible explanations of period and age effects, including determining the effects of social legislation on various types of substance use; (g) examining possible consequences of using various drugs; (h) examining linkages between educational success or failure and substance use; and (i) determining the changing connotations of drug use and changing patterns of multiple drug use among youth.<sup>5</sup> We believe that the differentiation of period, age, and cohort effects in the use of various substances has been a particularly important contribution of MTF, and it is one that the study's cohort-sequential research design is especially well suited to make. Readers interested in publications dealing with any of these other areas should visit the study's Web site (see below) or write the authors at Monitoring the Future, Survey Research Center, Institute for Social Research, The University of Michigan, Ann Arbor, Michigan, 48106-1248.

## **WEB SITE**

Up-to-date information about MTF may be found on the study's Web site at [www.monitoringthefuture.org](http://www.monitoringthefuture.org). This site contains a full listing of all publications from the study, including the full text and/or abstracts of many, as well as the full text of all press releases.

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<sup>5</sup>For an elaboration and discussion of the full range of MTF research objectives in the domain of substance abuse, see Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., & Bachman, J. G. (2006). *The aims and objectives of the Monitoring the Future study and progress toward fulfilling them as of 2006* (Monitoring the Future Occasional Paper No. 65). Ann Arbor, MI: Institute for Social Research.

## Chapter 2

# KEY FINDINGS AN OVERVIEW AND INTEGRATION ACROSS FIVE POPULATIONS

Monitoring the Future, now in its 34th year, has become one of the nation's most relied-upon sources of information on changes taking place in licit and illicit psychoactive drug use among American adolescents, college students, young adults, and more recently, middle-aged adults. During the last three and a half decades, the study has tracked and reported on the use of an ever-growing array of such substances in these populations.

This annual series of monographs is one of the major vehicles by which the epidemiological findings from MTF are reported. Findings from the inception of the study in 1975 through 2008 are included—the results of 34 national in-school surveys and 32 national follow-up surveys.

MTF has conducted in-school surveys of nationally representative samples of (a) 12th-grade students each year since 1975 and (b) 8th- and 10th-grade students each year since 1991. In addition, beginning with the class of 1976, the project has conducted follow-up mail surveys on representative subsamples of the respondents from each previously participating 12th-grade class. These follow-up surveys now continue well into adulthood.

A number of important findings have been summarized in this chapter to provide the reader with an overview of the key results. Because so many populations, drugs, and prevalence intervals are discussed here, a single integrative set of tables (Tables 2-1 through 2-4) show the 1991–2008 trends for all drugs on five populations: 8th-grade students, 10th-grade students, 12th-grade students, full-time college students modal ages 19–22, and all young adults modal ages 19–28 who are high school graduates. (Note that the young adult group includes the college student population.) *Volume II* also contains data on older age bands based on the longer term follow-up surveys: specifically, ages 35, 40, 45, and 50.

## TRENDS IN ILLICIT DRUG USE—THE ADVENT OF COHORT EFFECTS

Early in the 1990s, we noted an increase in use of several illicit drugs among secondary school students, and some important changes among the students in terms of certain key attitudes and beliefs related to drug use. In the volume reporting 1992 survey results, we noted the beginning of such reversals in both use and attitudes among 8th graders, the youngest respondents surveyed in this study, and also a reversal in attitudes among 12th graders. Specifically, the proportions seeing great risk in using drugs began to decline, as did the proportions saying they disapproved

of use. As we suggested then, those reversals indeed presaged “an end to the improvements in the drug situation that the nation may be taking for granted.” The use of illicit drugs rose sharply in all three grade levels after 1992 as negative attitudes and beliefs about drug use continued to erode. This pattern continued into the mid-1990s, and beyond that for some drugs.

In 1997, for the first time in six years, the overall rate of *illicit drug use* finally began to decline among 8th graders. Although marijuana use continued to rise that year among 10th and 12th graders, their use of several other drugs leveled off, and relevant attitudes and beliefs also began to reverse in many cases. In 1998, illicit drug use continued a gradual decline among 8th graders and started to decline at 10th and 12th grades. In 1999 and 2000 the decline continued for 8th graders, whereas use held fairly level among 10th and 12th graders. In 2002 and 2003, use by 8th and 10th graders decreased significantly, and use by 12th graders finally began to drop, albeit by less than a statistically significant amount. Nonsignificant declines continued for all three grades in 2004. The long-term decline in illicit drug use among 8th graders paused in 2005, but continued among 10th and 12th graders. Annual prevalence declined in all three grades in both 2006 and 2007, and the 8th-grade decline in 2007 was statistically significant. The decline continued among 10th graders in 2008; however, illicit drug use increased among 8th and 12th graders in 2008, possibly signaling an end to the immediately preceding period of decline. As we have noted previously, the gradual decline observed among 8th graders suggested an eventual further decline at the upper grades as the 8th graders aged. We are seeing those declines, though they are a bit erratic.

As will be illustrated below in the discussion of specific drugs, the increase in use of many drugs during the 1990s among secondary school students, combined with fairly level rates of use among college students and young adults, resulted in some unusual reversals in the usage rates by age (see Figure 2-1). In the early years of the epidemic, illicit drug use rates were clearly higher in the college-age group (and eventually the young adults) than they were among secondary school students. But by the late 1990s, the highest rates of active use (i.e., use within the prior year or prior 30 days) were found in the late secondary school years. In fact, in 1996 and 1997 both 10th and 12th graders actually had higher annual prevalence rates for illicit drug use (i.e., higher percentages reporting use within the prior year) than either college students or all young adults. This changed somewhat after 2001, as the earlier heavier using cohorts of adolescents began to comprise the college student and young adult populations, while at the same time use among the secondary school students was declining.

- In 2008, the rank order by age group for annual prevalence of using *any illicit drug* was 12th graders (37%), college students (35%), 19- to 28-year-olds (34%), 10th graders (27%), and 8th graders (14%). With respect to using *any illicit drug other than marijuana* in the past 12 months, the rank order was 19- to 28-year-olds (19%), 12th graders (18%), college students (15%), 10th graders (11%), and 8th graders (7%). As can be seen by this divergence of trends for the different age groups, something other than a simple secular trend in drug use was taking place; specifically, important cohort differences were emerging.

- From the early 1990s until 1997, *marijuana* use rose sharply among secondary school students, as did their use of a number of *other illicit drugs*, though more gradually. We have called this period a “relapse phase” in the longer term epidemic. An increase in marijuana use also occurred among American college students, largely reflecting “generational replacement” (i.e., a cohort effect), wherein earlier cohorts were replaced in the college population by more recent ones who were more drug-experienced before they left high school. This resurgence in illicit drug use spread *up* the age spectrum in a reversal of the way the epidemic spread several decades earlier. In the 1960s the epidemic began on the nation’s college campuses, and then diffused downward in age to high school students and eventually to middle school students. This time the increases began in middle schools and radiated up the age spectrum. The graduating class cohorts in the middle and late 1990s carried with them the pattern of heavier drug use that emerged while they were in secondary school in the early 1990s.

The increases during the 1990s in use of *any illicit drug* (including use of *marijuana* and use of *other illicit drugs* treated as a class) were substantially larger, in both proportional and absolute terms, in the three secondary school grades than in either the college or young adult populations. Among college students and young adults, the annual prevalence of use of *any illicit drug* held remarkably stable from 1991 through 1997, at the same time that use rose appreciably among adolescents (Figure 2-1). We projected that, as generational replacement continued to occur, we would likely see some increase in use of illicit drugs by the young adults. As would be expected given their younger age range (19–22), the increase happened sooner and more sharply among the college students than among the young adults in general (age range 19–28). Peak rates (since 1990) in annual prevalence of any illicit drug were reached in 1996 among 8th graders, in 1997 among 10th and 12th graders, in 2001 among college students, and in 2008 in the young adult segment. Similarly, the more recent declines in use among secondary students have thus far shown up only modestly among college students, and even less so among young adults.

Again, these diverging trends across age groups clearly show that changes during the 1990s reflected some important cohort effects rather than broad secular trends that would have appeared simultaneously in all of the age groups. During all of the previous years of the study, the use of most drugs moved in parallel across most age groups, indicating that secular change was prevailing.

- Similar to the use patterns for illicit drugs, the trend for *cigarette* smoking evidenced a generational replacement effect during the 1990s in that college students showed a sharp increase in smoking beginning in 1995, as the heavier smoking cohorts of adolescents from the early to mid-1990s entered college. This has been a more typical pattern of change for cigarettes, however, since differences in cigarette smoking rates among class cohorts tend to remain through the life course and also tend to account for much of the overall change in use observed at any given age.

In the early 1990s, cigarette smoking among 8th and 10th graders rose by about 50%—a particularly sharp and worrisome rise (based on 30-day prevalence rates shown in Table

2-3, and daily and half-pack rates shown in Table 2-4); MTF helped draw national attention to this worrisome situation. Smoking also rose among 12th graders, beginning a year later.

The increase in current smoking ended among 8th and 10th graders in 1996, among 12th graders in 1997, and among college students in 1999. The nation then entered a period of appreciable decline in smoking rates that first began among 8th graders in 1997 and then began radiating up the age spectrum as those cohorts aged. (The 8th-grade 30-day prevalence rate fell from 21% in 1996 to 7% in 2008.) But among the college and the young adult strata, the declines have been less clear. The 30-day smoking prevalence rate for college students in 2008 (18%) is down about four tenths from the recent peak of 31% in 1999, with the decline accelerating after 2005 as the cohort effect worked its way up the age bands. Smoking among the young adult subgroup, on the other hand, has only dropped by one fifth (to 25%) since its recent peak rate of 31% in 1998. The decline in smoking rates among secondary school students has been decelerated in all three grades in recent years.

- During the 1990s, the annual prevalence of *marijuana* use tripled among 8th graders (from 6% in 1991 to 18% in 1996), more than doubled among 10th graders (from 15% in 1992 to 35% in 1997), and nearly doubled among 12th graders (from 22% in 1992 to 39% in 1997). Among college students, however, the increase in marijuana use, presumably due to a generational replacement effect, was much more gradual. Annual prevalence of use rose by about one third, from 27% in 1991 to 36% in 1998. Marijuana use began to decline in 1997 among 8th graders and then did the same in 1998 among 10th and 12th graders. The rate of decline was rather modest, however, perhaps due in part to effects of the public debates over medical use of marijuana during that period. In 2001, use remained level in all three grades, but between 2001 and 2004 all three grades showed significant declines in their annual prevalence of marijuana use, with the proportional decline greatest among 8th graders. The 8th graders have shown the most steady long-term decline since their recent peak, which occurred in 1996, although the decline halted in 2008, for a 40% drop since 1996. Declines had been occurring in the upper grades after 1997, but mostly since about 2001, with their annual prevalence rates having fallen from recent peaks by 31% and 16% (since 1997) for 10th and 12th graders, respectively. The decline in annual marijuana use from recent peak levels among college students has so far been quite modest, declining from 36% in 2001 to 32% in 2008. Young adults showed very little change in that interval (see Table 2-2).

*Daily marijuana use* in all of these groups rose substantially after 1992, reaching peak levels in a somewhat staggered fashion as that just described (see Table 2-4). Daily use began a slow decline after 1999 among 8th graders, after 2001 among 10th graders, and after 2003 among 12th graders, consistent with a cohort effect pattern. College student and young adult rates have been fairly level in recent years. In general, prevalence of daily marijuana use has been slow to decline, even though annual and 30-day prevalence figures have been dropping. Still, the rates today are low in relation to the peaks reported in the late 1970s. For example, 12th graders' daily prevalence of use of 5.4% in 2008 is

half the 10.7% peak figure reached in 1978—at the height of the illicit drug epidemic—and a bit below the recent high of 6.0% recorded in 2003.

The amount of perceived risk associated with using marijuana fell during the earlier period of increased use in the late 1970s, and fell again during the more recent resurgence of use in the 1990s. Indeed, perceived risk among 12th graders began to decline a year *before* use began to rise in the upturn of the 1990s, making perceived risk a leading indicator of change in use. (The same may have happened in 8th grade, as well, but we do not have data starting early enough to check that possibility.) The decline in perceived risk halted after 1997 for 8th and 10th graders, and annual prevalence began to decline a year or two later. Again, perceived risk was a leading indicator of change in use, as it has proven to be for a number of drugs. As discussed in *Volume I*, chapter 8, these attitudes show evidence of cohort effects over the past decade and a half.

Personal disapproval of marijuana use slipped considerably among 8th graders between 1991 and 1996 and among 10th and 12th graders between 1992 and 1997. For example, the proportions of 8th, 10th, and 12th graders who said they disapproved of trying marijuana once or twice fell by 17, 21, and 19 percentage points, respectively, over those intervals of decline. There has since been some increase in disapproval among 8th graders and, beginning more recently, among 10th and 12th graders.

- Among 12th graders, the proportions using *any illicit drug other than marijuana* in the past year rose from a low of 15% in 1992 to 22% in 2001 (see Table 2-2); these levels are substantially below the 34% peak rate reached two decades earlier, in 1981. All of the younger groups showed significant increases between 1992 and 1997, with use beginning to increase in 1992 among 8th graders, in 1993 among 10th and 12th graders, and in 1995 among college students—again reflecting evidence of a cohort effect. Use peaked in 1996 among 8th and 10th graders and by 1997 among 12th graders; it appears to have peaked around 2004 among the college students and young adults. The 8th graders have shown some gradual decline in their use of the other illicit drugs, treated as a class, since 1996 with some leveling in 2008; the decline among 10th graders paused after 1998 and did not resume until after 2001, pausing again in 2007 and then decreasing significantly in 2008; 12th-grade use also showed some declines after 2001, and stands just three percentage points lower (at 18%) in 2008. College students have begun to show some decline in use over the past several years, whereas among young adults, there is no evidence yet of a decline in the proportions using any illicit drug other than marijuana.
- Between 1989 and 1992 we noted an increase among 12th graders, college students, and young adults in their use of *LSD*, a drug quite popular in the late 1960s and early 1970s. In 1992 the newly added populations (8th and 10th graders) were also showing an increase in LSD use; for several more years, modest increases persisted in all five populations. Use of LSD peaked in 1995 among college students and young adults and in 1996 among 8th, 10th, and 12th graders, after which LSD use gradually declined in all five populations until 2001, then it dropped sharply in 2002. Overall, the pattern for LSD use seems more consistent with secular change than a cohort effect. The different age

groups moved in parallel for the most part, likely in response to historical events in the environment, including a sharp reduction in LSD availability after 2001.

Prior to the significant increase in LSD use among 12th graders in 1993, there was a significant 4.3-percentage-point decline between 1991 and 1992 in the proportion seeing great risk associated with trying LSD. (Once again, perceived risk proved to be a leading indicator of change in use.) The decline in perceived risk continued through 1997 and halted in 1998. The proportion of 12th graders disapproving of LSD use began to decline in 1992, and continued to decline through 1996.

Because LSD was one of the earliest drugs to be popularly used in the American drug epidemic, young people in the 1990s may have been relatively unaware of the risks of use. They had less opportunity to learn vicariously about the consequences of use by observing others around them or to learn from intense media coverage of the issue, which occurred some years earlier. We were concerned that this type of generational forgetting of the dangers of a drug, which occurs as a result of generational replacement, could set the stage for a whole new epidemic of use. In fact, perceived harmfulness of LSD began to decline after 1991 among 12th graders. Perceived risk and disapproval among 8th and 10th graders, first measured in 1993, both showed declines until 1997 or 1998, after which they leveled and then declined some more. In 2004, twelfth graders' personal disapproval of trying LSD increased significantly, with no further change until 2008 when disapproval dropped back to the 2003 level. Because the decline in use in the last few years has generally *not* been accompanied by expected changes in these attitudes and beliefs, we suspected that some displacement by another drug might have been taking place, at least through 2001. The most logical candidate is *ecstasy (MDMA)*, which, like LSD, is used for its hallucinogenic effects; ecstasy was popular in the club and rave scenes, and was very much on the rise through 2001. After 2001, a sharp decline in the reported availability of LSD in all five populations (which corresponded to the closing of a major LSD lab by the DEA) very likely played a major role in the sharp decline in use among all of them. However, we want to caution that young people's attitudes are changing such as to make them receptive to LSD use some time in the future, should a plentiful supply re-emerge.

- Questions about the use of *ecstasy (MDMA)* have been included in the follow-up surveys of college students and young adults since 1989; however, because of our concern about stimulating interest in an attractive-sounding and little-known drug, these questions were not added to the secondary school surveys until 1996. From 1989 to 1994, the annual prevalence rates tended to be quite low in the older age groups for whom we had data, but in 1995 these rates increased substantially—from 0.5% in 1994 to 2.4% in 1995 among college students, and from 0.7% to 1.6% over the same time span among young adults generally.

When usage data were first gathered on secondary school students in 1996, the 10th and 12th graders actually showed higher rates of annual use (both 4.6%) than the college students (2.8%). Ecstasy use then fell steadily at all three grades between 1996 and 1998, though it did not fall in the older age groups. But between 1998 and 2001, use rose

sharply in all five populations. In fact, annual prevalence more than doubled in that three-year period among 12th graders, college students, and young adults, and nearly doubled in the lower grades. In 2000 even the 8th graders showed a significant increase in use. Ecstasy use for all five age groups declined slightly in 2002, but significantly only for 10th graders; declined again in 2003, with significant drops for all groups except the college students; and showed some decline again in 2004, with the largest decreases among college students and young adults. This pattern suggests that both cohort effects and a secular trend were at work. Once again, this decline in use among 12th graders was predicted by an increase in perceived risk in 2001—an increase that continued through 2005. The annual prevalence fell by half in 2004 alone among college students, and all five groups are at rates that range from just under one half to three quarters lower than their recent peaks in 2001. Since 2004, use has been fairly stable among secondary school students, but continued to decline some among college students and young adults generally.

Ecstasy use among all five populations has been moving fairly synchronously since 1999, which suggests that a secular trend (some change in events in the social environment) has affected everyone. An important change during this period was the increasing availability of information on the adverse effects of ecstasy use via stories in the popular media, dissemination of the scientific evidence by the National Institute on Drug Abuse, and an anti-ecstasy media campaign by the Partnership for a Drug-Free America and the Office of National Drug Control Policy, initiated in 2002.

The quite dramatic increase in reported availability of ecstasy through 2001, reported by 12th graders, was substantiated by law enforcement data on ecstasy seizures. Of the 12th graders surveyed in 1991, only 22% thought they could get ecstasy fairly easily, but a decade later (in 2001) 62% thought that they could. After 2001, however, the perceived availability of ecstasy began decreasing in all three grades, possibly due in part to the steep decline in the number of users, who serve as supply points for others. The decreases continued into 2007 among 8th graders and then halted in 2008. In the upper grades, decline in perceived availability halted in 2007, followed in 2008 by some further downturn among 10th graders and some increase among 12th graders. See Figure 8-6 in *Volume I*, chapter 8 for a graphic presentation of the trends in ecstasy use, availability, and perceived risk for 12th graders.

- Between 1982 and 1992, annual prevalence rates for *amphetamine* use (other than use that was ordered by a physician) among 12th graders fell by nearly two thirds, from 20.3% to 7.1%. Rates among college students fell even more over the same interval, from 21.1% to 3.6%. During the relapse phase in the drug epidemic in the 1990s, annual amphetamine use increased by about half among 8th and 10th graders between 1991 and 1996, and also increased among 12th graders and college students between 1992 and 1996. After 1996 the age groups diverged, with amphetamine use declining gradually among 8th and 10th graders and continuing to rise among 12th graders, college students, and young adults until about 2002. The decline continued through 2004 for 8th graders and through 2005 for 10th graders, while the rise among 12th graders and college students finally halted by 2003. The 12th graders finally exhibited a significant decline in

annual prevalence of amphetamine use in 2005, and college students showed a leveling after 2006. Young adults have not shown a clear pattern of decline; their rates of amphetamine use have been stable since 2000. In 2008 all except the 8th graders showed further declines in use, although only the 10th-grade decline reached statistical significance. This pattern of cross-age-group change suggests a cohort effect at work for amphetamine use.

The increase in nonmedical use of amphetamines (and a concurrent decrease in disapproval) began among 12th graders in 1993; it followed a sharp drop in perceived risk a year earlier (which, as we have noted for a number of drugs, often serves as a leading indicator). Following a period of decline, both perceived risk and disapproval among 12th graders generally increased from 1995 through 2007 for perceived risk and through 2008 for disapproval. Nonmedical use of amphetamines among 12th graders remained fairly steady from 1997 through 2004, and then decreased from 2004 to 2008.

- Use of the amphetamine *Ritalin* outside of medical supervision showed a distinct increase around 1997—with annual prevalence among 12th graders going from 0.1% in 1992 to 2.8% in 1997—and then stayed level for a few years (see appendix E in *Volume I*, Table E-2<sup>6</sup>). Because of its increasing importance, a differently structured question was introduced for Ritalin use in 2001. This new question, which we prefer to the original, does not use a prior branching question and produced somewhat higher prevalence rates. Results from the new question suggest an ongoing, gradual decline in Ritalin use in all five populations, which continued into 2008 in all populations except 10th graders, whose use leveled that year.
- *Methamphetamine* questions were introduced in 1999 because of rising concern about use of this drug; but a decline in use has been observed among all five populations in the years since then, although young adults did not show declines until 2005. In 2007 this decline continued in all five populations, and was significant in grades 8 and 12. In 2008, there was some decrease for 12th graders and young adults; use in the other populations leveled. These declines occurred during a period in which there were many stories in the media suggesting that methamphetamine use was a *growing* problem—an example of the importance of having objective epidemiological data available against which to test conventional wisdom.
- Measures on the use of *crystal methamphetamine (ice)* (a crystallized form of methamphetamine that can be smoked, much like crack) have been included in MTF since 1990. The use of crystal methamphetamine increased between the early and late 1990s among the three populations asked about their use: 12th graders, college students, and young adults. The estimates are less stable than usual due to the relatively small sample sizes asked about this drug, but it appears that crystal methamphetamine use held

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<sup>6</sup>As discussed in appendix E of *Volume I*, the absolute prevalence rates for Ritalin were probably higher than these statistics indicate, but the trend story is likely quite accurate. See Table 2-2 for more accurate estimates of the absolute annual prevalence rates in recent years; these estimates are based on a new question that does not require the respondent to first indicate some amphetamine use before asking about his or her Ritalin use.

fairly steady from 1999 through 2005 among 12th graders, after which it began to decline, including a significant drop in 2008. Use rose somewhat among college students and other young adults until 2005, before trailing off some since then.

- **Inhalants** are defined as fumes or gases that are inhaled to get high, and they include common household substances such as glues, aerosols, butane, and solvents of various types. Among 12th graders there was a long-term gradual increase in the use of inhalants (unadjusted for nitrite inhalants) from 1976 to 1987, followed by a leveling for a few years and then a further increase in the 1990s. In the early 1990s, there was a troublesome increase in inhalant use among secondary school students generally, followed by a reversal after 1995. After reaching a low point in 2002 or 2003 in grades 8, 10, and 12, use of inhalants increased some in all grades, but then declined in all grades more recently, at least through 2007. Perceived risk among 8th and 10th graders was declining fairly steadily after 2001, quite possibly as a result of generational forgetting of the dangers of these drugs; this decline halted among the 8th graders, but then resumed in 2008. A new anti-inhalant campaign might well be effective in offsetting this decline in perceived risk in recent years, much as a similar campaign did in the mid-1990s.
- One class of inhalants, **amyl and butyl nitrites**, became somewhat popular in the late 1970s, but their use has been almost eliminated. The annual prevalence rate among 12th-grade students was 6.5% in 1979 but only 0.6% in 2008. When nitrites were included in the definition of inhalants, they masked the increase that was occurring in the use of other inhalants, because their use was declining (Figure 5-4c in *Volume I*).
- **Crack cocaine** use spread rapidly from the early to mid-1980s. Still, among 12th graders, the use of crack remained relatively low during this period (3.9% annual prevalence in 1987). Clearly, crack had quickly attained a reputation as a dangerous drug, and by the time of our first measurement of perceived risk in 1987, it was seen as the most dangerous of all drugs. Annual prevalence dropped sharply in the next few years, reaching 1.5% by 1991, where it remained through 1993. Perceived risk began a long and substantial decline after 1990; use began to rise gradually after 1993, from 1.5% to 2.7% by 1999, before finally declining slightly in 2000 and then leveling until 2008, when there was a significant decline in use.

Among 8th and 10th graders, crack use rose gradually in the 1990s: from 0.7% in 1991 to 2.1% by 1998 among 8th graders, and from 0.9% in 1992 to 2.5% in 1998 among 10th graders. And, as just discussed, use among 12th graders peaked in 1999 at 2.7% and among young adults at 1.4%. Since those peak years, crack use has declined appreciably—by about half among 8th and 10th graders, and two fifths among 12th graders—yet it has held fairly steady among college students and young adults, at least until 2007, when use among college students finally appeared to decline. In general, the prevalence rates for this drug are relatively low—between 0.5% and 1.6% in all five groups. Twelfth graders have the highest prevalence rate, and within that group annual crack prevalence among the college-bound is considerably lower than among those not bound for college (1.1% for college-bound versus 3.3% for non-college-bound in 2008).

All five populations showed small declines in crack use in 2008, with that at 12th grade being significant.

We believe that the particularly intense and early media coverage of the hazards of crack cocaine likely had the effect of capping an epidemic early by deterring many would-be users and motivating many experimenters to desist use. As has been mentioned, when we first measured crack use in 1987, it had the highest level of perceived risk of any illicit drug. Also, it did not turn out to be “instantly addicting” upon first-time use, as had been widely reported. In recent years, roughly 3% of 12th graders reported trying crack; however, only about 1% reported any use in the prior month, and of these recent users, only about half (i.e., about 0.5% of the total sample) reported using crack more than one or two times in the prior month. It thus appears that, among the small numbers of 12th graders who have ever tried crack, the great majority did not establish a pattern of continued use, let alone develop an addiction.

In 1993 the levels of perceived risk and disapproval associated with crack dropped in all three grade levels, foretelling the rise in use that occurred in all three grades between 1994 and 1998. Because more than a decade had passed since the 1986 media frenzy over crack and its dangers, it is quite possible that generational forgetting of the risks of this drug contributed to the declines in risk and disapproval. Indeed, perceived risk of crack use eroded steadily at all grade levels from 1991 (or 1992 for 12th graders) through 2000. There has not been much systematic change in risk or disapproval of crack since then.

- Use of *cocaine*<sup>7</sup> in general began to decline a year earlier than crack, probably because crack was still in the process of diffusing to new parts of the country, being still quite new. Between 1986 and 1987 the annual prevalence rate for cocaine dropped dramatically, by about one fifth in all three populations being studied at that time—12th graders, college students, and young adults. The decline occurred when young people finally began to view experimental and occasional use—the type of use in which they are most likely to engage—as more dangerous. This change was probably influenced by the extensive media campaigns that began in the preceding year, but also almost surely by the highly publicized cocaine-related deaths in 1986 of sports stars Len Bias and Don Rogers. By 1992 the annual prevalence of cocaine use had fallen by about two thirds among the three populations for which long-term data are available (12th graders, college students, and young adults).

During the resurgence of illicit drug use in the 1990s, however, cocaine use in all five age populations increased some, both beginning and ending in a staggered pattern by age, consistent with a cohort effect. Use rose among 8th graders from 1991 to 1998, among 10th and 12th graders from 1992 to 1999, among college students from 1994 to 2004, and among young adults from 1996 through 2004. As with crack, all five populations showed some decline in cocaine use in 2008, though none reached statistical significance.

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<sup>7</sup>Unless otherwise specified, all references to “cocaine” refer to the use of cocaine in any form, including crack.

The story regarding attitudes and beliefs about cocaine use is informative. Having risen substantially after 1986, the perceived risk of using cocaine actually showed some (nonsignificant) decline in 1992 among 12th graders. In 1993, perceived risk for cocaine powder fell sharply in all grades and disapproval began to decline in all grades, though not as sharply as perceived risk. The decline in perceived risk had virtually ended by 1995 among 8th graders, by 1998 among 10th graders, and by 2001 among 12th graders, suggesting a cohort effect at work in this important belief, which tends to drive use. Disapproval declined between 1991 and 1996 among 8th graders, before leveling (until 2007, when a significant increase was observed followed by some decline in 2008); it also declined from 1992 through 1998 among 10th and 12th graders, with the exception of increases for 12th graders in 1995 and 2008. These changes foretold a subsequent leveling of use at each grade level. Use has since drifted down gradually in the lower grades and more recently among college students and young adults generally.

The perceived availability of cocaine among 12th graders rose steadily from 1983 to 1989, suggesting that availability played *no* role in the substantial downturn in use that occurred after 1986. After 1989, however, perceived availability fell some among 12th graders—which may be explained in part by the greatly reduced proportions of 12th graders who said they have any friends who use, because friendship circles are an important part of the supply system. From 1992 through 1998 or 1999, perceived availability of cocaine powder changed little in the three grades, but after 1998 it declined fairly steadily among 8th graders through 2004 and among 10th and 12th graders through 2003, after which it leveled in 8th grade and eventually in 10th grade followed by a drop in 2008 among both 10th and 12th graders.

As with all the illicit drugs, lifetime cocaine prevalence climbs with age; in 2008 it reached 40% among 50-year-olds. Unlike all of the other illicit drugs, active use of cocaine—i.e., annual or monthly prevalence—holds fairly steady after high school (and, until recent years, its use actually increased after high school) rather than declining (see Figure 4-7 in *Volume II*). Nearly all of the other illicit drugs show a decline in active use with age.

- **PCP** use fell sharply among 12th graders between 1979 and 1982, from an annual prevalence of 7.0% to 2.2%. It reached a low point of 1.2% in 1988, rose some in the 1990s to 2.6% in 1996 during the relapse period in the drug epidemic, and then declined to 1.1% by 2002, with little change thereafter. For young adults, the annual prevalence rate has fluctuated between 0.1% and 0.6%.
- Looking at the long-term trends, we see that the annual prevalence of **heroin** use among 12th graders fell by half between 1975 (1.0%) and 1979 (0.5%), then stabilized for 15 years, through 1994. Heroin use was also stable in the early 1990s among the other four populations covered here. Then, in 1994 for 8th graders and in 1995 for all other groups, use suddenly increased, with rates doubling or tripling in one or two years for 12th graders, college students, and young adults, and then remaining at the new higher levels among all five populations for the rest of the decade. Between 1999 and 2000, however, use significantly decreased among 8th graders (from 1.4% to 1.1%) and significantly

increased among 12th graders (from 1.1% to 1.5%), with the latter change due entirely to an increase in noninjection use. Use of heroin declined significantly among 10th and 12th graders in 2001, as did use of heroin without a needle. In 2002 little change took place among the secondary school students, but young adults showed a significant decline in their reported heroin use. A significant decline in use of heroin overall, as well as use of heroin without a needle, occurred among 10th graders in 2003. In sum, all age groups except for the young adults have annual prevalence rates of heroin use in 2008 that are below recent peaks (by roughly one third to one half in the case of 8th, 10th, and 12th graders, but by less among college students); there is no evidence of any ongoing trends at present. In 2008 the young adults showed a nonsignificant increase back to their peak level of 0.5%, last seen in 2001. Next year's survey may indicate whether the 2008 finding is just a sampling anomaly or an indication of a real trend.

Two factors very likely contributed to the upturn in heroin use in the 1990s. One is a long-term decline in the perceived risk of harm, probably due to generational forgetting, because it had been a long time since the country had experienced a heroin epidemic along with publicity about its accompanying casualties. The second factor, not unrelated to the first, is that in the 1990s the greatly increased purity of heroin allowed it to be used by means other than injection. This may have lowered an important psychological barrier for some potential users, making heroin use less aversive and seemingly less addictive and less risky in general, because avoiding injection reduces the likelihood of transmission of HIV, hepatitis, or other serious blood-borne diseases. By introducing some new questions on heroin use in 1995, we were able to show that significant proportions of past-year users in all five populations were indeed taking heroin by means other than injection (see Table 2-2 and chapter 4 in both *Volume I* and *Volume II* for details).

The risk perceived to be associated with heroin fell for more than a decade after the study began, with 60% of the 1975 twelfth graders seeing a great risk of trying heroin once or twice, and only 46% of the 1986 twelfth graders saying the same. Between 1986 and 1991, perceived risk rose some, from 46% to 55%, undoubtedly reflecting the newly recognized threat of HIV infection associated with heroin injection. After 1991, however, perceived risk fell again (to 51% by 1995), this time perhaps reflecting the fact that the newer heroin available on the street could be administered by methods other than injection. Between 1996 and 1998, perceived risk among 12th graders rose—possibly as the result of an antiheroin campaign launched by the Partnership for a Drug-Free America in June 1996, as well as the visibility of heroin-related deaths of some celebrities in the entertainment and fashion design worlds. The perceived risk of trying heroin decreased among 12th graders in 1999, however, foretelling a significant increase in their use of the drug in 2000. In 2001, as the perceived risk of trying heroin increased slightly, 12th-graders' use declined significantly. In recent years there has been little change in the perceived risk of heroin use, at least until it fell by three percentage points in 2008.

Questions about the degree of risk perceived to be associated with heroin use were introduced into the questionnaires for 8th and 10th graders in 1995. The questions asked

specifically and only about use “without using a needle” because we thought this was the form of heroin use of greatest concern at that point. (Similar questions were asked of 12th graders, as well, in one of the six questionnaire forms.) In general, perceived risk for heroin use without a needle rose some in 12th grade in 1996 and 1997, before leveling, and has held quite steady among 8th and 10th graders since it was first measured.

- The use of *narcotics other than heroin* is reported only for 12th graders and older populations because we believe that younger students are not accurately discriminating among the drugs that should be included or excluded from this general class. Use declined gradually over most of the first half of the study in these groups. Twelfth graders had an annual prevalence rate in 1977 of 6.4%, which fell to 3.3% by 1992. But after about 1992 or 1993, all of the older age groups showed continuing increases for a decade or more, through 2003 or 2004, before stabilizing. An updating of the list of examples given in the question stem in 2002 led to an increase in reported prevalence. After a considerable increase in use from 1992 through 2001 during the relapse phase in the general epidemic and going beyond it, the use of narcotics other than heroin has remained relatively constant, but at the highest levels ever recorded by the study.

The specific drugs in this class are listed in Table E-4 in appendix E of *Volume I*. Among these, *Vicodin*, *codeine*, *OxyContin*, and *Percocet* are commonly mentioned by 12th graders in recent years. They also account for much of the increase in use of the general class, though reported use of other substances in the class have increased as well.

- In 2002, specific questions were added for two drugs in this class—*Vicodin* and *OxyContin*—and the observed prevalence rates suggest that these two drugs very likely help to account for the upturn in use of the general class of narcotics other than heroin. In 2003, Vicodin had attained surprisingly high prevalence rates in the five populations under study here—an annual prevalence of 2.8% in 8th grade, 7.2% in 10th grade, 10.5% in 12th grade, 7.5% among college students, and 8.6% among young adults. In 2008 the rates were similar, at 2.9%, 6.7%, 9.7%, 6.7%, and 9.1% (respectively). Lower annual prevalence rates were found for OxyContin than Vicodin in 2003 across all age groups—1.7%, 3.6%, 4.5%, 2.2%, and 2.6%, respectively—but given that it is a highly addictive narcotic drug, the rates are not inconsequential. In 2008 the respective annual prevalence rates were generally a little higher: 2.1%, 3.6%, 4.7%, 3.6%, and 3.9%. Because OxyContin has received considerable adverse publicity in recent years, it is possible that perceived risk (which we do not measure) will increase. But because its use appears to have originated in several fairly delimited geographic areas, it seems likely that OxyContin was diffusing to new communities for some time, which may have delayed its turnaround overall, as we judge to have happened earlier for crack and ecstasy.
- Annual prevalence of *tranquilizer* use among 12th graders saw a long and substantial decline from 11% in 1977 to 2.8% in 1992. After 1992, use increased significantly among 12th graders (as has been true with most drugs), reaching 7.7% in 2002 (but the question was revised slightly in 2001 to include Xanax as an example of a tranquilizer, so a small portion of the increase may be an artifact). Since then annual prevalence has

leveled or even dropped a bit (6.2% in 2008). Reported tranquilizer use also increased modestly among 8th graders, from 1.8% in 1991 to 3.3% in 1996, before declining to 2.6% in 1998 and leveling since then. As with a number of other drugs, the downturn in use began considerably earlier among 8th graders compared to their older counterparts. Among 10th graders, annual prevalence remained stable between 1991 and 1994 at around 3.3%, and increased significantly to 5.6% in 2000 and 7.3% in 2001 (possibly including some artifact, as noted above). Use declined a bit after 2001, reaching 4.6% in 2008. After a period of stability, college student use showed an increase between 1994 and 2003, more than tripling in that period. For the young adult sample, after a long period of decline, annual prevalence more than doubled between 1997 and 2002, with little change thereafter. Most of the reported tranquilizer use in recent years has involved *Valium* and *Xanax* (see Table E-3 in appendix E of *Volume I*).

- The long-term gradual decline in *sedative (barbiturate)* use among 12th graders, which has been observed since the start of the study in 1975, halted in 1992. (Data are not included here for 8th and 10th graders, again because we believe that these students have more problems with proper classification of the relevant drugs.) Use among 12th graders then rose during the relapse phase in the drug epidemic, from 2.8% in 1992 to 6.7% by 2002—still well below the peak rate of 10.7% in 1975; use has shown only a small improvement since 2002 (5.8% in 2008). The 2008 annual prevalence of this class of drugs is lower among young adults (4.7%) and college students (3.7%) than among 12th graders. Use among college students began to rise a few years later than it did among 12th graders, likely reflecting a cohort effect. Among young adults, sedative (barbiturate) use has increased since the early 1990s, rising from 1.6% in 1992 to 4.4% in 2004. It stands at 4.7% in 2008.
- *Methaqualone*, another sedative drug, has shown a trend pattern quite different from barbiturates. Methaqualone use rose among 12th graders from 1975 to 1981, when annual prevalence reached 7.6%. Its use then fell very sharply, declining to 0.2% by 1993 before rising significantly during the general drug resurgence in the 1990s, to 1.1% by 1996. Prevalence rates have shown little consistent change since then, with use standing at 0.5% in 2008. Use also fell in the 1980s among young adults and college students, who had annual prevalence rates by 1989—the last year they were asked about this drug—of only 0.3% and 0.2%, respectively. In the late 1980s, shrinking availability may well have played a role in the decline, as legal manufacture and distribution of methaqualone ceased. Because of very low usage rates, only 12th graders are now asked about use of this drug.
- Clearly use of most of the several classes of *psychotherapeutic drugs*—sedatives (barbiturates), tranquilizers, and narcotics other than heroin—has become a larger part of the nation’s drug abuse problem. While the rise appears to have halted, most rates remain near recent peak levels. During much of the 1990s and into the 2000s, we were seeing a virtually uninterrupted increase among 12th graders, college students, and young adults in the use of all of these drugs, which had fallen from favor from the mid-1970s through the early 1990s. Use then began rising in the early 1990s and continued to rise after the increase in use of most of the illegal drugs had ended in the late 1990s.

- For many years, five classes of illicitly used drugs—*marijuana*, *amphetamines*, *cocaine*, *LSD*, and *inhalants*—had an impact on appreciable proportions of young Americans in their late teens and 20s. In 2008, twelfth graders showed annual prevalence rates for these drugs of 32.4%, 6.8%, 4.4%, 2.7%, and 3.8% (respectively), reflecting declines in most of them, especially for LSD. Among college students in 2008, the comparable annual prevalence rates are 32.3%, 5.7%, 4.4%, 2.6%, and 1.1%; for all young adults the rates are 28.6%, 5.3%, 6.0%, 1.4%, and 1.4%. Because *LSD* use has fallen so precipitously since 2001 in all five populations, it no longer ranks as one of the major drugs of abuse, whereas *narcotics other than heroin* have become quite important due to the long-term rise in use that began in the 1990s. These narcotics now have annual prevalence rates of 7–9% among 12th graders, college students, and young adults. *Tranquilizers* have also become more important due to a similar rise in use, with prevalence rates in 2008 of about 5–7% across the same three populations, as have *sedatives (barbiturates)*, with rates of 5.8%, 3.7% and 4.7%, respectively. The increase in use of these prescription-type drugs, combined with the decline in use of many illegal drugs, means that the use of prescription-type drugs clearly has become a more important part of the nation’s drug problem.
- Ecstasy (MDMA)* joined this set of long-established, more prevalent drugs for a period of time. However, annual prevalence rates for ecstasy dropped considerably between 2000 and 2008, from 3.1% to 1.7% for 8th graders, from 5.4% to 2.9% for 10th graders, from 8.2% to 4.3% for 12th graders, from 9.1% to 3.7% among college students, and from 7.2% to 3.3% among young adults.
- In 8th grade, *inhalants* rank second only to marijuana among the illicitly used drugs in terms of annual prevalence, and they actually rank first in lifetime use. Because the use of inhalants reflects a form of illicit psychoactive drug use, and because of its importance among the younger adolescents, an additional index of “any illicit drug use including inhalants” was introduced in Tables 2-1 through 2-3. The inclusion of inhalants makes relatively little difference in the illicit drug index prevalence rates for the older age groups, but considerable difference for the younger ones. For example, in 2008 the proportion of 8th graders reporting any illicit drug use in their lifetime, exclusive of inhalants, was 20%, whereas including inhalants raised the figure to 28%.
- Several drugs have been added to MTF’s coverage in recent years, and they are all discussed in chapter 4 of *Volume I*. These include *ketamine*, *GHB*, and *Rohypnol*, which are so-called “club drugs” (in addition to LSD and ecstasy). In general, these drugs have low prevalence rates that have declined over the past several years among 8th, 10th, and 12th graders: the 2008 annual prevalence rates for *ketamine* are 1.2%, 1.0%, and 1.5%, respectively; for *GHB*, 1.1%, 0.5%, and 1.2%; and for *Rohypnol*, 0.5% and 0.4% for 8th and 10th graders (the Rohypnol question for 12th graders was changed in 2002 and in 2008 stands at 1.3%). There was little change this year in the use of these three drugs, with the exception that GHB showed a further significant decline. The two narcotic drugs added to our coverage in 2002—*OxyContin* and *Vicodin*—show considerably higher prevalence rates, as noted earlier.

- Two new substances used primarily by males to develop physique and physical strength were added to the question set in 2001. One is **androstenedione** (a precursor to anabolic steroids), which could be purchased over the counter until early 2005. Among males, where use is heavily concentrated, the 2008 annual prevalence rates are 1.3%, 1.3%, and 1.7% in grades 8, 10, and 12. (Among females, the rates are 0.5%, 0.6%, and 0.7%.) As discussed in chapter 10 of *Volume I*, the proportion of young males who report past-year use of **androstenedione** and/or **steroids** was appreciable. In 2001, when the “andro” question was introduced, the annual prevalence rate was 8.0% for 12th-grade boys. The rate has fallen considerably in all three grades since then; in 2008 it was 3.2% among 12th-grade boys, reflecting a drop of three fifths.
- Another physique-enhancing substance that is not a drug, but rather a type of protein supplement, is **creatine**. Because we thought its use was often combined with the use of steroids and androstenedione, we included a question on it in 2001 and found prevalence of use to be very high. Among males, who again are the primary users, the 2008 annual prevalence for creatine is 3.2%, 11.5%, and 15.7% in grades 8, 10, and 12. In other words, one in every six 12th-grade boys had used creatine in the prior year. (For girls, the rates are far lower at 0.7%, 0.9%, and 1.5%, respectively.)
- Beginning in 1982, MTF included a set of questions about the use of *nonprescription* stimulants, including stay-awake pills, diet pills, and the so-called “look-alikes” (see chapter 10 of *Volume I* for more detailed findings). The annual prevalence among 12th graders of over-the-counter **stay-awake pills**, which usually contain caffeine as their active ingredient, nearly doubled between 1982 and 1990, increasing from 12% to 23%. After 1990 this statistic fell considerably, reaching 6.3% by 2008, the lowest level ever reported. Use has also declined among the college-age young adult population (ages 19 to 22), from a peak of 26% in 1989 to a low of 7.3% in 2007 (up to 8.7% in 2008). (Data for young adults are not shown.) The **look-alikes** have also shown some falloff in recent years. Among 12th graders, annual prevalence decreased slightly from 6.8% in 1995 to 5.0% in 1999, increased to 7.1% in 2001, and then decreased to 2.8% by 2007, the lowest level ever reported. It stands at 3.1% in 2008. Among young adults ages 19 to 22, use of look-alikes also declined from 6.0% in 1995 to 2.0% in 2008. Among 12th graders, annual prevalence rates for over-the-counter **diet pills** declined from 15% to 10% between 1986 and 1995, increased to 15% by 2002, then declined to 7.2% in 2008. (Among 12th-grade girls in 2008, 15% had tried diet pills by the end of senior year, 10% used them in the past year, and 5% used them in just the past 30 days.) Among young adults ages 19 to 22, annual prevalence rates declined from 17% to 7% between 1986 and 1995, rose back to 17% by 2002, and then declined again to 7% by 2008.
- One additional type of over-the-counter drug was added to the 8th-, 10th-, and 12th-grade questionnaires in 2006—**dextromethorphan**, a cough suppressant found in many cough and cold medications. Respondents were asked, “How often have you taken cough or cold medicines to get high?” The proportions indicating such use in the prior 12 months were 4%, 5%, and 7% in grades 8, 10, and 12 in 2006—not inconsequential proportions. In 2008, the rates were about the same (4%, 5%, and 6% for grades 8, 10, and 12, respectively).

### College–Noncollege Differences in Illicit Drug Use

- For analytic purposes, “college students” are defined here as those respondents one to four years past high school who are actively enrolled full-time in a two- or four-year college in March of the year of the survey. For nearly all categories of illicit drugs, college students show *lower* rates of use than their age-mates not in college. For a few categories of drugs—including *any illicit drug*, *marijuana*, and *hallucinogens*—college students also show annual usage rates that are about *average* for all high school graduates their age. (College students are about average on the index of any illicit drug use because they have average rates of marijuana use, which largely drives the index.)
- Although college-bound 12th graders have generally had below-average rates of use on *all* of the illicit drugs while they were in high school, these students’ eventual use of some illicit drugs attained equivalence with, or even exceeded, the rates of those who do not attend college. As MTF results published in two recent books have shown, this college effect of “catching up” is largely explainable in terms of differential rates of leaving the parental home after high school graduation and of getting married. College students are more likely than their age peers to have left the parental home and its constraining influences, and less likely to have entered marriage with its constraining influences.<sup>8</sup>
- In general, the substantial decline in illicit substance use among American college students after 1980 has paralleled that of their age peers not in college. Further, from 1980 until 1992, all young adult high school graduates through age 28, as well as college students taken separately, showed trends that were highly parallel (for the most part) to trends among 12th graders (see chapter 9 of *Volume II*). After 1992, a number of drugs showed an increase in use among 12th graders (as well as 8th and 10th graders), but not among college students and young adults for some period of time.

This divergence, combined with the fact that the upturn began first among 8th graders (in 1992), suggests that cohort effects were emerging for illicit drug use, as discussed earlier. Indeed, as those heavier using cohorts of 12th graders entered the college years, we saw a lagged increase in the use of several drugs in college. For example, annual prevalence reached a low point among 12th graders in 1992 for a number of drugs (e.g., *cocaine*, *amphetamines*, *sedatives [barbiturates]*, *tranquilizers*, *narcotics other than heroin*, and *any illicit drug other than marijuana*) before rising thereafter; among college students, those same drugs reached a low two years later in 1994, and then began to rise gradually. Then, in 1998, as *marijuana* use was declining in secondary school, we saw a sharp increase in use among college students. Consistent with our earlier predictions, the evidence for cohort effects resulting from generational replacement is impressive.

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<sup>8</sup>Bachman, J. G., Wadsworth, K. N., O’Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, NJ: Lawrence Erlbaum Associates. See also Bachman, J. G., O’Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles, and beliefs*. Mahwah, NJ: Lawrence Erlbaum Associates.

### Male–Female Differences in Illicit Drug Use

- Regarding gender differences in the three older populations (12th graders, college students, and young adults), males are more likely to use most *illicit drugs*, and the differences tend to be largest at the higher frequency levels. For example, 2008 *daily marijuana* use rates among 12th graders are 7.6% for males versus 3.0% for females; among all young adults (ages 19 to 28) the rates are 7.3% for males versus 3.6% for females; and among college students the rates are 7.3% for males versus 1.7% for females.
- The 8th- and 10th-grade samples evidence fewer and smaller gender differences in the use of drugs—perhaps because girls tend to date and then emulate older boys, who are in age groups considerably more likely to use drugs. While the rate of prior-year *marijuana* use is slightly higher for males, the rate for the use of *any illicit drug other than marijuana* tends to be slightly higher for females. There is little gender difference in 8th and 10th grades in the use of *cocaine*, *crack*, *other cocaine*, *heroin*, or *Ritalin*. The use of *inhalants*, *amphetamines*, *methamphetamine*, and *tranquilizers* is slightly higher among females.

### TRENDS IN ALCOHOL USE

- Several findings about *alcohol* use in these age groups are noteworthy. First, despite the fact that it is illegal for virtually all secondary school students and most college students to purchase alcoholic beverages, their experience with alcohol is widespread. Alcohol has been tried by 39% of current 8th graders, 58% of 10th graders, 72% of 12th graders, and 85% of college students; active use is also widespread. Most important, perhaps, is the prevalence of *occasions of heavy drinking*—five or more drinks in a row at least once in the prior two-week period—which was reported by 8% of 8th graders, 16% of 10th graders, 25% of 12th graders, and 40% of college students surveyed in 2008. Heavy drinking peaks in the early 20s, and recedes with age after that, reflected by the 32% rate found among 29- to 30-year-olds.

Alcohol use did not increase as use of other illicit drugs decreased among 12th graders from the late 1970s to the early 1990s, although it was common to hear such a displacement hypothesis asserted. MTF demonstrates that the opposite seems to be true. After 1980, when illicit drug use was declining, the *monthly prevalence of alcohol use* among 12th graders also declined gradually, but substantially, from 72% in 1980 to 51% in 1992. *Daily alcohol use* declined by half over the same interval, from a peak of 6.9% in 1979 to 3.4% in 1992; the prevalence of drinking *five or more drinks in a row* during the prior two-week interval fell from 41% in 1983 to 28% in 1993—nearly a one-third decline. When illicit drug use rose again in the 1990s, alcohol use (particularly binge drinking) rose some as well—albeit not as sharply as marijuana use. In the late 1990s, as illicit drug use leveled in secondary schools and began a gradual decline, similar trends were observed for alcohol. Therefore, the long-term evidence indicates that alcohol use moves much more in concert with illicit drug use than counter to it.

### College–Noncollege Differences in Alcohol Use

- Trends in *alcohol* use among college students are quite different than those for 12th graders or noncollege respondents of the same age (see Figure 9-14 in *Volume II*). From 1980 to 1993, college students showed considerably less drop-off in monthly prevalence of *alcohol* use (82% to 70%) than did 12th graders (72% to 51%), and also less decline in *occasions of heavy drinking* (from 44% to 40%) than either 12th graders (41% to 28%) or their noncollege age-mates (41% to 34%). Because both the noncollege 19- to 22-year-olds and high school students were showing greater declines, the college students stood out as having maintained a high rate of heavy (or binge) drinking. Since 1993, this behavior has changed little among college students—their rate of binge drinking in 2008, 40%, is almost the same as their 1993 rate—while the rate among noncollege age-mates decreased to 30% in 2008 and the 12th graders’ rate, after increasing to 32% in 1998, dropped to 25% by 2006. So, college students continue to stand out as having a relatively high rate of binge drinking.

Although college-bound 12th graders are consistently less likely than their non-college-bound counterparts to report occasions of heavy drinking, the higher rates of such drinking among college students compared to noncollege peers indicate that these 12th graders catch up to and pass their peers in binge drinking after high school graduation. As stated above, we have shown that this differential change after high school is largely attributable to college students’ greater likelihood of leaving the parental home and smaller likelihood of getting married in the four years after graduating from high school. A recent MTF publication also shows that membership in a fraternity or sorority tends to increase heavy episodic drinking and marijuana use.<sup>9</sup>

- Since 1980, college students have generally had *daily drinking* rates that were slightly lower than their age peers, suggesting that they were more likely to confine their drinking to weekends, when they tend to drink a lot. The rate of daily drinking among the noncollege group fell from 8.3% in 1980 to 3.2% in 1994, rose to 5.8% by 2000, and dropped to 3.7% in 2008. Daily drinking by the college group also dropped in approximately the same time period, from 6.5% in 1980 to 3.0% in 1995, then increased to 5.0% in 2002; since then it has remained at 4–5%.

### Male–Female Differences in Alcohol Use

- College males report considerably higher rates of *daily drinking* than college females (5.1% versus 3.3% in 2008). This gender difference also exists in the noncollege group (5.0% versus 2.7% in 2008).
- Given that the physiological impacts of five drinks are considerably greater for the typical young female versus the typical young male, it is not surprising that we find substantial gender differences in the prevalence of having *five or more drinks in a row*.

<sup>9</sup>McCabe, S. E., Schulenberg, J. E., Johnston, L. D., O’Malley, P. M., Bachman, J. G., & Kloska, D. D. (2005). Selection and socialization effects of fraternities and sororities on U.S. college student substance use: A multi-cohort national longitudinal study. *Addiction, 100*, 512–524.

Among 12th graders, the rates in 2008 are 21% for females versus 28% for males. This difference has generally been diminishing since the study began; in 1975 there was a 23-percentage-point difference, versus a 7-point difference by 2008.

- Among college students and young adults generally, there are also substantial gender differences in alcohol use, with college males drinking the most. In 2008, for example, half (49%) of all college males reported having *five or more drinks in a row* over the previous two weeks versus one third (34%) of college females. Since MTF began, this gender difference has narrowed gradually, with the rate declining somewhat for males and increasing somewhat for females.

## TRENDS IN CIGARETTE SMOKING

A number of very important findings about *cigarette smoking* among American adolescents and young adults have emerged during the life of the study, and we believe that one of the study's more important contributions to the long-term health of the nation has been to document and call public attention to these trends. Despite the demonstrated health risks associated with smoking, young people have continued to establish regular cigarette habits during late adolescence in sizeable proportions, and, during the first half of the 1990s, in growing proportions. In fact, since MTF began in 1975, cigarettes have consistently remained the class of abusable substances most frequently used on a daily basis by high school students.

- During most of the 1980s, when smoking rates were falling steadily among adults, we reported that smoking among adolescents was not declining. Then the situation went from bad to worse. Among 8th and 10th graders, the *current (past 30-day) smoking* rate increased by about half between 1991 (when their use was first measured) and 1996; among 12th graders, the current smoking rate rose by nearly one third between 1992 and 1997. MTF played an important role in bringing these disturbing increases in adolescent smoking to public attention during those years, which was the historical period in which major social action was initiated in the White House, the FDA, the Congress, and eventually the state attorneys general, culminating in the tobacco settlement between the industry and the states.

Fortunately—and largely as a result of that settlement, we believe—there have been some important declines in current smoking since 1996 among 8th and 10th graders, and since 1997 among 12th graders. In fact, the declines have more than offset the increases observed earlier in the 1990s. In 2008, 7% of 8th graders (down from 14% in 1991 and 21% in 1996) reported smoking one or more cigarettes in the prior 30 days—a decline of two thirds from the recent peak rate. Some 12% of 10th graders were current smokers in 2008 (down from 21% in 1991 and 30% in 1996), representing a drop of six tenths from the recent peak rate. And in 2008, 20% of 12th graders were current smokers (versus 28% in 1991 and 37% in 1997), representing a drop of between four and five tenths from the recent peak. In recent years these declines have decelerated though, importantly, they appear not to have ended. Despite these very important improvements in the past decade, one fifth of today's young Americans are current smokers by the time they

complete high school. Other research consistently shows that smoking rates are substantially higher among those who drop out before graduating.<sup>10</sup>

Among college students, the peak rate in current smoking was not reached until 1999 (31%), but after that it declined only moderately (to 24% in 2005) until 2006, when a significant decline brought it down to 19%; with an 18% rate in 2008, this reflects a decline of four tenths from the recent peak so far. Young adults 19 to 28 years old have shown only modest change in rates of current smoking between 2001 (30%) and 2008 (25%)—a decline of about one fifth so far. However, we would expect that, as the cohort effects work their way up the age spectrum, smoking will decrease more in this age group as well.

- The dangers that survey participants perceive to be associated with *pack-a-day smoking* differ greatly by grade level, and seem to be unrealistically low at all grade levels. Currently, about three quarters of 12th graders (74%) report that pack-a-day smokers run a great risk of harming themselves physically or in other ways, but only 60% of the 8th graders say the same. All three grades showed a decrease in perceived risk between 1993 and 1995, as use was rising rapidly, but a slightly larger and offsetting increase in perceived risk occurred between 1995 and 2000, presaging the subsequent downturn in smoking. Between 2000 and 2003, perceived risk stayed relatively level in all grades. In 2004, it increased in all grades, but since then it has risen only modestly in the upper grades, and decreased significantly in 2008 in grade 12.
- Disapproval of cigarette smoking was in decline for a longer period: from 1991 through 1996 among 8th and 10th graders, and from 1992 to 1996 among 12th graders. Since then there has been a fairly steady increase in disapproval of cigarette smoking in all three grades—at least until 2007, when the increase halted among 8th and 12th graders. Undoubtedly the heavy media coverage of the tobacco issue (the settlement with the state attorneys general, the congressional debate, the eventual state settlements, etc.) had an important influence on these attitudes and beliefs. However, that coverage diminished considerably in 1998, raising the question of whether those changes in youth attitudes would continue. It may well be, of course, that the removal of certain kinds of cigarette advertising and promotion, combined with national- and state-level antismoking campaigns and more recent significant increases in cigarette prices, have served to sustain and prolong these changes. In terms of media effects, MTF has shown important changes in reported recall of antismoking ads resulting from both state and national campaigns.<sup>11</sup>

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<sup>10</sup>For a recent analysis showing much higher smoking rates among 8th graders who later dropped out before completing high school, see Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education-drug use connection: How successes and failures in school relate to adolescent smoking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis.

<sup>11</sup>Johnston, L. D., Terry-McElrath, Y. M., O'Malley, P. M., & Wakefield, M. (2005). Trends in recall and appraisal of anti-smoking advertising among American youth: National survey results, 1997–2001. *Prevention Science*, 6, 1–19.

### Age- and Cohort-Related Differences in Cigarette Smoking

- Initiation of smoking occurs most often in grades 6 through 9 (i.e., at modal ages 11–12 to 14–15), although according to the 2008 eighth graders, 8% had already initiated smoking before grade 6. The initiation rate trails off considerably by 12th grade, although a number of the light smokers in 12th grade make the transition to heavy smoking in the first two years after high school. Analyses presented in this volume and elsewhere have shown that cigarette smoking evidences a clear cohort effect. That is, if a class (or birth) cohort establishes an unusually high rate of smoking at an early age relative to other cohorts, the rate is likely to remain high throughout the life cycle relative to that of other birth cohorts at equivalent ages.
- As we reported in the “Other Findings from the Study” chapter in the 1986 volume in this series, some 53% of 12th graders who were half-pack-a-day (or more) smokers in senior year in 1985 said that they had tried to quit smoking but could not. Of those who had been daily smokers in 12th grade, nearly three quarters were still daily smokers seven to nine years later (based on the 1985 follow-up survey), despite that in high school only 5% thought they would “definitely” be smoking five years hence. A subsequent analysis, based on the 1995 follow-up survey, showed similar results. Nearly two thirds (63%) of those who had been daily smokers in 12th grade were still daily smokers seven to nine years later, although in high school only 3% of them had thought they would “definitely” be smoking five years hence. Clearly, the smoking habit is established at an early age, is difficult to break for those young people who have initiated use, and young people greatly overestimate their own ability to quit. Additional data from 8th- and 10th-grade students show us that younger adolescents are even more likely than older ones to seriously underestimate the dangers of smoking.
- MTF surveys of 8th and 10th graders also show that cigarettes are readily available to teens in 2008, even though perceived availability has been dropping for some years for these age groups: 57% of 8th graders and 77% of 10th graders say that cigarettes would be “fairly easy” or “very easy” for them to get, if they wanted them. Between 1992 (when these questions were first asked) and 1997, there was little change in reported availability. After that, however, perceived availability of cigarettes decreased significantly for 8th and 10th graders, quite likely reflecting the impact of new regulations and related enforcement efforts aimed at reducing the sale of cigarettes to children (including the Synar amendment, which required states to pass and enforce laws prohibiting the sale and distribution of tobacco products to persons under 18).<sup>12</sup> (Twelfth graders are not asked this question.) In 2008 the perceived availability of cigarettes increased significantly for 8th graders, while 10th graders showed a significant decrease.

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<sup>12</sup>For a more detailed examination of recent changes in youth access to cigarettes, see Johnston, L. D., O’Malley, P. M., & Terry-McElrath, Y. M. (2004). Methods, locations, and ease of cigarette access for American youth, 1997–2002. *American Journal of Preventive Medicine*, 27, 267–276.

### College–Noncollege Differences in Cigarette Smoking

- A striking difference in smoking rates has long existed between college-bound and non-college-bound 12th graders. For example, in 2008, smoking a half pack or more per day is about three times as prevalent among the non-college-bound 12th graders as among the college bound (11.9% versus 3.8%). Among respondents of college age (one to four years past high school), those not in college also show dramatically higher rates of half-pack-a-day smoking than those who are in college—15.2% versus 4.3%, respectively. Clearly, these important differences precede college attendance.
- In the first half of the 1990s, smoking rose among college students and their same-age peers, although the increases were not as steep for either group as they were among 12th graders. But in 1998 and 1999, while smoking was declining among secondary school students at all grades, smoking increased significantly for college students, no doubt reflecting the cohort effect from earlier, heavier smoking classes of 12th graders moving into the older age groups. Between 1991 and 1999, the 30-day prevalence of cigarette smoking by college students rose from 23% to 31%, or by about one third, and daily smoking rose from 14% to 19%, also by about one third. The year 2000 showed, for the first time in several years, a decline in college student smoking; that continued with a significant decline to 23% in 2003, and another significant decline to 19% in 2006. The rate in 2008 was 18%. (Because of the smaller numbers of cases in the college student samples, the trend lines are not always as smooth as they are for most of the other groups discussed here.) A much more modest decline has also been observed among their noncollege peers, but only since 2001. A number of in-depth analyses of MTF panel data have revealed that the differences in smoking rates between those who do and do not attend college are evident by the end of 12th grade and have their roots in earlier educational successes and failures.<sup>13</sup>

### Male–Female Differences in Cigarette Smoking

- In the 1970s, 12th-grade females caught up to and passed 12th-grade males in rates of *current smoking*. Both genders then showed a decline in use followed by a long, fairly level period, with use by females consistently higher, but with the gender difference diminishing. In the early 1990s, another crossover occurred when rates rose more among males than females, and males have been consistently slightly higher in rates of current smoking since 1991 among 12th graders. In the lower grades, the genders have had similar smoking rates since their use was first measured in 1991.
- Among college students, females had a slightly higher probability of being daily smokers from 1980 through 1994—although this long-standing gender difference was not seen among their age peers who were not in college. However, a crossover occurred between

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<sup>13</sup>Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. E. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, NJ: Lawrence Erlbaum Associates. Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Bryant, A. L., & Merline, A. C. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles, and beliefs*. Mahwah, NJ: Lawrence Erlbaum Associates. Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education-drug use connection: How successes and failures in school relate to adolescent smoking, drinking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis.

1994 and 2001, with college males exceeding college females in daily smoking—an echo of the crossover among 12th graders in 1991. Since about 2001 there has been little consistent gender difference in smoking among college students.

## RACIAL/ETHNIC COMPARISONS

The three largest ethnic groups in the population—Whites, African Americans, and Hispanics—are examined here for 8th, 10th, and 12th graders. (Sample size limitations simply do not allow finer subgroup breakdowns unless data from many years are combined. Separate publications from the study have done just that.) A number of interesting findings emerge from the comparison of these three groups; the reader is referred to chapters 4 and 5 of *Volume I* for a full discussion and to appendix D of *Volume I* for a tabular documentation across all drugs.<sup>14</sup> The trends for these three subgroups are also presented graphically in an occasional paper available online.<sup>15</sup>

- African-American 12th graders have consistently shown lower usage rates than White 12th graders for most drugs, both licit and illicit. At the lower grade levels, where few have yet dropped out of school, African-American students also have lower usage rates for many drugs, though not all. The differences are quite large for some drugs, including *inhalants*, *LSD*, *hallucinogens other than LSD*, *ecstasy*, *powder cocaine*, *amphetamines*, *methamphetamine*, *tranquilizers*, *OxyContin*, and *Vicodin*.
- African-American students currently have a much lower 30-day prevalence rate of *cigarette smoking* than White students (10% versus 25% among 12th graders in 2008) because their smoking rate declined from 1983 to 1992, while the rate for White students stabilized for some years. After 1992, smoking rates rose among both White and African-American 12th graders, but by 1998 there was a leveling, and since then a reversal, in both groups in all grades. The White students showed a continuing decline since 2003 in all three grades, while smoking rates among African-American students have stayed about level. In recent years the 8th and 10th grades have shown some decline in smoking rates among African-American students.

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<sup>14</sup>We periodically publish comparisons that contain a number of the smaller racial/ethnic groups in the population, based on data combined for a number of contiguous years in order to attain adequate sample sizes. The first was Bachman, J. G., Wallace, J. M., Jr., O'Malley, P. M., Johnston, L. D., Kurth, C. L., & Neighbors, H. W. (1991). Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors, 1976–1989. *American Journal of Public Health*, *81*, 372–377. More recent articles are: Wallace, J. M., Jr., Bachman, J. G., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Cooper, S. M. (2002). Tobacco, alcohol and illicit drug use: Racial and ethnic differences among U.S. high school seniors, 1976–2000. *Public Health Reports*, *117* (Supplement 1), S67–S75; Wallace, J. M., Jr., Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Cooper, S. M., & Johnston, L. D. (2003). Gender and ethnic differences in smoking, drinking, and illicit drug use among American 8th, 10th, and 12th grade students, 1976–2000. *Addictions*, *98*, 225–234; and Delva, J., Wallace, J. M., Jr., O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American 8th-grade students in the United States: 1991–2002. *American Journal of Public Health*, *95*, 696–702.

<sup>15</sup>Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Monitoring the Future Occasional Paper No. 71) [Online]. Ann Arbor, MI: Institute for Social Research. Available: [www.monitoringthefuture.org](http://www.monitoringthefuture.org).

- In 12th grade, *occasions of heavy drinking* are much less likely to be reported by African-American students (11%) than White (30%) or Hispanic students (22%).
- In 12th grade, of the three racial/ethnic groups, Whites tend to have the highest rates of use on a number of drugs, including *marijuana*, *hallucinogens*, *LSD* specifically, *hallucinogens other than LSD*, *ecstasy (MDMA)*, *narcotics other than heroin*, *OxyContin* specifically, *Vicodin* specifically, *amphetamines*, *Ritalin* specifically, *sedatives (barbiturates)*, *tranquilizers*, *alcohol*, *getting drunk*, *cigarettes*, and *smokeless tobacco*.
- Hispanics have tended to have the highest usage rate in 12th grade for a number of the most dangerous drugs, such as *heroin* in general and *heroin with a needle* (though Whites are at the same level this year), *crack*, and *crystal methamphetamine (ice)*. Further, in 8th grade, Hispanics have the highest rates for most drugs (though not for amphetamines, Vicodin, OxyContin, or steroids). For example, in 8th grade, the 2008 annual prevalence of *marijuana* use for Hispanics is 13%, versus 10% for Whites and 11% for African Americans; the two-week prevalence of *binge drinking* is 12% for Hispanics, 8% for Whites, and 6% for African Americans. Hispanics have the highest rates of use for many drugs in 8th grade, but not for as many in 12th, which suggests that their considerably higher dropout rate (compared to Whites and African Americans) may change their relative ranking by 12th grade.
- With regard to trends, 12th graders in all three racial/ethnic groups exhibited a decline in *cocaine* use from 1986 through 1992, although the decline was less steep among African-American 12th graders because their earlier increase in use was not as large as the increase among White and Hispanic students.
- For virtually *all of the illicit drugs*, the three groups have tended to trend in parallel. Because White 12th graders had the highest level of use on a number of drugs—including *amphetamines*, *sedatives (barbiturates)*, and *tranquilizers*—they also had the largest declines; African Americans have had the lowest rates and, therefore, the smallest declines.

## DRUG USE IN EIGHTH GRADE

It is useful to focus specifically on the youngest age group in the study—the 8th graders, most of whom are 13 or 14 years old—because the worrisome levels of both licit and illicit drug use that they report help illustrate the nation’s urgent need to continue to address the substance abuse problems among its youth.

- Among 8th graders in 2008, 39% report having tried *alcohol* (more than just a few sips), and nearly one in five (18%) say they have already been *drunk* at least once.

- One fifth of 8th graders in 2008 (21%) have tried *cigarettes*, and one in fifteen (6.8%) say they have smoked in the prior month. Shocking to most adults is the fact that only 60% of 8th graders recognize that there is great risk associated with smoking one or more packs of cigarettes per day. While an increasing proportion will recognize the risk by 12th grade, for many this is too late, because they will have developed a smoking habit by then.
- *Smokeless tobacco* has been tried by 14% of male 8th graders in 2008, was used in the past month by 5.5%, and is used daily by 1.2%. (Rates are much lower among females.)
- One 8th grader in six (16%) reported using *inhalants*, and 1 in 24 (4.1%) reported inhalant use in just the past month. This is the only class of drugs for which use is substantially higher in 8th grade than in 10th or 12th grade.
- *Marijuana* has been tried by one in every seven 8th graders (15%) and has been used in the prior month by about 1 in every 17 (5.8%).
- A surprisingly large number of 8th graders (6.8%) say they have tried prescription-type *amphetamines* without medical instruction; 2.2% say they have used them in the prior 30 days.
- For most of the *other illicit drugs*, relatively few 8th graders in 2008 say they have tried them. (This is consistent with the retrospective reports from 12th graders concerning the grades in which they first used the various drugs.) But the proportions having at least some experience with them is not inconsequential. Even a rate as low as 3% represents about one child in every 30-student classroom. The 2008 eighth-grade proportions reporting any lifetime experience with the other illicit drugs are: *tranquilizers* (3.9%), *hallucinogens other than LSD* (2.5%), *cocaine other than crack* and *ecstasy* (both at 2.4%), *methamphetamine* (2.3%), *crack* (2.0%), *LSD* (1.9%), *steroids* (1.4% overall, and 1.8% among males), *heroin* (1.4%), and *Rohypnol* (0.7%).
- In total, 28% of all 8th graders in 2008 have tried some *illicit drug other than marijuana* (including inhalants), while 11%, or about one in nine, have tried *some illicit drug other than marijuana or inhalants*. Put another way, in an average 30-student classroom of 8th graders, about eight have used some illicit drug other than marijuana including inhalants, and three or four have used some drug other than marijuana or inhalants.
- The very large number of 8th graders who have already begun using the so-called “gateway drugs” (*tobacco, alcohol, inhalants, and marijuana*) suggests that a substantial number are also at risk of proceeding further to such drugs as LSD, cocaine, amphetamines, and heroin.

## DRUG USE BY AGE 50

Because we have now followed graduating 12th graders into their 50s, we can characterize the drug-using history of today's 50-year-olds (at least those who are high school graduates). This is important, not only because it shows how use by these respondents has developed over the three decades since they left high school, but also because most of them are now themselves the parents of adolescents and young adults. Their own past experiences with drug use may complicate communications with their children regarding drugs; worse, the continuing active use of substances by some of them may set an unfortunate example. The level of lifetime use they have attained is striking (see chapter 4 of *Volume II* for greater detail and discussion).

- Among 50-year-old high school graduates in 2008, we estimate that about three out of four (74%) have tried *marijuana*, and that almost two out of three (63%) have tried an *illicit drug other than marijuana*. (These estimates are adjusted to correct for panel attrition, as described in chapter 4 of *Volume II*.)

Their current behavior is far less extreme than those statistics might suggest, but it is not by any means negligible. One in eight (12%) indicates using marijuana in the last 12 months, while 1 in 10 (10%) affirms use of any other illicit drug in that time period (details provided below). Their past-month prevalence rates are lower—7.2% and 5.9%, respectively, for marijuana and any other illicit drug. About 1 in 50 (2.0%) is a *current daily marijuana* user, though substantially more indicate that they have used marijuana daily at some time in the past.

- Quite high proportions of 50-year-old respondents in 2008 have had some experience during their lifetime with nonmedical use of several of the specific illicit drugs other than marijuana. These include *cocaine* in any form (40%), *amphetamines* (37%), *tranquilizers* (31%), *sedatives (barbiturates)* (26%), *hallucinogens* of any type (22%), and *narcotics other than heroin* (22%). In sum, today's adults in their 50s tend to be a very drug-experienced segment of the population, as might be expected due to the fact that they graduated from high school near the peak of the drug epidemic. To repeat, 74% have tried marijuana and 63% have tried some illicit drug other than marijuana.
- Illicit drugs other than marijuana that have been used in just the prior 12 months by this age group (outside of medical regimen) include *narcotics other than heroin* (3.3%), *tranquilizers* (4.2%), *cocaine* (2.0%), and *noncrack forms of cocaine* (1.7%). Little active use is reported by these respondents for *amphetamines*, *crack*, or *heroin*. (Of course, we would not expect *heavy* heroin or crack users to have remained in the panel studies.)
- *Alcohol* consumption is relatively high among 50-year-olds, with almost two thirds (64%) indicating that they consumed at least one alcoholic drink in the prior 30 days, 11% reporting current *daily drinking* (defined as drinking on 20 or more occasions in the prior 30 days), and 20% indicating *recent heavy drinking* (defined as five or more drinks on at least one occasion in the prior two weeks). The rate of recent heavy drinking is

much lower than was exhibited by members of this cohort when they were of high school and college ages.

- Nearly one in five (19%) 50-year-old high school graduates currently smokes *cigarettes*. Almost all of those are current *daily smokers* (17%).

## SUMMARY AND CONCLUSIONS

We can summarize the findings on trends as follows: For more than a decade—from the late 1970s to the early 1990s—the use of a number of *illicit drugs* declined appreciably among 12th-grade students, and declined even more among American college students and young adults. These substantial improvements—which seem largely explainable in terms of changes in attitudes about drug use, beliefs about the risks of drug use, and peer norms against drug use—have some extremely important policy implications. One clear implication is that these various substance-using behaviors among American young people are malleable—they *can* be changed. It has been done before. The second is that demand-side (rather than supply-side) factors appear to have been pivotal in bringing about most of those changes. The levels of marijuana availability, as reported by 12th graders, have held fairly steady throughout the life of the study. (Moreover, both abstainers and quitters rank availability and price very low on their list of reasons for not using.) And, in fact, the perceived availability of cocaine was actually rising during the beginning of the sharp decline in cocaine and crack use in the mid- to late 1980s, which occurred when the perceived risk associated with that drug rose sharply. (See the last section of chapter 9, *Volume I*, for more examples and further discussion of this point.)

However, improvements are surely not inevitable; and when they occur, they should not be taken for granted. Relapse is always possible and, indeed, just such a relapse in the longer term epidemic occurred during the early to mid-1990s, as the country let down its guard on many fronts. (See chapter 8 of *Volume I* for a more detailed discussion.)

In 1992, eighth graders exhibited a significant increase in annual use of *marijuana*, *cocaine*, *LSD*, and *hallucinogens other than LSD*, as well as an increase in *inhalant* use. (In fact, all five populations showed some increase in *LSD* use, continuing a longer term trend for college students and young adults.) Further, the attitudes and beliefs of 12th graders regarding drug use began to soften.

In 1993, use of several drugs began to rise among 10th and 12th graders as well, fulfilling our earlier predictions based on their eroding beliefs about the dangers of drugs and their decreasing disapproval of drug use. Increases occurred in a number of the so-called “gateway drugs”—*marijuana*, *cigarettes*, and *inhalants*—that we argued boded ill for the later use of other drugs in the usual sequence of drug use involvement. Indeed, the proportion of students reporting the use of *any illicit drug other than marijuana* rose steadily after 1991 among 8th and 10th graders and after 1992 among 12th graders. (This proportion increased by more than half among 8th graders, with annual prevalence rising from 8.4% in 1991 to 13.1% in 1996.) The softening attitudes

about *crack* and *other forms of cocaine* also provided a basis for concern—and indeed the use of both increased fairly steadily through 1998.

Over the years, MTF has demonstrated that changes in perceived risk and disapproval have been important causes of change in the use of a number of drugs. These beliefs and attitudes are almost certainly influenced by the amount and nature of public attention paid to the drug issue in the historical period during which young people are growing up. A substantial decline in attention to this issue in the early 1990s very likely explains why the increases in perceived risk and disapproval among students ceased and began to backslide. News coverage of the drug issue plummeted between 1989 and 1993 (although it made a considerable comeback as surveys—including MTF—began to document that the nation’s drug problem was worsening again), and the media’s *pro bono* placement of ads from the Partnership for a Drug-Free America also fell considerably. (During that period, MTF 12th graders showed a steady decline in their recalled exposure to such ads, and in the judged impact of such ads on their own drug-taking behavior.)

Also, the deterioration in the drug abuse situation first began among our youngest cohorts—perhaps because they had not had the same opportunities for vicarious learning from the adverse drug experiences of people around them and people portrayed in the media—those we have called the “unfortunate role models.” Clearly, there was a danger that, as the drug epidemic subsided in the 1980s and early 1990s, newer cohorts would have far less opportunity to learn through informal means about the dangers of drugs—that what we have called a generational forgetting of those risks would occur through a process of generational replacement of older, more drug-savvy cohorts with newer, more naive ones. This suggests that as drug use subsides, as it did by the early 1990s, the nation must redouble its efforts to ensure that such naive cohorts learn these lessons about the dangers of drugs through more formal means—from schools, parents, and focused messages in the media, for example—and that this more formalized prevention effort be *institutionalized* so that it will endure for the long term. Clearly, for the foreseeable future, American young people will be aware of the psychoactive potential of a host of drugs and will continue to have access to them—a situation quite different from the one that preceded the late 1960s. That means that each new generation of young people must learn the reasons that they should *not* use drugs. Otherwise, their natural curiosity and desires for new experiences will lead a great many to use.

Another lesson that derives from the MTF epidemiological data is that social influences that tend to reduce the *initiation* of substance use also have the potential to deter *continuation* by those who have already begun to use, particularly if they are not yet habitual users. Chapter 5 of *Volume I* shows how increased quitting rates have contributed importantly to downturns in the use of a number of drugs at different historical periods. The lesson is that primary prevention should not be the only goal of intervention programs; early-stage users may be persuaded to quit when their beliefs and attitudes regarding drugs are changed.

The following facts help to put into perspective the magnitude and variety of substance use problems that presently remain among American young people:

- More than a quarter (28%) of today's 8th graders have tried an *illicit drug* (if inhalants are included as an illicit drug), and nearly half (49%) of 12th graders have done so.
- By their late 20s, nearly three of five (59%) of today's young adults have tried an *illicit drug*, and more than a third (35%) have tried some *illicit drug other than marijuana* (usually in addition to marijuana). (These figures do not include inhalants.)
- Today, over one in seven young adults (15% in 2008) have tried *cocaine*, and 7% have tried it by their senior year of high school (i.e., by age 17 or 18). More than 1 in every 36 twelfth graders (2.8%) has tried *crack*. In the young adult sample, 1 in 23 (4.4%) has tried crack by age 29–30.
- More than 1 in every 19 twelfth graders (5.4%) in 2008 smokes *marijuana daily*. Among young adults ages 19 to 28, the percentage is about the same (5.1%) and very close to the recent peak level. Among those same 12th graders in 2008, one in every seven (15%) has been a daily marijuana smoker at some time for at least a month, and among young adults the comparable figure is one in six (17%).
- One in four 12th graders (25%) consumed *five or more drinks in a row* at least once in the two weeks prior to the survey, and we know that such behavior tends to increase among young adults one to four years past high school—that is, in the peak college years. Indeed, half (49%) of all male college students report such binge drinking.
- Despite considerable improvements in smoking rates among American adolescents over more than a decade, a fifth (20%) of 12th graders in 2008 were current *cigarette* smokers, and one in nine (11%) were already current *daily* smokers. In addition, we know from studying previous cohorts that many young adults increase their rates of smoking within a year or so after they leave high school.

Despite the substantial improvement in this country's drug situation in the 1980s and early 1990s, and then some further improvement beginning in the late 1990s, American secondary school students and young adults show a level of involvement with *illicit drugs* that is among the highest in the world's industrialized nations.<sup>16</sup> Even by longer term historical standards in this country, these rates remain extremely high, though in general they are not as high as in the peak years of the epidemic in the late 1970s. *Heavy drinking* also remains widespread and troublesome, and certainly the continuing initiation to *cigarette smoking* of a large, albeit declining, proportion of young people remains a matter of the greatest public health concern. Unfortunately, the declines in youth smoking have decelerated sharply in all grades in recent years, indicating that the improvements in youth smoking overall may be nearing an end.

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<sup>16</sup>A published report from an international collaborative study, modeled largely after MTF, provides comparative data from national school surveys of 15- to 16-year-olds that was completed in 2007 in 35 European countries. It also includes 2007 MTF data from 10th graders in the United States. See Hibell, B., Andersson, B., Bjarnasson, T., Ahlström, S., Balakireva, O., Kokkevi, A., & Morgan, M. (Eds.). (2009). *The 2007 ESPAD report (The European School Survey Project on Alcohol and Other Drugs): Substance Use among Students in 35 European countries*. Stockholm: The Swedish Council for Information on Alcohol and Other Drugs, The European Monitoring Centre for Drugs and Drug Addiction, the Council of Europe, and the Co-operation Group to Combat Drug Abuse and Illicit Trafficking in Drugs.

- Of particular note, despite the gradual (and in some cases sharp) declines in the use of many of the illegal drugs in the middle to late 1990s and early 2000s, the prescription-type, abusable drugs have shown very limited declines (with the notable exception of amphetamines). The use of *tranquilizers*, *sedatives (barbiturates)*, and *narcotics other than heroin* are all at or near their recent peak levels. None of them is exhibiting any further increase, however, and some gradual declines have begun.
- Finally, we note the seemingly unending capacity of pharmacological experts and amateurs to discover new substances with abuse potential that can be used to alter mood and consciousness, and of young people to discover the abuse potential of existing products, such as Roflutussin, and to rediscover older drugs, such as *LSD* and *heroin*. While as a society we have made significant progress on a number of fronts in the fight against drug abuse, we must remain vigilant against the opening of new fronts, as well as the reemergence of trouble on older ones. In particular, we must guard against generational forgetting in our newest cohorts of adolescents due to a lack of public attention to the issue during the time that they are growing up.

One of the dynamics that keeps the drug epidemic rolling is the emergence of new drugs whose hazards are little known. In 1999 we saw this happen with the drug *ecstasy (MDMA)*. Other drugs like *Rohypnol*, *ketamine*, *GHB*, and *OxyContin* have appeared in the past decade and have been added to the list of drugs under study. The spread of such new drugs appears to be facilitated and hastened today by young people's widespread use of chat rooms and other sites on the Internet. We predict a continuous flow of such new substances onto the scene, and believe that the task of rapidly documenting their emergence, establishing their adverse consequences, and quickly demystifying them will remain an important means by which policymakers, researchers, and educators deal with the continuing threats posed by such drugs. We also anticipate that there will be rediscoveries of older substances, as has been occurring in recent years with respect to the various psychotherapeutic prescription drugs, including tranquilizers, sedatives (barbiturates), and narcotic drugs.

The drug problem is not an enemy that can be vanquished. It is more a recurring and relapsing problem that must be contained to the greatest extent possible on an ongoing basis. Therefore, it is a problem that requires an ongoing, dynamic response—one that takes into account the continuing generational replacement of our children, the generational forgetting of the dangers of drugs that can occur with that replacement, and the perpetual stream of new abusable substances that will threaten to lure our young people into involvement with drugs.

**TABLE 2-1**  
**Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Any Illicit Drug<sup>a</sup></b>																			
8th Grade	18.7	20.6	22.5	25.7	28.5	31.2	29.4	29.0	28.3	26.8	26.8	24.5	22.8	21.5	21.4	20.9	19.0	19.6	+0.6
10th Grade	30.6	29.8	32.8	37.4	40.9	45.4	47.3	44.9	46.2	45.6	45.6	44.6	41.4	39.8	38.2	36.1	35.6	34.1	-1.6
12th Grade	44.1	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2	46.8	47.4	+0.6
College Students	50.4	48.8	45.9	45.5	45.5	47.4	49.0	52.9	53.2	53.7	53.6	51.8	53.9	52.2	52.3	50.6	50.5	49.5	-0.9
Young Adults	62.2	60.2	59.6	57.5	57.4	56.4	56.7	57.0	57.4	58.2	58.1	59.0	60.2	60.5	60.4	59.7	59.8	59.3	-0.4
<b>Any Illicit Drug other than Marijuana<sup>a,b</sup></b>																			
8th Grade	14.3	15.6	16.8	17.5	18.8	19.2	17.7	16.9	16.3	15.8†	17.0	13.7	13.6	12.2	12.1	12.2	11.1	11.2	+0.1
10th Grade	19.1	19.2	20.9	21.7	24.3	25.5	25.0	23.6	24.0	23.1†	23.6	22.1	19.7	18.8	18.0	17.5	18.2	15.9	-2.2 s
12th Grade	26.9	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0†	30.7	29.5	27.7	28.7	27.4	26.9	25.5	24.9	-0.6
College Students	25.8	26.1	24.3	22.0	24.5	22.7	24.4	24.8	25.5	25.8†	26.3	26.9	27.6	28.0	26.5	26.3	25.3	22.6	-2.7
Young Adults	37.8	37.0	34.6	33.4	32.8	31.0	30.5	29.9	30.2	31.3†	31.6	32.8	33.9	35.2	34.0	34.8	34.2	34.7	+0.5
<b>Any Illicit Drug including Inhalants<sup>a,c,d</sup></b>																			
8th Grade	28.5	29.6	32.3	35.1	38.1	39.4	38.1	37.8	37.2	35.1	34.5	31.6	30.3	30.2	30.0	29.2	27.7	28.3	+0.6
10th Grade	36.1	36.2	38.7	42.7	45.9	49.8	50.9	49.3	49.9	49.3	48.8	47.7	44.9	43.1	42.1	40.1	39.8	38.7	-1.2
12th Grade	47.6	44.4	46.6	49.1	51.5	53.5	56.3	56.1	56.3	57.0	56.0	54.6	52.8	53.0	53.5	51.2	49.1	49.3	+0.3
College Students	52.0	50.3	49.1	47.0	47.0	49.1	50.7	55.4	54.4	54.6	53.1	52.3	54.1	52.9	53.9	53.3	52.5	51.0	-1.5
Young Adults	63.4	61.2	61.2	58.5	59.0	58.2	58.4	58.5	58.5	59.5	59.0	59.6	60.6	62.5	61.4	61.2	61.2	60.2	-1.1
<b>Marijuana/Hashish</b>																			
8th Grade	10.2	11.2	12.6	16.7	19.9	23.1	22.6	22.2	22.0	20.3	20.4	19.2	17.5	16.3	16.5	15.7	14.2	14.6	+0.4
10th Grade	23.4	21.4	24.4	30.4	34.1	39.8	42.3	39.6	40.9	40.3	40.1	38.7	36.4	35.1	34.1	31.8	31.0	29.9	-1.1
12th Grade	36.7	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3	41.8	42.6	+0.8
College Students	46.3	44.1	42.0	42.2	41.7	45.1	46.1	49.9	50.8	51.2	51.0	49.5	50.7	49.1	49.1	46.9	47.5	46.8	-0.7
Young Adults	58.6	56.4	55.9	53.7	53.6	53.4	53.8	54.4	54.6	55.1	55.7	56.8	57.2	57.4	57.0	56.7	56.7	55.9	-0.8
<b>Inhalants<sup>c,d</sup></b>																			
8th Grade	17.6	17.4	19.4	19.9	21.6	21.2	21.0	20.5	19.7	17.9	17.1	15.2	15.8	17.3	17.1	16.1	15.6	15.7	+0.2
10th Grade	15.7	16.6	17.5	18.0	19.0	19.3	18.3	18.3	17.0	16.6	15.2	13.5	12.7	12.4	13.1	13.3	13.6	12.8	-0.9
12th Grade	17.6	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1	10.5	9.9	-0.6
College Students	14.4	14.2	14.8	12.0	13.8	11.4	12.4	12.8	12.4	12.9	9.6	7.7	9.7	8.5	7.1	7.4	6.3	4.9	-1.4
Young Adults	13.4	13.5	14.1	13.2	14.5	14.1	14.1	14.2	14.2	14.3	12.8	12.4	12.2	11.6	10.3	10.9	9.1	9.5	+0.3
<b>Nitrites<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.6	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2	1.2	0.6	-0.7
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	1.4	1.2	1.3	1.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hallucinogens<sup>b,f</sup></b>																			
8th Grade	3.2	3.8	3.9	4.3	5.2	5.9	5.4	4.9	4.8	4.6†	5.2	4.1	4.0	3.5	3.8	3.4	3.1	3.3	+0.2
10th Grade	6.1	6.4	6.8	8.1	9.3	10.5	10.5	9.8	9.7	8.9†	8.9	7.8	6.9	6.4	5.8	6.1	6.4	5.5	-0.9
12th Grade	9.6	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0†	14.7	12.0	10.6	9.7	8.8	8.3	8.4	8.7	+0.4
College Students	11.3	12.0	11.8	10.0	13.0	12.6	13.8	15.2	14.8	14.4†	14.8	13.6	14.5	12.0	11.0	10.6	9.1	8.5	-0.6
Young Adults	15.7	15.7	15.4	15.4	16.1	16.4	16.8	17.4	18.0	18.4†	18.3	19.6	19.7	19.3	17.6	17.2	16.0	14.8	-1.3

(Table continued on next page.)

**TABLE 2-1 (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>LSD</b>																			
8th Grade	2.7	3.2	3.5	3.7	4.4	5.1	4.7	4.1	4.1	3.9	3.4	2.5	2.1	1.8	1.9	1.6	1.6	1.9	+0.3
10th Grade	5.6	5.8	6.2	7.2	8.4	9.4	9.5	8.5	8.5	7.6	6.3	5.0	3.5	2.8	2.5	2.7	3.0	2.6	-0.4
12th Grade	8.8	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3	3.4	4.0	+0.5
College Students	9.6	10.6	10.6	9.2	11.5	10.8	11.7	13.1	12.7	11.8	12.2	8.6	8.7	5.6	3.7	3.5	3.3	4.3	+1.0
Young Adults	13.5	13.8	13.6	13.8	14.5	15.0	15.0	15.7	16.2	16.4	16.0	15.1	14.6	13.4	11.2	10.1	9.6	8.1	-1.5 ss
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	1.4	1.7	1.7	2.2	2.5	3.0	2.6	2.5	2.4	2.3†	3.9	3.3	3.2	3.0	3.3	2.8	2.6	2.5	-0.1
10th Grade	2.2	2.5	2.8	3.8	3.9	4.7	4.8	5.0	4.7	4.8†	6.6	6.3	5.9	5.8	5.2	5.5	5.7	4.8	-0.9 s
12th Grade	3.7	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9‡	10.4	9.2	9.0	8.7	8.1	7.8	7.7	7.8	+0.1
College Students	6.0	5.7	5.4	4.4	6.5	6.5	7.5	8.7	8.8	8.2‡	10.7	11.0	12.8	10.1	10.6	10.1	8.5	8.2	-0.4
Young Adults	8.4	8.0	7.6	7.4	7.8	7.9	8.5	9.4	9.3	9.9‡	12.0	15.0	16.4	15.6	15.4	14.9	14.1	13.0	-1.1
<b>PCP<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	2.9	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2	2.1	1.8	-0.3
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	3.1	2.0	1.9	2.0	2.2	1.9	2.4	2.7	2.3	2.3	3.1	2.5	3.0	2.7	2.0	2.4	2.1	2.2	+0.1
<b>Ecstasy (MDMA)<sup>h</sup></b>																			
8th Grade	—	—	—	—	—	3.4	3.2	2.7	2.7	4.3	5.2	4.3	3.2	2.8	2.8	2.5	2.3	2.4	+0.1
10th Grade	—	—	—	—	—	5.6	5.7	5.1	6.0	7.3	8.0	6.6	5.4	4.3	4.0	4.5	5.2	4.3	-1.0
12th Grade	—	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5	6.5	6.2	-0.3
College Students	2.0	2.9	2.3	2.1	3.1	4.3	4.7	6.8	8.4	13.1	14.7	12.7	12.9	10.2	8.3	6.9	5.4	6.2	+0.7
Young Adults	3.2	3.9	3.8	3.8	4.5	5.2	5.1	7.2	7.1	11.6	13.0	14.6	15.3	16.0	14.9	14.4	13.1	13.1	-0.1
<b>Cocaine</b>																			
8th Grade	2.3	2.9	2.9	3.6	4.2	4.5	4.4	4.6	4.7	4.5	4.3	3.6	3.6	3.4	3.7	3.4	3.1	3.0	-0.1
10th Grade	4.1	3.3	3.6	4.3	5.0	6.5	7.1	7.2	7.7	6.9	5.7	6.1	5.1	5.4	5.2	4.8	5.3	4.5	-0.8
12th Grade	7.8	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5	7.8	7.2	-0.6
College Students	9.4	7.9	6.3	5.0	5.5	5.0	5.6	8.1	8.4	9.1	8.6	8.2	9.2	9.5	8.8	7.7	8.5	7.2	-1.3
Young Adults	21.0	19.5	16.9	15.2	13.7	12.9	12.1	12.3	12.8	12.7	13.1	13.5	14.7	15.2	14.3	15.2	14.7	14.8	0.0
<b>Crack<sup>i</sup></b>																			
8th Grade	1.3	1.6	1.7	2.4	2.7	2.9	2.7	3.2	3.1	3.1	3.0	2.5	2.5	2.4	2.4	2.3	2.1	2.0	-0.1
10th Grade	1.7	1.5	1.8	2.1	2.8	3.3	3.6	3.9	4.0	3.7	3.1	3.6	2.7	2.6	2.5	2.2	2.3	2.0	-0.3
12th Grade	3.1	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5	3.2	2.8	-0.5
College Students	1.5	1.7	1.3	1.0	1.8	1.2	1.4	2.2	2.4	2.5	2.0	1.9	3.1	2.0	1.7	2.3	1.3	1.4	+0.1
Young Adults	4.8	5.1	4.3	4.4	3.8	3.9	3.6	3.8	4.3	4.6	4.7	4.3	4.7	4.2	4.1	4.4	3.9	4.3	+0.5
<b>Other Cocaine<sup>j</sup></b>																			
8th Grade	2.0	2.4	2.4	3.0	3.4	3.8	3.5	3.7	3.8	3.5	3.3	2.8	2.7	2.6	2.9	2.7	2.6	2.4	-0.2
10th Grade	3.8	3.0	3.3	3.8	4.4	5.5	6.1	6.4	6.8	6.0	5.0	5.2	4.5	4.8	4.6	4.3	4.8	4.0	-0.8
12th Grade	7.0	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9	6.8	6.5	-0.4
College Students	9.0	7.6	6.3	4.6	5.2	4.6	5.0	7.4	7.8	8.1	8.3	8.6	8.5	9.3	8.1	6.2	8.0	7.1	-0.8
Young Adults	19.8	18.4	15.1	13.9	12.4	11.9	11.3	11.5	11.8	11.7	12.1	12.8	13.5	14.4	13.3	14.4	14.0	13.9	-0.1

(Table continued on next page.)

**TABLE 2-1 (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Heroin<sup>k</sup></b>																			
8th Grade	1.2	1.4	1.4	2.0	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	0.0
10th Grade	1.2	1.2	1.3	1.5	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	-0.4 s
12th Grade	0.9	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	-0.3
College Students	0.5	0.5	0.6	0.1	0.6	0.7	0.9	1.7	0.9	1.7	1.2	1.0	1.0	0.9	0.5	0.7	0.5	0.7	+0.2
Young Adults	0.9	0.9	0.9	0.8	1.1	1.3	1.3	1.6	1.7	1.8	2.0	1.8	1.9	1.9	1.7	1.9	1.6	1.9	+0.3
<b>With a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	1.5	1.6	1.3	1.4	1.6	1.1	1.2	1.0	1.0	1.1	1.0	1.0	0.9	0.9	0.0
10th Grade	—	—	—	—	1.0	1.1	1.1	1.2	1.3	1.0	0.8	1.0	0.9	0.8	0.8	0.9	0.9	0.7	-0.2
12th Grade	—	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.9	0.8	0.7	0.7	0.0
College Students	—	—	—	—	0.4	0.1	0.2	0.5	0.8	0.7	0.2	0.3	0.1	0.1	0.3	0.3	0.1	0.0	-0.1
Young Adults	—	—	—	—	0.4	0.4	0.3	0.4	0.6	0.4	0.6	0.4	0.5	0.4	0.6	0.6	0.5	0.5	0.0
<b>Without a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	1.5	1.6	1.4	1.5	1.4	1.3	1.1	1.0	1.1	1.0	0.9	0.9	0.7	0.9	+0.2
10th Grade	—	—	—	—	1.1	1.7	1.7	1.7	1.6	1.7	1.3	1.3	1.0	1.1	1.1	1.0	1.1	0.8	-0.2
12th Grade	—	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1	1.4	1.1	-0.3
College Students	—	—	—	—	0.5	1.0	1.2	2.1	1.0	2.5	1.3	1.2	1.1	1.0	0.3	0.8	0.4	0.7	+0.2
Young Adults	—	—	—	—	0.9	1.3	1.5	1.7	1.9	2.1	2.1	1.8	2.2	2.1	1.8	2.4	1.9	2.1	+0.2
<b>Narcotics other than Heroin<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.6	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9‡	13.5	13.2	13.5	12.8	13.4	13.1	13.2	+0.1
College Students	7.3	7.3	6.2	5.1	7.2	5.7	8.2	8.7	8.7	8.9	11.0‡	12.2	14.2	13.8	14.4	14.6	14.1	12.4	-1.7
Young Adults	9.3	8.9	8.1	8.2	9.0	8.3	9.2	9.1	9.5	10.0	11.5‡	13.9	16.8	17.6	17.8	18.7	18.8	19.5	+0.6
<b>Amphetamines<sup>m</sup></b>																			
8th Grade	10.5	10.8	11.8	12.3	13.1	13.5	12.3	11.3	10.7	9.9	10.2	8.7	8.4	7.5	7.4	7.3	6.5	6.8	+0.3
10th Grade	13.2	13.1	14.9	15.1	17.4	17.7	17.0	16.0	15.7	15.7	16.0	14.9	13.1	11.9	11.1	11.2	11.1	9.0	-2.1 ss
12th Grade	15.4	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4	11.4	10.5	-0.9
College Students	13.0	10.5	10.1	9.2	10.7	9.5	10.6	10.6	11.9	12.3	12.4	11.9	12.3	12.7	12.3	10.7	11.2	9.1	-2.1
Young Adults	22.4	20.2	18.7	17.1	16.6	15.3	14.6	14.3	14.1	15.0	15.0	14.8	15.2	15.9	14.6	15.6	15.3	14.6	-0.7
<b>Methamphetamine<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	4.5	4.2	4.4	3.5	3.9	2.5	3.1	2.7	1.8	2.3	+0.5
10th Grade	—	—	—	—	—	—	—	—	7.3	6.9	6.4	6.1	5.2	5.3	4.1	3.2	2.8	2.4	-0.4
12th Grade	—	—	—	—	—	—	—	—	8.2	7.9	6.9	6.7	6.2	6.2	4.5	4.4	3.0	2.8	-0.3
College Students	—	—	—	—	—	—	—	—	7.1	5.1	5.3	5.0	5.8	5.2	4.1	2.9	1.9	1.9	0.0
Young Adults	—	—	—	—	—	—	—	—	8.8	9.3	9.0	9.1	8.9	9.0	8.3	7.3	6.7	6.3	-0.4
<b>Crystal Meth. (Ice)<sup>p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.3	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4	3.4	2.8	-0.6
College Students	1.3	0.6	1.6	1.3	1.0	0.8	1.6	2.2	2.8	1.3	2.3	2.0	2.9	2.2	2.4	1.7	1.3	1.1	-0.2
Young Adults	2.9	2.2	2.7	2.5	2.1	3.1	2.5	3.4	3.3	3.9	4.0	4.1	4.7	4.7	4.4	4.7	3.7	3.6	-0.1

(Table continued on next page.)

**TABLE 2-1 (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Sedatives</b>																			
<b>(Barbiturates)<sup>m</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.2	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8	9.9	10.5	10.2	9.3	8.5	-0.9
College Students	3.5	3.8	3.5	3.2	4.0	4.6	5.2	5.7	6.7	6.9	6.0	5.9	5.7	7.2	8.5	6.3	5.9	6.4	+0.5
Young Adults	8.2	7.4	6.5	6.4	6.7	6.6	6.5	6.9	7.4	8.1	7.8	8.0	8.7	9.7	10.0	9.5	9.8	10.6	+0.8
<b>Methaqualone<sup>m,q</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.3	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2	1.0	0.8	-0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Tranquilizers<sup>b,m</sup></b>																			
8th Grade	3.8	4.1	4.4	4.6	4.5	5.3	4.8	4.6	4.4	4.4†	5.0	4.3	4.4	4.0	4.1	4.3	3.9	3.9	0.0
10th Grade	5.8	5.9	5.7	5.4	6.0	7.1	7.3	7.8	7.9	8.0‡	9.2	8.8	7.8	7.3	7.1	7.2	7.4	6.8	-0.6
12th Grade	7.2	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9‡	10.3	11.4	10.2	10.6	9.9	10.3	9.5	8.9	-0.6
College Students	6.8	6.9	6.3	4.4	5.4	5.3	6.9	7.7	8.2	8.8‡	9.7	10.7	11.0	10.6	11.9	10.0	9.1	8.6	-0.4
Young Adults	11.8	11.3	10.5	9.9	9.7	9.3	8.6	9.6	9.6	10.5‡	11.9	13.4	13.8	14.9	14.5	15.0	14.5	15.8	+1.3
<b>Rohypnol<sup>f</sup></b>																			
8th Grade	—	—	—	—	—	1.5	1.1	1.4	1.3	1.0	1.1	0.8	1.0	1.0	1.1	1.0	1.0	0.7	-0.3
10th Grade	—	—	—	—	—	1.5	1.7	2.0	1.8	1.3	1.5	1.3	1.0	1.2	1.0	0.8	1.3	0.9	-0.4
12th Grade	—	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Alcohol<sup>s</sup></b>																			
<b>Any Use</b>																			
8th Grade	70.1	69.3‡	55.7	55.8	54.5	55.3	53.8	52.5	52.1	51.7	50.5	47.0	45.6	43.9	41.0	40.5	38.9	38.9	+0.1
10th Grade	83.8	82.3‡	71.6	71.1	70.5	71.8	72.0	69.8	70.6	71.4	70.1	66.9	66.0	64.2	63.2	61.5	61.7	58.3	-3.4 sss
12th Grade	88.0	87.5‡	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7	72.2	71.9	-0.2
College Students	93.6	91.8	89.3	88.2	88.5	88.4	87.3	88.5	88.0	86.6	86.1	86.0	86.2	84.6	86.6	84.7	83.1	85.3	+2.1
Young Adults	94.1	93.4	92.1	91.2	91.6	91.2	90.7	90.6	90.2	90.7	89.9	90.2	89.3	89.4	89.1	88.9	87.9	88.4	+0.5
<b>Been Drunk<sup>t</sup></b>																			
8th Grade	26.7	26.8	26.4	25.9	25.3	26.8	25.2	24.8	24.8	25.1	23.4	21.3	20.3	19.9	19.5	19.5	17.9	18.0	+0.1
10th Grade	50.0	47.7	47.9	47.2	46.9	48.5	49.4	46.7	48.9	49.3	48.2	44.0	42.4	42.3	42.1	41.4	41.2	37.2	-4.0 sss
12th Grade	65.4	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4	55.1	54.7	-0.4
College Students	79.6	76.8	76.4	74.4	76.6	76.2	77.0	76.8	75.1	74.7	76.1	75.1	74.9	73.4	72.9	73.1	71.6	72.5	+0.9
Young Adults	82.9	81.1	81.4	80.7	82.1	80.7	81.4	79.8	81.6	80.4	81.1	81.2	80.9	80.1	79.9	80.9	80.1	80.1	0.0
<b>Flavored Alcoholic Beverages<sup>g,o</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	37.9	35.5	35.5	34.0	32.8	-1.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.8	58.1	55.7	53.5	-2.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	71.0	73.6	69.9	68.4	65.5	-2.9
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	79.0	84.5	80.9	80.6	78.6	-2.0
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	83.2	84.6	84.4	84.0	82.6	-1.4

(Table continued on next page.)

**TABLE 2-1 (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Cigarettes</b>																			
<b>Any Use</b>																			
8th Grade	44.0	45.2	45.3	46.1	46.4	49.2	47.3	45.7	44.1	40.5	36.6	31.4	28.4	27.9	25.9	24.6	22.1	20.5	-1.7
10th Grade	55.1	53.5	56.3	56.9	57.6	61.2	60.2	57.7	57.6	55.1	52.8	47.4	43.0	40.7	38.9	36.1	34.6	31.7	-2.9 ss
12th Grade	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1	46.2	44.7	-1.5
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Smokeless Tobacco<sup>u</sup></b>																			
8th Grade	22.2	20.7	18.7	19.9	20.0	20.4	16.8	15.0	14.4	12.8	11.7	11.2	11.3	11.0	10.1	10.2	9.1	9.8	+0.8
10th Grade	28.2	26.6	28.1	29.2	27.6	27.4	26.3	22.7	20.4	19.1	19.5	16.9	14.6	13.8	14.5	15.0	15.1	12.2	-2.9 ss
12th Grade	—	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2	15.1	15.6	+0.5
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Steroids<sup>v,w</sup></b>																			
8th Grade	1.9	1.7	1.6	2.0	2.0	1.8	1.8	2.3	2.7	3.0	2.8	2.5	2.5	1.9	1.7	1.6	1.5	1.4	-0.2
10th Grade	1.8	1.7	1.7	1.8	2.0	1.8	2.0	2.0	2.7	3.5	3.5	3.5	3.0	2.4	2.0	1.8	1.8	1.4	-0.4
12th Grade	2.1	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7	2.2	2.2	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	1.7	1.9	1.5	1.3	1.5	1.5	1.4	1.4	1.9	1.4	1.4	1.6	1.8	1.9	1.8	1.8	1.7	1.8	+0.1

Source. The Monitoring the Future study, the University of Michigan.

### Footnotes for Tables 2-1 through 2-4

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

“\*\*” indicates less than 0.05% but greater than 0%.

“‡” indicates some change in the question. See relevant footnote for that drug. See relevant figure to assess the impact of the wording changes.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

Approximate Weighted Ns	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
8th Graders	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700
10th Graders	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100
12th Graders	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
College																		
Students	1,410	1,490	1,490	1,410	1,450	1,450	1,480	1,440	1,440	1,350	1,340	1,260	1,270	1,400	1,360	1,280	1,250	1,270
Young Adults	6,600	6,800	6,700	6,500	6,400	6,300	6,400	6,200	6,000	5,700	5,800	5,300	5,300	5,700	5,400	5,100	4,800	4,900

<sup>a</sup>For 12th graders, college students, and young adults only: Use of “any illicit drug” includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor’s orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>In 2001 the question text was changed on half of the questionnaire forms for each age group. “Other psychedelics” was changed to “other hallucinogens” and “shrooms” was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. For 8th, 10th, and 12th graders only: The 2001 data presented here are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed to the new wording. The data are based on all forms beginning in 2002. Data for any illicit drug other than marijuana and data for hallucinogens are also affected by these changes and have been handled in a parallel manner.

<sup>c</sup>For 12th graders, college students, and young adults only: Data based on five of six forms in 1991–1998;  $N$  is five sixths of  $N$  indicated. Data based on three of six forms beginning in 1999;  $N$  is three sixths of  $N$  indicated.

<sup>d</sup>Inhalants are unadjusted for underreporting of amyl and butyl nitrites.

<sup>e</sup>For 12th graders only: Data based on one of six forms;  $N$  is one sixth of  $N$  indicated. For young adults only: Data based on one of six forms;  $N$  is one sixth of  $N$  indicated. Questions about nitrite use were dropped from the young adult questionnaires in 1995.

<sup>f</sup>Hallucinogens are unadjusted for underreporting of PCP.

<sup>g</sup>For 12th graders, college students, and young adults only: Data based on one of six forms;  $N$  is one sixth of  $N$  indicated.

<sup>h</sup>For 8th and 10th graders only: Data based on one of two forms in 1996;  $N$  is one half of  $N$  indicated. Data based on one third of  $N$  indicated in 1997–2001 due to changes in the questionnaire forms. Data based on two of four forms beginning in 2002;  $N$  is one half of  $N$  indicated. For 12th graders only: Data based on one of six forms in 1996–2001;  $N$  is one sixth of  $N$  indicated. Data based on two of six forms beginning in 2002;  $N$  is two sixths of  $N$  indicated. For college students and young adults only: Data based on two of six forms in 1991–2001;  $N$  is two sixths of  $N$  indicated. Data based on three of six forms beginning in 2002;  $N$  is three sixths of  $N$  indicated.

<sup>i</sup>For college students and young adults only: Data based on five of six forms beginning in 2002;  $N$  is five sixths of  $N$  indicated.

<sup>j</sup>For 12th graders only: Data based on four of six forms;  $N$  is four sixths of  $N$  indicated. For college students and young adults only: Data based on four of six forms;  $N$  is four sixths of  $N$  indicated.

<sup>k</sup>In 1995, the heroin question was changed in one of two forms for 8th and 10th graders, in three of six forms for 12th graders, and in two of six forms for college students and young adults. Separate questions were asked for use with and without injection. In 1996, the heroin question was changed in all remaining 8th- and 10th-grade forms. Data presented here represent the combined data from all forms.

<sup>l</sup>For 8th and 10th graders only: Data based on one of two forms in 1995;  $N$  is one half of  $N$  indicated. Data based on all forms beginning in 1996. For 12th graders only: Data based on three of six forms;  $N$  is three sixths of  $N$  indicated. For college students and young adults only: Data based on two of six forms;  $N$  is two sixths of  $N$  indicated.

<sup>m</sup>Only drug use not under a doctor’s orders is included here.

<sup>n</sup>In 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2003, the remaining forms were changed to the new wording. The data are based on all forms beginning in 2003.

<sup>o</sup>For 8th and 10th graders only: Data based on one of four forms;  $N$  is one third of  $N$  indicated.

<sup>p</sup>For 12th graders, college students, and young adults only: Data based on two of six forms;  $N$  is two sixths of  $N$  indicated.

<sup>q</sup>For 12th graders only: Data based on one of six forms;  $N$  is one sixth of  $N$  indicated.

<sup>r</sup>For 8th and 10th graders only: Data based on one of two forms in 1996;  $N$  is one half of  $N$  indicated. Data based on three of four forms in 1997–1998;  $N$  is two thirds of  $N$  indicated. Data based on two of four forms in 1999–2001;  $N$  is one third of  $N$  indicated. Data based on one of four forms beginning in 2002;  $N$  is one sixth of  $N$  indicated. For 12th graders only: Data based on one of six forms in 1996–2001;  $N$  is one sixth of  $N$  indicated. Data based on two of six forms beginning in 2002;  $N$  is two sixths of  $N$  indicated. Data for 2001 and 2002 are not comparable due to changes in the questionnaire forms. For college students and young adults only: Data based on two of six forms;  $N$  is two sixths of  $N$  indicated.

<sup>s</sup>For 8th, 10th, and 12th graders only: In 1993, the question text was changed slightly in half of the forms to indicate that a “drink” meant “more than just a few sips.” The 1993 data are based on the changed forms only;  $N$  is one half of  $N$  indicated for these groups. In 1994 the remaining forms were changed to the new wording. The data are based on all forms beginning in 1994. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005. For college students and young adults: The revision of the question text resulted in rather little change in the reported prevalence of use. The data for all forms are used to provide the most reliable estimate of change.

<sup>t</sup>For 12th graders only: Data based on two of six forms;  $N$  is two sixths of  $N$  indicated. For college students and young adults only: Data based on three of six forms;  $N$  is three sixths of  $N$  indicated.

<sup>u</sup>For 8th and 10th graders only: Data based on one of two forms for 1991–1996 and on two of four forms beginning in 1997;  $N$  is one half of  $N$  indicated. For 12th graders only: Data based on one of six forms;  $N$  is one sixth of  $N$  indicated. For college students and young adults only: Questions about smokeless tobacco use were dropped from the analyses in 1989.

<sup>v</sup>For 8th, 10th, and 12th graders only: In 2006, the question text was changed slightly in some of the forms. An examination of the data did not show any effect from the wording change. For 12th graders only: Data based on two of six forms in 1991–2005; *N* is two sixths of *N* indicated. Data based on three of six forms in 2006; *N* is three sixths of *N* indicated.

<sup>w</sup>For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated. In 2008, the question text was changed slightly.

<sup>x</sup>For 12th graders only: Data based on two of six forms in 2002–2005; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated.

<sup>y</sup>For 12th graders only: Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms in 2001; *N* is three sixths of *N* indicated. Data based on one of six forms beginning in 2002; *N* is one sixth of *N* indicated. For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>z</sup>For 12th graders only: Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2001; *N* is three sixths of *N* indicated. For college students and young adults only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>aa</sup>For 12th graders only: The 2003 flavored alcoholic beverage data were created by adjusting the 2004 data to reflect the observed 2003 to 2004 change in a slightly different version of the flavored alcoholic beverage question. In 2004 the original question was revised to include wine coolers among the examples—a change that had very little effect on the observed prevalence-of-use rate.

<sup>bb</sup>Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes and smokeless tobacco, for which actual daily use is measured, and for 5+ drinks, for which the prevalence of having five or more drinks in a row in the last two weeks is measured.

<sup>cc</sup>For 12th graders only: Due to a coding error, previously released versions of this table contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here. For 8th and 10th graders only: The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008. The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this table.

**TABLE 2-2**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Any Illicit Drug<sup>a</sup></b>																			
8th Grade	11.3	12.9	15.1	18.5	21.4	23.6	22.1	21.0	20.5	19.5	19.5	17.7	16.1	15.2	15.5	14.8	13.2	14.1	+0.8
10th Grade	21.4	20.4	24.7	30.0	33.3	37.5	38.5	35.0	35.9	36.4	37.2	34.8	32.0	31.1	29.8	28.7	28.1	26.9	-1.2
12th Grade	29.4	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	+0.6
College Students	29.2	30.6	30.6	31.4	33.5	34.2	34.1	37.8	36.9	36.1	37.9	37.0	36.5	36.2	36.6	33.9	35.0	35.2	+0.2
Young Adults	27.0	28.3	28.4	28.4	29.8	29.2	29.2	29.9	30.3	30.8	32.1	32.4	33.0	33.7	32.8	32.1	32.5	33.8	+1.2
<b>Any Illicit Drug other than Marijuana<sup>a,b</sup></b>																			
8th Grade	8.4	9.3	10.4	11.3	12.6	13.1	11.8	11.0	10.5	10.2‡	10.8	8.8	8.8	7.9	8.1	7.7	7.0	7.4	+0.4
10th Grade	12.2	12.3	13.9	15.2	17.5	18.4	18.2	16.6	16.7	16.7‡	17.9	15.7	13.8	13.5	12.9	12.7	13.1	11.3	-1.7 s
12th Grade	16.2	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4‡	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	-0.3
College Students	13.2	13.1	12.5	12.2	15.9	12.8	15.8	14.0	15.4	15.6‡	16.4	16.6	17.9	18.6	18.5	18.1	17.3	15.3	-2.0
Young Adults	14.3	14.1	13.0	13.0	13.8	13.2	13.6	13.2	13.7	14.9‡	15.4	16.3	18.1	18.8	18.5	18.4	18.1	18.9	+0.8
<b>Any Illicit Drug including Inhalants<sup>a,c,d</sup></b>																			
8th Grade	16.7	18.2	21.1	24.2	27.1	28.7	27.2	26.2	25.3	24.0	23.9	21.4	20.4	20.2	20.4	19.7	18.0	19.0	+1.0
10th Grade	23.9	23.5	27.4	32.5	35.6	39.6	40.3	37.1	37.7	38.0	38.7	36.1	33.5	32.9	31.7	30.7	30.2	28.8	-1.3
12th Grade	31.2	28.8	32.5	37.6	40.2	41.9	43.3	42.4	42.8	42.5	42.6	42.1	40.5	39.1	40.3	38.0	37.0	37.3	+0.3
College Students	29.8	31.1	31.7	31.9	33.7	35.1	35.5	39.1	37.4	37.0	38.2	37.7	36.0	35.9	37.9	35.5	36.8	35.7	-1.1
Young Adults	27.8	29.2	28.9	29.2	30.4	30.2	30.1	30.6	30.6	31.2	33.2	32.4	32.7	34.9	32.8	32.6	33.2	33.5	+0.3
<b>Marijuana/Hashish</b>																			
8th Grade	6.2	7.2	9.2	13.0	15.8	18.3	17.7	16.9	16.5	15.6	15.4	14.6	12.8	11.8	12.2	11.7	10.3	10.9	+0.6
10th Grade	16.5	15.2	19.2	25.2	28.7	33.6	34.8	31.1	32.1	32.2	32.7	30.3	28.2	27.5	26.6	25.2	24.6	23.9	-0.6
12th Grade	23.9	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	+0.7
College Students	26.5	27.7	27.9	29.3	31.2	33.1	31.6	35.9	35.2	34.0	35.6	34.7	33.7	33.3	33.3	30.2	31.8	32.3	+0.5
Young Adults	23.8	25.2	25.1	25.5	26.5	27.0	26.8	27.4	27.6	27.9	29.2	29.3	29.0	29.2	28.2	27.7	28.5	28.6	+0.1
<b>Inhalants<sup>c,d</sup></b>																			
8th Grade	9.0	9.5	11.0	11.7	12.8	12.2	11.8	11.1	10.3	9.4	9.1	7.7	8.7	9.6	9.5	9.1	8.3	8.9	+0.6
10th Grade	7.1	7.5	8.4	9.1	9.6	9.5	8.7	8.0	7.2	7.3	6.6	5.8	5.4	5.9	6.0	6.5	6.6	5.9	-0.7
12th Grade	6.6	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	+0.1
College Students	3.5	3.1	3.8	3.0	3.9	3.6	4.1	3.0	3.2	2.9	2.8	2.0	1.8	2.7	1.8	1.5	1.5	1.1	-0.4
Young Adults	2.0	1.9	2.1	2.1	2.4	2.2	2.3	2.1	2.3	2.1	1.7	1.6	1.4	1.7	1.3	1.3	0.8	1.4	+0.6
<b>Nitrites<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.9	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5	0.8	0.6	-0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.2	0.1	0.4	0.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hallucinogens<sup>b,f</sup></b>																			
8th Grade	1.9	2.5	2.6	2.7	3.6	4.1	3.7	3.4	2.9	2.8‡	3.4	2.6	2.6	2.2	2.4	2.1	1.9	2.1	+0.2
10th Grade	4.0	4.3	4.7	5.8	7.2	7.8	7.6	6.9	6.9	6.1‡	6.2	4.7	4.1	4.1	4.0	4.1	4.4	3.9	-0.5
12th Grade	5.8	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1‡	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	+0.5
College Students	6.3	6.8	6.0	6.2	8.2	6.9	7.7	7.2	7.8	6.7‡	7.5	6.3	7.4	5.9	5.0	5.6	4.9	5.1	+0.2
Young Adults	4.5	5.0	4.5	4.8	5.6	5.6	5.9	5.2	5.4	5.4‡	5.4	4.7	5.2	4.7	4.5	4.1	3.8	3.8	0.0

(Table continued on next page.)

**TABLE 2-2 (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>LSD</b>																			
8th Grade	1.7	2.1	2.3	2.4	3.2	3.5	3.2	2.8	2.4	2.4	2.2	1.5	1.3	1.1	1.2	0.9	1.1	1.3	+0.2
10th Grade	3.7	4.0	4.2	5.2	6.5	6.9	6.7	5.9	6.0	5.1	4.1	2.6	1.7	1.6	1.5	1.7	1.9	1.8	-0.1
12th Grade	5.2	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	+0.6
College Students	5.1	5.7	5.1	5.2	6.9	5.2	5.0	4.4	5.4	4.3	4.0	2.1	1.4	1.2	0.7	1.4	1.3	2.6	+1.3 s
Young Adults	3.8	4.3	3.8	4.0	4.6	4.5	4.4	3.5	4.0	3.7	3.4	1.8	1.2	0.9	0.8	1.2	1.1	1.4	+0.3
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	0.7	1.1	1.0	1.3	1.7	2.0	1.8	1.6	1.5	1.4†	2.4	2.1	2.1	1.9	2.0	1.8	1.6	1.6	0.0
10th Grade	1.3	1.4	1.9	2.4	2.8	3.3	3.3	3.4	3.2	3.1†	4.3	4.0	3.6	3.7	3.5	3.7	3.8	3.3	-0.5
12th Grade	2.0	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4†	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0	+0.2
College Students	3.1	2.6	2.7	2.8	4.0	4.1	4.9	4.4	4.5	4.4†	5.5	5.8	7.1	5.6	5.0	5.4	4.7	4.4	-0.4
Young Adults	1.7	1.9	1.9	2.0	2.5	2.8	3.1	3.0	3.0	3.4†	3.5	4.0	4.9	4.5	4.2	3.8	3.6	3.4	-0.2
<b>PCP<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7	0.9	1.1	+0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.3	0.3	0.2	0.3	0.3	0.2	0.5	0.6	0.6	0.3	0.6	0.3	0.3	0.1	0.6	0.2	0.3	0.4	+0.1
<b>Ecstasy (MDMA)<sup>h</sup></b>																			
8th Grade	—	—	—	—	—	2.3	2.3	1.8	1.7	3.1	3.5	2.9	2.1	1.7	1.7	1.4	1.5	1.7	+0.2
10th Grade	—	—	—	—	—	4.6	3.9	3.3	4.4	5.4	6.2	4.9	3.0	2.4	2.6	2.8	3.5	2.9	-0.6
12th Grade	—	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	-0.2
College Students	0.9	2.0	0.8	0.5	2.4	2.8	2.4	3.9	5.5	9.1	9.2	6.8	4.4	2.2	2.9	2.6	2.2	3.7	+1.6
Young Adults	0.8	1.0	0.8	0.7	1.6	1.7	2.1	2.9	3.6	7.2	7.5	6.2	4.5	3.5	3.0	3.0	2.5	3.3	+0.8
<b>Cocaine</b>																			
8th Grade	1.1	1.5	1.7	2.1	2.6	3.0	2.8	3.1	2.7	2.6	2.5	2.3	2.2	2.0	2.2	2.0	2.0	1.8	-0.2
10th Grade	2.2	1.9	2.1	2.8	3.5	4.2	4.7	4.7	4.9	4.4	3.6	4.0	3.3	3.7	3.5	3.2	3.4	3.0	-0.5
12th Grade	3.5	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	-0.8
College Students	3.6	3.0	2.7	2.0	3.6	2.9	3.4	4.6	4.6	4.8	4.7	4.8	5.4	6.6	5.7	5.1	5.4	4.4	-1.0
Young Adults	6.2	5.7	4.7	4.3	4.4	4.1	4.7	4.9	5.4	5.4	5.8	5.8	6.6	7.1	6.9	6.6	6.2	6.0	-0.3
<b>Crack<sup>i</sup></b>																			
8th Grade	0.7	0.9	1.0	1.3	1.6	1.8	1.7	2.1	1.8	1.8	1.7	1.6	1.6	1.3	1.4	1.3	1.3	1.1	-0.2
10th Grade	0.9	0.9	1.1	1.4	1.8	2.1	2.2	2.5	2.4	2.2	1.8	2.3	1.6	1.7	1.7	1.3	1.3	1.3	-0.1
12th Grade	1.5	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6	-0.4 s
College Students	0.5	0.4	0.6	0.5	1.1	0.6	0.4	1.0	0.9	0.9	0.9	0.4	1.3	1.3	0.8	1.0	0.6	0.5	-0.1
Young Adults	1.2	1.4	1.3	1.1	1.1	1.1	1.0	1.1	1.4	1.2	1.3	1.0	1.0	1.3	1.2	1.1	1.0	0.9	-0.1
<b>Other Cocaine<sup>j</sup></b>																			
8th Grade	1.0	1.2	1.3	1.7	2.1	2.5	2.2	2.4	2.3	1.9	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.4	-0.1
10th Grade	2.1	1.7	1.8	2.4	3.0	3.5	4.1	4.0	4.4	3.8	3.0	3.4	2.8	3.3	3.0	2.9	3.1	2.6	-0.5
12th Grade	3.2	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	-0.5
College Students	3.2	2.4	2.5	1.8	3.3	2.3	3.0	4.2	4.2	4.1	4.1	5.0	5.1	6.3	5.0	3.8	5.3	4.2	-1.1
Young Adults	5.4	5.1	3.9	3.6	3.9	3.8	4.3	4.5	4.8	4.8	5.3	5.6	6.1	6.4	6.3	5.9	5.6	5.5	-0.1

(Table continued on next page.)

**TABLE 2-2 (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Heroin<sup>k</sup></b>																			
8th Grade	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.0
10th Grade	0.5	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.0
12th Grade	0.4	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	-0.2
College Students	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.6	0.2	0.5	0.4	0.1	0.2	0.4	0.3	0.3	0.2	0.3	+0.2
Young Adults	0.1	0.2	0.2	0.1	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.2	0.4	0.3	0.4	0.4	0.3	0.5	+0.2
<b>With a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	0.9	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.0
10th Grade	—	—	—	—	0.6	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.0
12th Grade	—	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.0
College Students	—	—	—	—	0.1	*	0.1	0.2	0.1	0.1	0.1	*	0.1	0.1	0.3	0.3	*	0.0	0.0
Young Adults	—	—	—	—	0.1	0.1	0.1	0.1	0.1	*	0.3	*	*	0.1	0.2	0.3	0.1	0.1	0.0
<b>Without a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	0.8	1.0	0.8	0.8	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	+0.1
10th Grade	—	—	—	—	0.8	0.9	1.1	1.0	1.1	1.1	0.7	0.8	0.5	0.7	0.7	0.6	0.6	0.6	0.0
12th Grade	—	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	-0.5 ss
College Students	—	—	—	—	0.0	0.8	0.4	0.9	0.3	0.8	0.6	0.2	0.1	0.6	0.2	0.3	0.2	0.3	+0.1
Young Adults	—	—	—	—	0.3	0.4	0.4	0.7	0.6	0.5	0.9	0.2	0.4	0.3	0.4	0.5	0.3	0.4	+0.1
<b>Narcotics other than Heroin<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.5	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7‡	9.4	9.3	9.5	9.0	9.0	9.2	9.1	0.0
College Students	2.7	2.7	2.5	2.4	3.8	3.1	4.2	4.2	4.3	4.5	5.7‡	7.4	8.7	8.2	8.4	8.8	7.7	6.5	-1.2
Young Adults	2.5	2.5	2.2	2.5	3.0	2.9	3.3	3.4	3.8	4.1	5.0‡	7.1	8.5	9.0	8.7	9.1	8.7	9.1	+0.4
<b>OxyContin<sup>m,o,w,x</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	1.3	1.7	1.7	1.8	2.6	1.8	2.1	+0.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.5	3.2	3.8	3.9	3.6	-0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3	5.2	4.7	-0.5
College Students	—	—	—	—	—	—	—	—	—	—	—	1.5	2.2	2.5	2.1	3.0	2.8	3.6	+0.8
Young Adults	—	—	—	—	—	—	—	—	—	—	—	1.9	2.6	3.1	3.1	3.1	2.9	3.9	+0.9
<b>Vicodin<sup>m,o,w,x</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	2.5	2.8	2.5	2.6	3.0	2.7	2.9	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	6.9	7.2	6.2	5.9	7.0	7.2	6.7	-0.5
12th Grade	—	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	+0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	6.9	7.5	7.4	9.6	7.6	6.7	6.7	0.0
Young Adults	—	—	—	—	—	—	—	—	—	—	—	8.2	8.6	8.9	9.3	9.1	8.9	9.1	+0.2
<b>Amphetamines<sup>m</sup></b>																			
8th Grade	6.2	6.5	7.2	7.9	8.7	9.1	8.1	7.2	6.9	6.5	6.7	5.5	5.5	4.9	4.9	4.7	4.2	4.5	+0.3
10th Grade	8.2	8.2	9.6	10.2	11.9	12.4	12.1	10.7	10.4	11.1	11.7	10.7	9.0	8.5	7.8	7.9	8.0	6.4	-1.6 ss
12th Grade	8.2	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	-0.7
College Students	3.9	3.6	4.2	4.2	5.4	4.2	5.7	5.1	5.8	6.6	7.2	7.0	7.1	7.0	6.7	6.0	6.9	5.7	-1.2
Young Adults	4.3	4.1	4.0	4.5	4.6	4.2	4.6	4.5	4.7	5.4	5.8	5.9	5.8	6.2	5.1	5.6	5.6	5.3	-0.3

(Table continued on next page.)

**TABLE 2-2 (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
 (Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Ritalin<sup>m,o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	2.9	2.8	2.6	2.5	2.4	2.6	2.1	1.6	-0.4
10th Grade	—	—	—	—	—	—	—	—	—	—	4.8	4.8	4.1	3.4	3.4	3.6	2.8	2.9	+0.2
12th Grade	—	—	—	—	—	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4	3.8	3.4	-0.4
College Students	—	—	—	—	—	—	—	—	—	—	—	5.7	4.7	4.7	4.2	3.9	3.7	3.2	-0.5
Young Adults	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9	2.7	2.5	2.6	2.4	2.4	0.0
<b>Methamphetamine<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	3.2	2.5	2.8	2.2	2.5	1.5	1.8	1.8	1.1	1.2	+0.1
10th Grade	—	—	—	—	—	—	—	—	4.6	4.0	3.7	3.9	3.3	3.0	2.9	1.8	1.6	1.5	-0.1
12th Grade	—	—	—	—	—	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5	1.7	1.2	-0.5
College Students	—	—	—	—	—	—	—	—	3.3	1.6	2.4	1.2	2.6	2.9	1.7	1.2	0.4	0.5	+0.1
Young Adults	—	—	—	—	—	—	—	—	2.8	2.5	2.8	2.5	2.7	2.8	2.4	1.9	1.5	1.0	-0.5
<b>Crystal Meth. (Ice)<sup>p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9	1.6	1.1	-0.6 s
College Students	0.1	0.2	0.7	0.8	1.1	0.3	0.8	1.0	0.5	0.5	0.6	0.8	0.9	1.1	1.4	0.6	0.7	0.1	-0.6
Young Adults	0.3	0.4	0.8	0.9	1.2	0.9	0.9	1.1	0.9	1.2	1.1	1.4	1.3	1.5	1.6	1.1	1.1	0.8	-0.3
<b>Sedatives</b>																			
<b>(Barbiturates)<sup>m</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.4	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6	6.2	5.8	-0.4
College Students	1.2	1.4	1.5	1.2	2.0	2.3	3.0	2.5	3.2	3.7	3.8	3.7	4.1	4.2	3.9	3.4	3.6	3.7	+0.1
Young Adults	1.8	1.6	1.9	1.8	2.1	2.2	2.4	2.5	2.8	3.4	3.7	3.9	3.9	4.4	4.2	3.9	4.2	4.7	+0.5
<b>Methaqualone<sup>m,q</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8	0.5	0.5	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Tranquilizers<sup>b,m</sup></b>																			
8th Grade	1.8	2.0	2.1	2.4	2.7	3.3	2.9	2.6	2.5	2.6†	2.8	2.6	2.7	2.5	2.8	2.6	2.4	2.4	0.0
10th Grade	3.2	3.5	3.3	3.3	4.0	4.6	4.9	5.1	5.4	5.6†	7.3	6.3	5.3	5.1	4.8	5.2	5.3	4.6	-0.7
12th Grade	3.6	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7†	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	0.0
College Students	2.4	2.9	2.4	1.8	2.9	2.8	3.8	3.9	3.8	4.2†	5.1	6.7	6.9	6.7	6.4	5.8	5.5	5.0	-0.5
Young Adults	3.5	3.4	3.1	2.9	3.4	3.2	3.1	3.8	3.7	4.6†	5.5	7.0	6.8	7.4	6.7	6.5	7.1	6.8	-0.4
<b>OTC Cough/Cold Medicines<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.2	4.0	3.6	-0.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	5.4	5.3	-0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	5.8	5.5	-0.3
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

**TABLE 2-2 (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Rohypnol<sup>f</sup></b>																			
8th Grade	—	—	—	—	—	1.0	0.8	0.8	0.5	0.5	0.7	0.3	0.5	0.6	0.7	0.5	0.7	0.5	-0.2
10th Grade	—	—	—	—	—	1.1	1.3	1.2	1.0	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.7	0.4	-0.3
12th Grade	—	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9‡	1.6	1.3	1.6	1.2	1.1	1.0	1.3	+0.3
College Students	—	—	—	—	—	—	—	—	—	—	—	0.7	0.4	0.3	0.1	0.2	0.1	0.3	+0.2
Young Adults	—	—	—	—	—	—	—	—	—	—	—	0.3	0.5	0.1	0.1	0.2	0.3	0.2	0.0
<b>GHB<sup>o,y</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	1.2	1.1	0.8	0.9	0.7	0.5	0.8	0.7	1.1	+0.4 s
10th Grade	—	—	—	—	—	—	—	—	—	1.1	1.0	1.4	1.4	0.8	0.8	0.7	0.6	0.5	0.0
12th Grade	—	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1	0.9	1.2	+0.3
College Students	—	—	—	—	—	—	—	—	—	—	—	0.6	0.3	0.7	0.4	*	0.1	0.2	+0.1
Young Adults	—	—	—	—	—	—	—	—	—	—	—	0.8	0.6	0.5	0.3	0.2	0.4	0.3	-0.1
<b>Ketamine<sup>o,z</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	1.6	1.3	1.3	1.1	0.9	0.6	0.9	1.0	1.2	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	2.1	2.1	2.2	1.9	1.3	1.0	1.0	0.8	1.0	+0.2
12th Grade	—	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4	1.3	1.5	+0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	1.3	1.0	1.5	0.5	0.9	0.2	0.4	+0.1
Young Adults	—	—	—	—	—	—	—	—	—	—	—	1.2	0.9	0.6	0.5	0.5	0.3	0.4	+0.1
<b>Alcohol<sup>s</sup></b>																			
<b>Any Use</b>																			
8th Grade	54.0	53.7‡	45.4	46.8	45.3	46.5	45.5	43.7	43.5	43.1	41.9	38.7	37.2	36.7	33.9	33.6	31.8	32.1	+0.3
10th Grade	72.3	70.2‡	63.4	63.9	63.5	65.0	65.2	62.7	63.7	65.3	63.5	60.0	59.3	58.2	56.7	55.8	56.3	52.5	-3.8 sss
12th Grade	77.7	76.8‡	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5	66.4	65.5	-0.9
College Students	88.3	86.9	85.1	82.7	83.2	82.9	82.4	84.6	83.6	83.2	83.0	82.9	81.7	81.2	83.0	82.1	80.9	82.1	+1.3
Young Adults	86.9	86.2	85.3	83.7	84.7	84.0	84.3	84.0	84.1	84.0	84.3	84.9	83.3	84.4	83.8	84.4	84.0	83.6	-0.4
<b>Been Drunk<sup>t</sup></b>																			
8th Grade	17.5	18.3	18.2	18.2	18.4	19.8	18.4	17.9	18.5	18.5	16.6	15.0	14.5	14.5	14.1	13.9	12.6	12.7	+0.1
10th Grade	40.1	37.0	37.8	38.0	38.5	40.1	40.7	38.3	40.9	41.6	39.9	35.4	34.7	35.1	34.2	34.5	34.4	30.0	-4.3 sss
12th Grade	52.7	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9	46.1	45.6	-0.5
College Students	69.1	67.3	65.6	63.1	62.1	64.2	66.8	67.0	65.4	64.7	68.8	66.0	64.7	67.1	64.2	66.2	64.8	66.8	+2.0
Young Adults	62.0	60.9	61.1	58.8	61.6	59.9	63.2	59.6	63.2	60.6	63.1	61.8	62.9	63.8	63.5	65.7	65.8	66.0	+0.3
<b>Flavored Alcoholic Beverages<sup>g,o,aa</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	30.4	27.9	26.8	26.0	25.0	-1.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	49.7	48.5	48.8	45.9	43.4	-2.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	55.2	55.8	58.4	54.7	53.6	51.8	-1.9
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	63.2	67.0	63.5	62.6	65.0	+2.4
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	62.7	58.4	58.5	58.9	58.3	-0.6
<b>Cigarettes</b>																			
<b>Any Use</b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
College Students	35.6	37.3	38.8	37.6	39.3	41.4	43.6	44.3	44.5	41.3	39.0	38.3	35.2	36.7	36.0	30.9	30.7	30.0	-0.6
Young Adults	37.7	37.9	37.8	38.3	38.8	40.3	41.8	41.6	41.1	40.9	41.1	39.1	38.6	39.0	39.1	36.9	36.2	35.0	-1.2

(Table continued on next page.)

**TABLE 2-2 (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Bidis<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	3.9	2.7	2.7	2.0	1.7	1.6	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	6.4	4.9	3.1	2.8	2.1	1.6	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3	1.7	1.9	+0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Kreteks<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	2.6	2.6	2.0	1.9	1.4	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	6.0	4.9	3.8	3.7	2.8	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2	6.8	6.8	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Steroids<sup>v,w</sup></b>																			
8th Grade	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4	1.1	1.1	0.9	0.8	0.9	+0.1
10th Grade	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7	1.5	1.3	1.2	1.1	0.9	-0.1
12th Grade	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	+0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.5	0.4	0.3	0.4	0.5	0.3	0.5	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.3	0.7	0.4	-0.3

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 2-1.

**TABLE 2-3**  
**Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Any Illicit Drug<sup>a</sup></b>																			
8th Grade	5.7	6.8	8.4	10.9	12.4	14.6	12.9	12.1	12.2	11.9	11.7	10.4	9.7	8.4	8.5	8.1	7.4	7.6	+0.2
10th Grade	11.6	11.0	14.0	18.5	20.2	23.2	23.0	21.5	22.1	22.5	22.7	20.8	19.5	18.3	17.3	16.8	16.9	15.8	-1.1
12th Grade	16.4	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5	21.9	22.3	+0.5
College Students	15.2	16.1	15.1	16.0	19.1	17.6	19.2	19.7	21.6	21.5	21.9	21.5	21.4	21.2	19.5	19.2	19.3	18.9	-0.3
Young Adults	15.1	14.8	14.9	15.3	15.8	15.8	16.4	16.1	17.1	18.1	18.8	18.9	19.9	19.1	18.6	18.5	18.9	19.3	+0.4
<b>Any Illicit Drug other than Marijuana<sup>a,b</sup></b>																			
8th Grade	3.8	4.7	5.3	5.6	6.5	6.9	6.0	5.5	5.5	5.6‡	5.5	4.7	4.7	4.1	4.1	3.8	3.6	3.8	+0.1
10th Grade	5.5	5.7	6.5	7.1	8.9	8.9	8.8	8.6	8.6	8.5‡	8.7	8.1	6.9	6.9	6.4	6.3	6.9	5.3	-1.6 sss
12th Grade	7.1	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4‡	11.0	11.3	10.4	10.8	10.3	9.8	9.5	9.3	-0.2
College Students	4.3	4.6	5.4	4.6	6.3	4.5	6.8	6.1	6.4	6.9‡	7.5	7.8	8.2	9.1	8.2	8.2	8.1	7.3	-0.8
Young Adults	5.4	5.5	4.9	5.3	5.7	4.7	5.5	5.5	6.0	6.4‡	7.0	7.7	8.3	8.5	8.2	8.1	8.6	8.9	+0.2
<b>Any Illicit Drug including Inhalants<sup>a,c,d</sup></b>																			
8th Grade	8.8	10.0	12.0	14.3	16.1	17.5	16.0	14.9	15.1	14.4	14.0	12.6	12.1	11.2	11.2	10.9	10.1	10.4	+0.3
10th Grade	13.1	12.6	15.5	20.0	21.6	24.5	24.1	22.5	23.1	23.6	23.6	21.7	20.5	19.3	18.4	17.7	18.1	16.8	-1.3
12th Grade	17.8	15.5	19.3	23.0	24.8	25.5	26.9	26.6	26.4	26.4	26.5	25.9	24.6	23.3	24.2	22.1	22.8	22.8	0.0
College Students	15.1	16.5	15.7	16.4	19.6	18.0	19.6	21.0	21.8	22.6	21.9	21.9	21.6	21.7	19.0	19.7	18.1	18.9	+0.8
Young Adults	15.4	15.3	15.1	16.1	16.1	16.4	16.9	16.7	17.4	18.8	19.2	19.5	20.1	19.6	18.0	18.4	19.1	19.3	+0.2
<b>Marijuana/Hashish</b>																			
8th Grade	3.2	3.7	5.1	7.8	9.1	11.3	10.2	9.7	9.7	9.1	9.2	8.3	7.5	6.4	6.6	6.5	5.7	5.8	+0.1
10th Grade	8.7	8.1	10.9	15.8	17.2	20.4	20.5	18.7	19.4	19.7	19.8	17.8	17.0	15.9	15.2	14.2	14.2	13.8	-0.3
12th Grade	13.8	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3	18.8	19.4	+0.7
College Students	14.1	14.6	14.2	15.1	18.6	17.5	17.7	18.6	20.7	20.0	20.2	19.7	19.3	18.9	17.1	16.7	16.8	17.0	+0.2
Young Adults	13.5	13.3	13.4	14.1	14.0	15.1	15.0	14.9	15.6	16.1	16.7	16.9	17.3	16.5	15.8	15.7	16.0	16.0	0.0
<b>Inhalants<sup>c,d</sup></b>																			
8th Grade	4.4	4.7	5.4	5.6	6.1	5.8	5.6	4.8	5.0	4.5	4.0	3.8	4.1	4.5	4.2	4.1	3.9	4.1	+0.2
10th Grade	2.7	2.7	3.3	3.6	3.5	3.3	3.0	2.9	2.6	2.6	2.4	2.4	2.2	2.4	2.2	2.3	2.5	2.1	-0.4
12th Grade	2.4	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5	1.2	1.4	+0.2
College Students	0.9	1.1	1.3	0.6	1.6	0.8	0.8	0.6	1.5	0.9	0.4	0.7	0.4	0.4	0.3	0.4	0.1	0.4	+0.2
Young Adults	0.5	0.6	0.7	0.5	0.7	0.5	0.5	0.7	0.8	0.5	0.4	0.5	0.3	0.3	0.2	0.3	0.2	0.4	+0.3
<b>Nitrites<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.4	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	-0.2
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	*	0.1	0.2	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hallucinogens<sup>b,f</sup></b>																			
8th Grade	0.8	1.1	1.2	1.3	1.7	1.9	1.8	1.4	1.3	1.2‡	1.6	1.2	1.2	1.0	1.1	0.9	1.0	0.9	0.0
10th Grade	1.6	1.8	1.9	2.4	3.3	2.8	3.3	3.2	2.9	2.3‡	2.1	1.6	1.5	1.6	1.5	1.5	1.7	1.3	-0.4
12th Grade	2.2	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6‡	3.3	2.3	1.8	1.9	1.9	1.5	1.7	2.2	+0.5 s
College Students	1.2	2.3	2.5	2.1	3.3	1.9	2.1	2.1	2.0	1.4‡	1.8	1.2	1.8	1.3	1.2	0.9	1.3	1.7	+0.4
Young Adults	1.1	1.5	1.2	1.4	1.7	1.2	1.5	1.4	1.3	1.2‡	1.2	0.9	1.2	0.9	0.8	0.7	0.9	0.9	0.0

(Table continued on next page.)

**TABLE 2-3 (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>LSD</b>																			
8th Grade	0.6	0.9	1.0	1.1	1.4	1.5	1.5	1.1	1.1	1.0	1.0	0.7	0.6	0.5	0.5	0.4	0.5	0.5	0.0
10th Grade	1.5	1.6	1.6	2.0	3.0	2.4	2.8	2.7	2.3	1.6	1.5	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.0
12th Grade	1.9	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6	0.6	1.1	+0.5 ss
College Students	0.8	1.8	1.6	1.8	2.5	0.9	1.1	1.5	1.2	0.9	1.0	0.2	0.2	0.2	0.1	0.3	0.3	0.8	+0.5
Young Adults	0.8	1.1	0.8	1.1	1.3	0.7	0.9	1.0	0.8	0.8	0.7	0.3	0.2	0.1	0.1	0.2	0.2	0.4	+0.2 s
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	0.3	0.4	0.5	0.7	0.8	0.9	0.7	0.7	0.6	0.6‡	1.1	1.0	1.0	0.8	0.9	0.7	0.7	0.7	0.0
10th Grade	0.4	0.5	0.7	1.0	1.0	1.0	1.2	1.4	1.2	1.2‡	1.4	1.4	1.2	1.4	1.3	1.3	1.4	1.0	-0.5 ss
12th Grade	0.7	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7‡	1.9	2.0	1.5	1.7	1.6	1.3	1.4	1.6	+0.3
College Students	0.6	0.7	1.1	0.8	1.6	1.2	1.2	0.7	1.2	0.8‡	0.8	1.1	1.7	1.2	1.1	0.7	1.1	1.3	+0.2
Young Adults	0.3	0.5	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.7‡	0.6	0.8	1.2	0.9	0.8	0.6	0.8	0.7	-0.1
<b>PCP<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4	0.5	0.6	+0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.1	0.2	0.2	0.1	*	0.1	0.1	0.2	0.2	*	*	0.1	0.1	0.1	*	*	*	0.1	-0.1
<b>Ecstasy (MDMA)<sup>h</sup></b>																			
8th Grade	—	—	—	—	—	1.0	1.0	0.9	0.8	1.4	1.8	1.4	0.7	0.8	0.6	0.7	0.6	0.8	+0.2
10th Grade	—	—	—	—	—	1.8	1.3	1.3	1.8	2.6	2.6	1.8	1.1	0.8	1.0	1.2	1.2	1.1	-0.1
12th Grade	—	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3	1.6	1.8	+0.2
College Students	0.2	0.4	0.3	0.2	0.7	0.7	0.8	0.8	2.1	2.5	1.5	0.7	1.0	0.7	0.8	0.6	0.4	0.6	+0.2
Young Adults	0.1	0.3	0.3	0.2	0.4	0.3	0.6	0.8	1.3	1.9	1.8	1.3	0.8	0.6	0.6	0.7	0.5	0.6	+0.1
<b>Cocaine</b>																			
8th Grade	0.5	0.7	0.7	1.0	1.2	1.3	1.1	1.4	1.3	1.2	1.2	1.1	0.9	0.9	1.0	1.0	0.9	0.8	-0.1
10th Grade	0.7	0.7	0.9	1.2	1.7	1.7	2.0	2.1	1.8	1.8	1.3	1.6	1.3	1.7	1.5	1.5	1.3	1.2	0.0
12th Grade	1.4	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5	2.0	1.9	-0.1
College Students	1.0	1.0	0.7	0.6	0.7	0.8	1.6	1.6	1.2	1.4	1.9	1.6	1.9	2.4	1.8	1.8	1.7	1.2	-0.6
Young Adults	2.0	1.8	1.4	1.3	1.5	1.2	1.6	1.7	1.9	1.7	2.2	2.2	2.4	2.2	2.2	2.3	2.1	1.9	-0.2
<b>Crack<sup>i</sup></b>																			
8th Grade	0.3	0.5	0.4	0.7	0.7	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	-0.2
10th Grade	0.3	0.4	0.5	0.6	0.9	0.8	0.9	1.1	0.8	0.9	0.7	1.0	0.7	0.8	0.7	0.7	0.5	0.5	0.0
12th Grade	0.7	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9	0.9	0.8	-0.1
College Students	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.1	0.3	0.4	0.4	0.1	*	0.1	0.1	0.0
Young Adults	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	+0.1
<b>Other Cocaine<sup>j</sup></b>																			
8th Grade	0.5	0.5	0.6	0.9	1.0	1.0	0.8	1.0	1.1	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.0
10th Grade	0.6	0.6	0.7	1.0	1.4	1.3	1.6	1.8	1.6	1.6	1.2	1.3	1.1	1.5	1.3	1.3	1.1	1.0	-0.1
12th Grade	1.2	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4	1.7	1.7	0.0
College Students	1.0	0.9	0.6	0.3	0.8	0.6	1.3	1.5	1.0	0.9	1.5	1.4	1.9	2.2	1.8	1.3	1.6	1.1	-0.5
Young Adults	1.8	1.7	1.1	1.0	1.3	1.1	1.5	1.5	1.6	1.5	1.8	2.0	2.1	2.1	1.9	1.9	2.0	1.7	-0.3

(Table continued on next page.)

**TABLE 2-3 (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Heroin<sup>k</sup></b>																			
8th Grade	0.3	0.4	0.4	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.0
10th Grade	0.2	0.2	0.3	0.4	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	-0.1
12th Grade	0.2	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.0
College Students	0.1	*	*	*	0.1	*	0.2	0.1	0.1	0.2	0.1	*	*	0.1	0.1	0.2	0.1	*	-0.1
Young Adults	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	*	0.1	0.1	0.1	0.2	0.1	0.1	0.0
<b>With a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	0.4	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.0
10th Grade	—	—	—	—	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	-0.1
12th Grade	—	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.0
College Students	—	—	—	—	*	*	0.1	*	0.1	0.1	*	*	0.1	0.1	0.1	0.1	*	0.0	0.0
Young Adults	—	—	—	—	*	*	0.1	*	0.1	*	0.2	*	*	0.1	0.1	0.1	*	*	0.0
<b>Without a Needle<sup>l</sup></b>																			
8th Grade	—	—	—	—	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.0
10th Grade	—	—	—	—	0.3	0.3	0.4	0.5	0.5	0.4	0.2	0.4	0.2	0.3	0.3	0.3	0.2	0.3	0.0
12th Grade	—	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3	0.4	0.2	-0.2
College Students	—	—	—	—	*	0.1	0.2	0.2	0.3	0.4	0.3	*	*	0.3	*	0.2	0.1	0.1	0.0
Young Adults	—	—	—	—	0.1	*	0.1	0.2	0.2	0.2	0.4	*	0.1	0.1	0.1	0.3	0.2	*	-0.1
<b>Narcotics other than Heroin<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0‡	4.0	4.1	4.3	3.9	3.8	3.8	3.8	0.0
College Students	0.6	1.0	0.7	0.4	1.2	0.7	1.3	1.1	1.0	1.7	1.7‡	3.2	2.3	3.0	3.1	3.1	2.2	2.3	+0.1
Young Adults	0.6	0.7	0.7	0.6	0.9	0.7	0.9	0.9	1.2	1.4	1.7‡	2.9	2.9	3.0	3.5	3.2	3.4	3.6	+0.2
<b>Amphetamines<sup>m</sup></b>																			
8th Grade	2.6	3.3	3.6	3.6	4.2	4.6	3.8	3.3	3.4	3.4	3.2	2.8	2.7	2.3	2.3	2.1	2.0	2.2	+0.2
10th Grade	3.3	3.6	4.3	4.5	5.3	5.5	5.1	5.1	5.0	5.4	5.6	5.2	4.3	4.0	3.7	3.5	4.0	2.8	-1.2 sss
12th Grade	3.2	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7	3.7	2.9	-0.8 ss
College Students	1.0	1.1	1.5	1.5	2.2	0.9	2.1	1.7	2.3	2.9	3.3	3.0	3.1	3.2	2.9	2.5	3.1	2.8	-0.3
Young Adults	1.5	1.5	1.5	1.7	1.7	1.5	1.7	1.7	1.9	2.3	2.4	2.5	2.5	2.4	2.1	2.2	2.3	2.2	-0.2
<b>Methamphetamine<sup>o,p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	1.1	0.8	1.3	1.1	1.2	0.6	0.7	0.6	0.6	0.7	+0.1
10th Grade	—	—	—	—	—	—	—	—	1.8	2.0	1.5	1.8	1.4	1.3	1.1	0.7	0.4	0.7	+0.4 s
12th Grade	—	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9	0.6	0.6	-0.1
College Students	—	—	—	—	—	—	—	—	1.2	0.2	0.5	0.2	0.6	0.2	0.1	0.2	0.1	0.0	-0.1
Young Adults	—	—	—	—	—	—	—	—	0.8	0.7	1.0	1.0	0.7	0.6	0.7	0.5	0.6	0.3	-0.3
<b>Crystal Meth. (Ice)<sup>p</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.6	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7	0.6	0.6	0.0
College Students	*	*	0.3	0.5	0.3	0.1	0.2	0.3	*	*	0.1	*	0.3	0.1	0.2	*	0.1	0.0	-0.1
Young Adults	*	0.1	0.3	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.6	0.3	0.3	0.3	0.0

(Table continued on next page.)

**TABLE 2-3 (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Sedatives</b>																			
<b>(Barbiturates)<sup>m</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9	2.9	3.3	3.0	2.7	2.8	+0.1
College Students	0.3	0.7	0.4	0.4	0.5	0.8	1.2	1.1	1.1	1.1	1.5	1.7	1.7	1.5	1.3	1.3	1.4	1.4	+0.1
Young Adults	0.5	0.5	0.6	0.6	0.8	0.8	0.9	0.9	1.1	1.3	1.7	1.5	1.5	1.8	1.7	1.5	1.6	1.9	+0.3
<b>Methaqualone<sup>m,q</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.2	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.2	-0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Tranquilizers<sup>b,m</sup></b>																			
8th Grade	0.8	0.8	0.9	1.1	1.2	1.5	1.2	1.2	1.1	1.4‡	1.2	1.2	1.4	1.2	1.3	1.3	1.1	1.2	+0.1
10th Grade	1.2	1.5	1.1	1.5	1.7	1.7	2.2	2.2	2.2	2.5‡	2.9	2.9	2.4	2.3	2.3	2.4	2.6	1.9	-0.7 sss
12th Grade	1.4	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6‡	2.9	3.3	2.8	3.1	2.9	2.7	2.6	2.6	0.0
College Students	0.6	0.6	0.4	0.4	0.5	0.7	1.2	1.3	1.1	2.0‡	1.5	3.0	2.8	2.7	2.2	2.1	1.8	1.6	-0.3
Young Adults	0.9	1.0	1.0	0.8	1.1	0.7	1.1	1.2	1.3	1.8‡	2.1	2.8	2.4	2.7	2.6	2.3	2.8	2.7	-0.2
<b>Rohypnol<sup>f</sup></b>																			
8th Grade	—	—	—	—	—	0.5	0.3	0.4	0.3	0.3	0.4	0.2	0.1	0.2	0.2	0.4	0.3	0.1	-0.3
10th Grade	—	—	—	—	—	0.5	0.5	0.4	0.5	0.4	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.0
12th Grade	—	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—	—	—	—
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Alcohol<sup>s</sup></b>																			
<b>Any Use</b>																			
8th Grade	25.1	26.1‡	24.3	25.5	24.6	26.2	24.5	23.0	24.0	22.4	21.5	19.6	19.7	18.6	17.1	17.2	15.9	15.9	+0.1
10th Grade	42.8	39.9‡	38.2	39.2	38.8	40.4	40.1	38.8	40.0	41.0	39.0	35.4	35.4	35.2	33.2	33.8	33.4	28.8	-4.7 sss
12th Grade	54.0	51.3‡	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	-1.3
College Students	74.7	71.4	70.1	67.8	67.5	67.0	65.8	68.1	69.6	67.4	67.0	68.9	66.2	67.7	67.9	65.4	66.6	69.0	+2.4
Young Adults	70.6	69.0	68.3	67.7	68.1	66.7	67.5	66.9	68.2	66.8	67.0	68.3	67.0	68.4	68.6	68.7	69.5	68.9	-0.5
<b>Been Drunk<sup>t</sup></b>																			
8th Grade	7.6	7.5	7.8	8.7	8.3	9.6	8.2	8.4	9.4	8.3	7.7	6.7	6.7	6.2	6.0	6.2	5.5	5.4	-0.1
10th Grade	20.5	18.1	19.8	20.3	20.8	21.3	22.4	21.1	22.5	23.5	21.9	18.3	18.2	18.5	17.6	18.8	18.1	14.4	-3.7 sss
12th Grade	31.6	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	-1.1
College Students	45.0	45.0	43.8	42.8	37.9	40.3	46.4	44.3	44.6	43.9	44.7	44.4	40.4	47.4	43.1	47.6	46.8	45.3	-1.5
Young Adults	35.4	35.6	34.2	34.3	33.0	33.2	35.6	34.2	37.7	35.7	36.8	37.1	37.8	39.0	39.0	42.1	41.4	40.7	-0.7
<b>Flavored Alcoholic Beverages<sup>g,o</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	14.6	12.9	13.1	12.2	10.2	-2.0 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	25.1	23.1	24.7	21.8	20.2	-1.6
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	31.1	30.5	29.3	29.1	27.4	-1.8
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	34.1	30.9	26.2	27.5	35.8	+8.3
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	29.5	27.6	24.9	25.9	26.7	+0.9

(Table continued on next page.)

**TABLE 2-3 (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Cigarettes</b>																			
<b>Any Use</b>																			
8th Grade	14.3	15.5	16.7	18.6	19.1	21.0	19.4	19.1	17.5	14.6	12.2	10.7	10.2	9.2	9.3	8.7	7.1	6.8	-0.2
10th Grade	20.8	21.5	24.7	25.4	27.9	30.4	29.8	27.6	25.7	23.9	21.3	17.7	16.7	16.0	14.9	14.5	14.0	12.3	-1.7 s
12th Grade	28.3	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	-1.2
College Students	23.2	23.5	24.5	23.5	26.8	27.9	28.3	30.0	30.6	28.2	25.7	26.7	22.5	24.3	23.8	19.2	19.9	17.9	-2.0
Young Adults	28.2	28.3	28.0	28.0	29.2	30.1	29.9	30.9	30.3	30.1	30.2	29.2	28.4	29.2	28.6	27.0	26.2	24.6	-1.6
<b>Smokeless Tobacco<sup>u</sup></b>																			
8th Grade	6.9	7.0	6.6	7.7	7.1	7.1	5.5	4.8	4.5	4.2	4.0	3.3	4.1	4.1	3.3	3.7	3.2	3.5	+0.3
10th Grade	10.0	9.6	10.4	10.5	9.7	8.6	8.9	7.5	6.5	6.1	6.9	6.1	5.3	4.9	5.6	5.7	6.1	5.0	-1.1
12th Grade	—	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	-0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Steroids<sup>v,w</sup></b>																			
8th Grade	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5	0.7	0.8	0.7	0.8	0.7	0.5	0.5	0.5	0.4	0.5	+0.1
10th Grade	0.6	0.6	0.5	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.9	1.0	0.8	0.8	0.6	0.6	0.5	0.5	0.0
12th Grade	0.8	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1	1.0	1.0	0.0
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	0.2	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	-0.2

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 2-1.

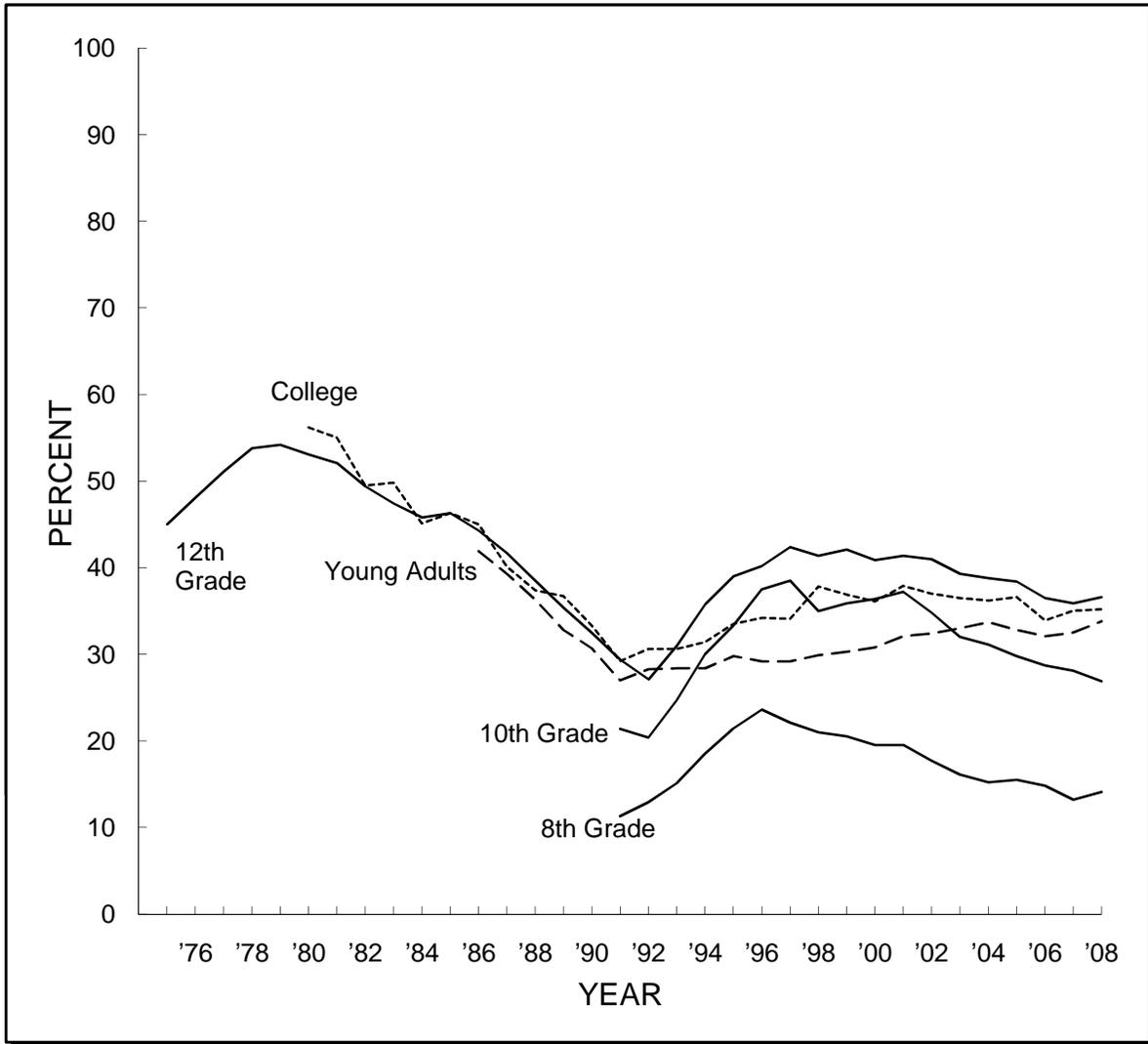
**TABLE 2-4**  
**Trends in 30-Day Prevalence of Daily Use of Various Drugs for 8th, 10th,**  
**and 12th Graders, College Students, and Young Adults (Ages 19–28)**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Marijuana/Hashish</b>																			
Daily <sup>bb</sup>																			
8th Grade	0.2	0.2	0.4	0.7	0.8	1.5	1.1	1.1	1.4	1.3	1.3	1.2	1.0	0.8	1.0	1.0	0.8	0.9	+0.1
10th Grade	0.8	0.8	1.0	2.2	2.8	3.5	3.7	3.6	3.8	3.8	4.5	3.9	3.6	3.2	3.1	2.8	2.8	2.7	-0.1
12th Grade	2.0	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0	5.1	5.4	+0.4
College Students	1.8	1.6	1.9	1.8	3.7	2.8	3.7	4.0	4.0	4.6	4.5	4.1	4.7	4.5	4.0	4.3	3.5	3.9	+0.4
Young Adults	2.3	2.3	2.4	2.8	3.3	3.3	3.8	3.7	4.4	4.2	5.0	4.5	5.3	5.0	4.9	5.0	5.0	5.1	+0.1
<b>Alcohol<sup>s,bb</sup></b>																			
Any Daily Use																			
8th Grade	0.5	0.6‡	1.0	1.0	0.7	1.0	0.8	0.9	1.0	0.8	0.9	0.7	0.8	0.6	0.5	0.5	0.6	0.7	+0.2
10th Grade	1.3	1.2‡	1.8	1.7	1.7	1.6	1.7	1.9	1.9	1.8	1.9	1.8	1.5	1.3	1.3	1.4	1.4	1.0	-0.4 ss
12th Grade	3.6	3.4‡	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0	3.1	2.8	-0.3
College Students	4.1	3.7	3.9	3.7	3.0	3.2	4.5	3.9	4.5	3.6	4.7	5.0	4.3	3.7	4.6	4.8	4.3	4.0	-0.3
Young Adults	4.9	4.5	4.5	3.9	3.9	4.0	4.6	4.0	4.8	4.1	4.4	4.7	5.1	4.5	5.2	5.4	5.6	5.3	-0.3
Been Drunk																			
Daily <sup>bb</sup>																			
8th Grade	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0
10th Grade	0.2	0.3	0.4	0.4	0.6	0.4	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.3	-0.2 ss
12th Grade	0.9	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6	1.3	1.4	+0.1
College Students	0.5	0.2	0.3	0.8	0.5	0.1	1.3	0.8	1.0	0.7	0.5	0.8	1.1	0.8	0.5	0.6	0.7	0.5	-0.2
Young Adults	0.5	0.4	0.4	0.5	0.3	0.4	0.9	0.5	0.9	0.5	0.4	0.6	0.8	0.7	0.5	0.6	0.6	0.5	-0.1
<b>5+ Drinks in a Row</b>																			
in Last 2 Weeks <sup>cc</sup>																			
8th Grade	10.9	11.3	11.3	12.1	12.3	13.3	12.3	11.5	13.1	11.7	11.0	10.3	9.8	9.4	8.4	8.7	8.3	8.1	-0.2
10th Grade	21.0	19.1	21.0	21.9	22.0	22.8	23.1	22.4	23.5	24.1	22.8	20.3	20.0	19.9	19.0	19.9	19.6	16.0	-3.7 sss
12th Grade	29.8	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	-1.3
College Students	42.8	41.4	40.2	40.2	38.6	38.3	40.7	38.9	40.0	39.3	40.9	40.1	38.5	41.7	40.1	40.2	41.1	40.0	-1.1
Young Adults	34.7	34.2	34.4	33.7	32.6	33.6	34.4	34.1	35.8	34.7	35.9	35.9	35.8	37.1	37.0	37.6	37.8	37.9	+0.1
<b>Cigarettes</b>																			
Any Daily Use																			
8th Grade	7.2	7.0	8.3	8.8	9.3	10.4	9.0	8.8	8.1	7.4	5.5	5.1	4.5	4.4	4.0	4.0	3.0	3.1	0.0
10th Grade	12.6	12.3	14.2	14.6	16.3	18.3	18.0	15.8	15.9	14.0	12.2	10.1	8.9	8.3	7.5	7.6	7.2	5.9	-1.3 s
12th Grade	18.5	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	-0.9
College Students	13.8	14.1	15.2	13.2	15.8	15.9	15.2	18.0	19.3	17.8	15.0	15.9	13.8	13.8	12.4	9.2	9.3	9.2	-0.1
Young Adults	21.7	20.9	20.8	20.7	21.2	21.8	20.6	21.9	21.5	21.8	21.2	21.2	20.3	20.8	19.6	18.6	17.3	16.7	-0.6
<b>1/2 Pack+/Day</b>																			
8th Grade	3.1	2.9	3.5	3.6	3.4	4.3	3.5	3.6	3.3	2.8	2.3	2.1	1.8	1.7	1.7	1.5	1.1	1.2	0.0
10th Grade	6.5	6.0	7.0	7.6	8.3	9.4	8.6	7.9	7.6	6.2	5.5	4.4	4.1	3.3	3.1	3.3	2.7	2.0	-0.7 s
12th Grade	10.7	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4	-0.2
College Students	8.0	8.9	8.9	8.0	10.2	8.4	9.1	11.3	11.0	10.1	7.8	7.9	7.6	6.8	6.7	4.9	4.3	4.3	0.0
Young Adults	16.0	15.7	15.5	15.3	15.7	15.3	14.6	15.6	15.1	15.1	14.6	14.2	13.9	13.5	12.5	11.9	11.1	10.2	-0.9
<b>Smokeless Tobacco</b>																			
Daily <sup>d</sup>																			
8th Grade	1.6	1.8	1.5	1.9	1.2	1.5	1.0	1.0	0.9	0.9	1.2	0.8	0.8	1.0	0.7	0.7	0.8	0.8	-0.1
10th Grade	3.3	3.0	3.3	3.0	2.7	2.2	2.2	2.2	1.5	1.9	2.2	1.7	1.8	1.6	1.9	1.7	1.6	1.4	-0.2
12th Grade	—	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	-0.1
College Students	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Young Adults	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 2-1.

**FIGURE 2-1**  
**Trends in Annual Prevalence of an Illicit Drug Use Index**  
**across 5 Populations**



*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "Illicit drug use index" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use which is not under a doctor's orders of narcotics other than heroin, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers. Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.



## Chapter 3

# STUDY DESIGN AND PROCEDURES

Monitoring the Future (MTF) incorporates several types of surveys into one study, yielding analytic power beyond the sum of those component parts. The components include cross-sectional studies, repeated cross-sectional studies, and panel studies of particular cohorts. The annual cross-sectional studies provide point estimates of various behaviors and conditions at any given year for a number of subpopulations (e.g., 8th graders, 10th graders, 12th graders, college students, etc.). Repeating these cross-sectional studies over time allows an assessment of change across years in those same segments of the population. The panel-study feature permits the examination of change over time in the same individuals comprising a class cohort, in this case, as they enter adult roles and environments, assume adult responsibilities, and continue further into adulthood.

With a *series* of panel studies of sequential graduating class cohorts, in what is known as a cohort-sequential design, we are able to distinguish among, and explain, three fundamentally different types of change: period, age, and cohort. It is this last feature, the cohort-sequential design aspect, which creates the synergistic effect in terms of analytic power.

This chapter describes this complex research design, including the sampling and field procedures used in both the annual in-school cross-sectional surveys of 8th-, 10th-, and 12th-grade students and the follow-up surveys into adulthood. Related methodological issues such as response rates, population coverage, and the validity of the measures are also discussed.<sup>17, 18</sup>

## RESEARCH DESIGN AND PROCEDURES FOR THE TWELFTH-GRADE SURVEYS

Twelfth graders have been surveyed in the spring of each year since 1975. Each year's data collection takes place in approximately 120 to 146 public and private high schools selected to provide an accurate representative cross-section of 12th graders throughout the coterminous United States (see Figure 3-1).

### The Population under Study

We chose the senior year of high school because, for several reasons, it is an optimal point at which to monitor the drug use and related attitudes of youth. First, completion of high school

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<sup>17</sup>For a more detailed description of the study design, see Bachman, J. G., Johnston, L. D., O'Malley, P. M., & Schulenberg, J. E. (2006). *The Monitoring the Future project after thirty-two years: Design and procedures* (Monitoring the Future Occasional Paper No. 64). Ann Arbor, MI: Institute for Social Research, available online at [www.monitoringthefuture.org/pubs/occpapers/occ64.pdf](http://www.monitoringthefuture.org/pubs/occpapers/occ64.pdf).

<sup>18</sup>For a more detailed description of the full range of research objectives of Monitoring the Future, see Johnston, L. D., O'Malley, P. M., Schulenberg, J. E., & Bachman, J. G. (2006). *The aims and objectives of the Monitoring the Future study and progress toward fulfilling them as of 2006* (Monitoring the Future Occasional Paper No. 65). Ann Arbor, MI: Institute for Social Research, available online at [www.monitoringthefuture.org/pubs/occpapers/occ65.pdf](http://www.monitoringthefuture.org/pubs/occpapers/occ65.pdf).

represents the end of an important developmental stage in this society, demarcating both the end of universal education and, for many, the end of living full-time in the parental home. Therefore, it is a logical point at which to take stock of the cumulated influences of these two major environments on American youth. Further, completion of high school represents the jumping-off point from which young people diverge into widely differing social environments and experiences. Thus senior year represents a good time to take a “before” measure, allowing calculation of changes that may be attributable to the many environmental and role transitions occurring in young adulthood, including college attendance. Finally, there were some important practical advantages to building the original system of data collections around samples of 12th graders. The need for systematically repeated, large-scale samples from which to make reliable estimates of change requires that considerable emphasis be put on cost efficiency as well as feasibility. The last year of high school constitutes the final point at which a reasonably good national sample of an age-specific cohort can be drawn and studied economically.

### **The Omission of Dropouts**

One limitation in the study design is the exclusion of those young men and women who drop out of high school before graduation—between 13% and 20% of each age cohort nationally, according to U.S. Census statistics. Clearly, the omission of high school dropouts introduces biases in the estimation of certain characteristics of the entire age group; however, for most purposes, the small proportion of students who drop out sets outer limits on the bias. Further, since the bias from missing dropouts should remain just about constant from year to year, their omission should introduce little or no bias in *change* estimates. Indeed, we believe the changes observed over time for those who finish high school are likely to parallel the changes for dropouts in most instances. Appendix A to *Volume I* addresses in detail the likely effects of the exclusion of dropouts (as well as absentees from school) on estimates of drug use prevalence and trends among the entire age cohort.

### **Sampling Procedures and Sample Weights**

A multistage random sampling procedure is used to secure the nationwide sample of 12th graders each year. Stage 1 is the selection of particular geographic areas, Stage 2 is the selection (with probability proportionate to size) of one or more high schools in each area, and Stage 3 is the selection of 12th graders within each high school. Up to about 350 twelfth graders in each school may be included. In schools with fewer 12th graders, the usual procedure is to include all of them in the data collection, though a smaller sample is sometimes taken to accommodate the needs of the school. When a subset of 12th graders is to be selected, it is done either by randomly sampling entire classrooms or by some other unbiased, random method. Weights are assigned to compensate for differential probabilities of selection at each stage of sampling. Final weights are normalized to average 1.0 (so that the weighted number of cases equals the unweighted number of cases overall). This three-stage sampling procedure has yielded the numbers of participating schools and students shown in Table 3-1.

### **Questionnaire Administration**

About three weeks prior to the questionnaire administration date, parents of the target respondents are sent a letter by first-class mail, usually from the principal, announcing and describing the study and providing them an opportunity to decline participation of their son or daughter if they wish. A flyer describing the study in more detail is enclosed with the letter.

Copies of the same flyers are also given to the students by the teachers in the target classrooms in advance of the date of administration. The flyers make clear that participation is entirely voluntary. Local Institute for Social Research representatives and their assistants conduct the actual questionnaire administrations following standardized procedures detailed in an instruction manual. The questionnaires are administered in classrooms during a normal class period whenever possible; however, circumstances in some schools require the use of larger group administrations. Teachers are asked to remain present in the classroom to help maintain order, but to remain at their desks so that they cannot see students' answers.

### **Questionnaire Format**

Because many questions are needed to cover all of the topic areas in the study, much of the questionnaire content for 12th graders is divided into six different questionnaire forms distributed to participants in an ordered sequence that ensures six virtually identical random subsamples. (Five questionnaire forms were used between 1975 and 1988.) About one third of each questionnaire form consists of key, or "core," variables common to all forms. All demographic variables, and nearly all of the drug *use* variables included in this report, are contained in this core set of measures. Many of the questions on attitudes, beliefs, and perceptions of relevant features of the social environment are in a single form only, and the data are thus based on one fifth as many cases in 1975–1988 (approximately 3,300 per year) and on one sixth as many cases beginning in 1989 (approximately 2,600 per year). All tables in this report list the sample sizes upon which the statistics are based, stated in terms of the weighted number of cases (which, as explained above, is roughly equivalent to the actual number of cases).

## **RESEARCH DESIGN AND PROCEDURES FOR THE EIGHTH- AND TENTH-GRADE SURVEYS**

In 1991, the study was expanded to include nationally representative samples of 8th- and 10th-grade students surveyed on an annual basis. In general, the procedures used for the annual in-school surveys of 8th- and 10th-grade students closely parallel those used for 12th graders, including the procedures for selecting schools and students, questionnaire administration, and questionnaire formats. A major exception is that only two different questionnaire forms were used from 1991 to 1996, expanding to four forms beginning in 1997, rather than the six used for 12th graders. The 8th and 10th graders receive the same questionnaire forms; most of the content is drawn from the 12th-grade surveys, including the core section. Thus, key demographic variables and measures of drug use and related attitudes and beliefs are generally identical for all three grades. Many fewer questions about other values and attitudes are included in the 8th- and 10th-grade forms, in part because we think that many of them are likely to be more fully formed by 12th grade and, therefore, are best monitored there.

About 17,000 eighth-grade students in approximately 150 schools (mostly middle schools) and about 15,000 tenth-grade students in approximately 130 schools are surveyed each year (see Table 3-1).<sup>19</sup>

### **Mode of Administration**

From 1991 to 1993, follow-ups for 8th and 10th graders were administered similarly to those for 12th graders (see Footnote 3). When follow-up surveys of new 8th- and 10th-grade cohorts were discontinued, the collection of personal identification information was no longer necessary. For confidentiality reasons, this personal information had been gathered on a tear-off sheet at the back of each questionnaire. We believed that there were potential advantages in moving toward a fully anonymous procedure for these grade levels, including the following: (a) school cooperation might be easier to obtain; (b) any suppression effect on self-reported substance use that the confidential mode of administration might have could be both eliminated and quantified; and (c) if there *were* any mode of administration effect, it would be removed from the national data, which are widely compared with results of state and local surveys (nearly all of which use anonymous questionnaires), thus making those comparisons more valid. Therefore, in 1998, the half-sample of schools beginning their two-year participation in MTF received fully anonymous questionnaires, while the half-sample participating in the study for their second and final year continued to get the confidential questionnaires. Since 1999, all questionnaires administered to 8th and 10th graders have been fully anonymous.

A careful examination of the 1998 results, based on the two equivalent half-samples at grades 8 and 10, revealed that there was no effect of this methodological change among 10th graders, and, at most, only a very modest effect in the self-reported substance use rates among 8th graders (with prevalence rates slightly higher in the anonymous condition). The net effect of this methodological change is a possible increase in the observed 8th-grade prevalence estimates for marijuana, alcohol, and cigarettes in 1998 from what they would have been without a change in questionnaire administration; thus, the declines in use in 1998 may be slightly understated for 8th graders. For example, the annual prevalence of marijuana use among 8th graders is shown to have fallen by 0.8 percentage points between 1997 and 1998; however, the half-sample of 8th-grade schools receiving exactly the same type of questionnaire that was used in 1997 showed a slightly greater decline of 1.5 percentage points.<sup>20</sup>

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<sup>19</sup>The research design originally called for follow-up surveys of subsamples of the 8th- and 10th-grade participants, carried out at two-year intervals, similar to the 12th-grade follow-up samples. From 1991 to 1994, this plan influenced the design of the cross-sectional studies of 8th and 10th graders in an important way. In order to recapture many of the 8th-grade participants two years later in the normal 10th-grade cross-sectional study for that year, we selected the 8th-grade schools by drawing a sample of high schools and then selecting a sample of their feeder schools that contained 8th graders. This extra stage in the sampling process meant that many of the 8th-grade participants in, say, the 1991 cross-sectional survey were also participants as 10th graders in the 1993 cross-sectional survey. Thus, a fair amount of panel data was generated at no additional cost. However, having followed this design from 1991 through 1993, we concluded that the savings in follow-up costs did not justify the complexities in sampling, administration, and interpretation. Therefore, since 1994, we have used a simplified design in which 8th-grade schools are drawn independently of the 10th-grade school sample. Further follow-ups (at two-year intervals) have been conducted only on respondent panels drawn from the first three cohorts of 8th and 10th graders—that is, those surveyed in school in 1991, 1992, and 1993. A book reporting results from analyses of these panels was published recently: Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education–drug use connection: How successes and failures in school relate to adolescent smoking, drinking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis.

<sup>20</sup>We have examined in detail the effects of administration mode using multivariate controls to assess the effects of the change on 8th-grade self-report data. Our findings generally show even less effect than is to be found without such controls. See O'Malley, P. M., Johnston, L. D., Bachman, J. G., & Schulenberg, J. E. (2000). A comparison of confidential versus anonymous survey procedures: Effects on reporting of drug use and related attitudes and beliefs in a national study of students. *Journal of Drug Issues*, 30, 35–54.

All tables and figures in *Volume I* use data from both half-samples of 8th graders surveyed in a given year, combined. This is also true for 10th graders (for whom we found no methodological effect) and 12th graders (for whom it is assumed there is no such effect, since none was found among the 10th graders). (See this chapter's later section entitled "Representativeness and Sample Accuracy" under the subheading "School Participation," for a further discussion of half-samples among all three grades.)

### **Questionnaire Forms and Sample Proportions**

Another benefit of not interlocking the 8th- and 10th-grade samples was that we could consider having more forms of the questionnaire. Beginning in 1997, the number of forms was expanded to four, but the four forms are not distributed in equal numbers. Forms 1, 2, 3, and 4 are assigned to one third, one third, one sixth, and one sixth of the students, respectively. Thus, if a question appears on only one form, it is administered to either one third or one sixth of the sample. A question in two forms may be assigned to one third of the sample (one sixth plus one sixth), one half of the sample (one third plus one sixth), or two thirds of the sample (one third plus one third). No questions appear on exactly three forms. Footnotes to the tables indicate what proportion of all respondents in each grade complete the question, if that proportion is other than the entire sample.

The two additional forms were introduced to allow for more questions. The new Forms 1 and 2 substantially follow the content of the previous Forms 1 and 2, but each is now assigned to a third of the sample instead of half. Form 3 builds on Form 1, with some questions omitted to make room for more content; and Form 4 builds on the content of Form 2 in a similar manner. Much of the new content was placed in both of the new forms (Forms 3 and 4), each of which is administered to one sixth of the sample, in order to assign one third of the total sample to those new measures.

## **RESEARCH DESIGN AND PROCEDURES FOR THE TWELFTH-GRADE FOLLOW-UP SURVEYS**

Beginning with the graduating class of 1976, some members of each 12th-grade class have been selected to be surveyed by mail after high school graduation. From the roughly 13,000 to 17,000 twelfth graders originally participating in a given senior class, a representative sample of 2,400 individuals is randomly chosen for follow-up. In order to ensure sufficient numbers of drug users in the follow-up surveys, 12th graders reporting 20 or more occasions of marijuana use in the previous 30 days (i.e., "daily users"), or *any* use of the other illicit drugs in the previous 30 days, are selected with higher probability (by a factor of 3.0) than the remaining 12th graders. Differential weighting is then used in all follow-up analyses to compensate for these differential sampling probabilities. Because those in the drug-using stratum receive a weight of only 0.33 in the calculation of all statistics to correct for their overrepresentation at the selection stage, there are actually more follow-up respondents than are reported in the weighted *N*s given in the tables.

The 2,400 participants selected from each 12th-grade class are randomly split into two groups of 1,200 each—one group to be surveyed on even-numbered calendar years, and the other group to be surveyed on odd-numbered years. This two-year cycle is intended to reduce the burden on

individual respondents, thus yielding a better retention rate across the years. By alternating the two half-samples, we have data from a given graduating class every year, even though any given respondent participates only every other year.

Until 2002, each respondent was surveyed biennially up to seven times; at the seventh follow-up, which would occur either 13 or 14 years after graduation, the respondents had reached modal age 31 or 32. Beginning in 2002, the seventh biennial follow-up was discontinued, and each respondent was surveyed every other year until modal age 29 or 30. Additional follow-ups occur at modal ages 35, 40, 45, and 50. Data like these, gathered on representative national samples over such a large portion of the life span, are extremely rare and can provide needed insight into the etiology and life-course history of substance use and related behaviors, including those related to the risk of HIV transmission.

### **Follow-Up Procedures**

Using information provided by 12th-grade respondents on a tear-off card (containing the respondent's name, address, and phone number, and the name and address of someone who would always know how to reach them), mail contact is maintained with the subset of people selected for inclusion in the follow-up panels. Newsletters are sent to them each year, and name and address corrections are requested from both the U.S. Postal Service and the individual. Questionnaires are sent to each individual biennially in the spring. A check for \$20, made payable to the respondent, is attached to the front of each questionnaire.<sup>21</sup> Reminder letters and postcards are sent at fixed intervals thereafter; finally, those who have not responded receive a prompting phone call from the Survey Research Center's phone interviewing facility in Ann Arbor, Michigan. If requested, a second copy of the questionnaire is sent; but no questionnaire content is administered by phone. If a respondent asks not to be contacted further, that wish is honored.

### **Follow-Up Questionnaire Format**

The questionnaires used in the follow-up surveys of 19- to 30-year-olds parallel those used in 12th grade. Many of the questions are the same (including the core section on drug use, background, and demographics), and respondents are consistently mailed the same version (or form) of the questionnaire that they first received in 12th grade, so that *changes over time* in their behaviors, attitudes, experiences, and so forth can be measured. Questions specific to high school status and experiences are dropped in the follow-up, of course, and questions relevant to post-high school status and experiences are added. Thus, there are questions about college, military service, civilian employment, marriage, parenthood, and so on. Most of these are added to the core section. For the five-year surveys beginning at age 35, much of the questionnaire content is maintained, but streamlined (only one form is used) with more focus on the major family and work issues relevant to respondents ages 35 to 50; we have also added measures of substance use disorders.

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<sup>21</sup>For the class of 1991 and all prior classes, the follow-up checks were for \$5. The rate was raised to \$10, beginning with the class of 1992, to compensate for the effects of inflation. An experiment was first conducted that suggested that the increased payment was justified based on the increased panel retention it achieved. Payment increased to \$20 in 2004 for the same reason.

For the early follow-up cohorts, the numbers of cases on single-form questions were one fifth the size of the total follow-up sample because five different questionnaire forms were used. Beginning with the class of 1989, a sixth form was introduced in 12th grade. That new questionnaire form was first sent to follow-up respondents in 1990. Single-form data since then have *N*s one sixth the total follow-up sample size. In the follow-up studies, single-form samples from a single cohort are too small to make reliable estimates; therefore, in most cases where they are reported, the data from several adjacent cohorts are combined.

## REPRESENTATIVENESS AND SAMPLE ACCURACY

### School Participation

Schools are invited to participate in the study for a two-year period. For each school that declines to participate, a similar school (in terms of size, geographic area, urbanicity, etc.) is recruited as a replacement. In 2008, either an original school or a replacement school was obtained in 96% of the sample units. With very few exceptions, each school participating in the first year has agreed to participate in the second year as well. Figure 3-2 provides the year-specific school participation rates and the percentage of units filled since 1977. As shown in the figure, replacements for declining schools are obtained in the vast majority of cases.

Two questions are sometimes raised with respect to school participation rates: (a) Are participation rates sufficient to ensure the representativeness of the sample? (b) Does variation in participation rates over time contribute to changes in estimates of drug use?

With respect to the first issue, the selection of replacement schools (which occurs in practically all instances of an original school refusal) almost entirely removes problems of bias in region, urbanicity, and the like that might result from certain schools refusing to participate. Other potential biases could be more subtle, however. If, for example, it turned out that most schools with “drug problems” refused to participate, the sample would be seriously biased. And if any other single factor were dominant in most refusals, that reason for refusal also might suggest a source of serious bias. However, the reasons given for a school refusing to participate tend to be varied and are often a function of happenstance specific to that particular year; only a very small proportion specifically object to the drug-related or “sensitive” nature of the survey content.

If it were the case that schools differed substantially in drug use, then which particular schools participated could have a greater effect on estimates of drug use. However, the great majority of variance in drug use lies within schools, not between schools.<sup>22</sup> For example, between 1991 and 2002, the between-schools variance for 12-month marijuana use was 4.0–5.3% of the total variance for each of the three grades; for inhalant use, 1.6–2.7%; for cocaine use, 1.2–2.2%; for alcohol use, 3.5–6.1%; and for cigarette use, 2.1–5.2%. To the extent that schools tend to be fairly similar in drug use, which particular schools participate (within a selection framework that seeks national representation) has a small effect on estimates of drug use. The fact that the overwhelming majority of variance in drug use lies within schools implies that, at least with

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<sup>22</sup>O'Malley, P. M., Johnston, L. D., Bachman, J. G., Schulenberg, J. E., & Kumar, R. (2006). How substance use differs among American secondary schools. *Prevention Science*, 7, 409–420.

respect to drug use, schools are for the most part fairly similar.<sup>23</sup> Further, some, if not most, of the between-schools variance is due to differences related to region, urbanicity, etc.—factors that remain well controlled in the present sampling design.

With respect to the second issue, it is extremely unlikely that results have been significantly affected by changes in school participation rates. If changes in participation rates seriously affected prevalence estimates, there would be noticeable bumps up or down in concert with the changing rates. But in fact this series of surveys produces results that are very smooth and change in an orderly fashion from one year to the next. Moreover, different substances trend in distinctly different ways, thus further refuting any likelihood that changes in participation rates are affecting prevalence estimates generally. We have observed, for example, marijuana use decreasing while cocaine use was stable (in the early 1980s), alcohol use declining while cigarette use was stable (in the mid- to late 1980s), and marijuana use increasing while inhalant use was decreasing (from 1994 to 1997). All of these patterns are explainable in terms of psychological, social, and cultural factors and cannot be explained by the common factor of changes in school participation rates.

Of course, there could be some sort of constant bias across the years; but even in the unlikely event that there is, it seems highly improbable that it would be of much consequence for policy purposes, given that it would not affect trends and likely would have a very modest effect on prevalence rates. Thus we have a high degree of confidence that school refusal rates have not seriously biased the survey results.

Nevertheless, securing the cooperation of schools has become more difficult in recent years. This is a problem common to the field, not specific to MTF. Therefore, beginning with the 2003 survey, we have provided payment to schools as a means of increasing their incentive to participate. (Several other ongoing school-based survey studies also use payments to schools.)

At each grade level, half of each year's sample comprises schools that started their participation the previous year, and half comprises schools that began participating in the current year. (Both samples are national replicates, meaning that each is drawn to be nationally representative by itself.) This staggered half-sample design is used to check on possible errors in the year-to-year trend estimates due to school turnover. For example, separate sets of one-year trend estimates are computed based on students in the half-sample of schools that participated in both 2006 *and* 2007, then based on the students in the half-sample that participated in both 2007 *and* 2008, and so on. Thus, each one-year *matched half-sample* trend estimate derived in this way is based on a constant set of schools (about 65 in 12th grade, for example, over a given one-year interval). When the trend data derived from the matched half-sample (examined separately for each class of drugs) are compared with trends based on the total sample of schools, the results are usually highly similar, indicating that the trend estimates are affected little by school turnover or shifting

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<sup>23</sup>Among participating schools, there is very little difference in substance use rates between the schools that were original selections, taken as a set, and the schools that were replacements. Averaged over the years 1991 through 2000, for grades 8, 10, and 12 combined, the difference between original schools and replacement schools averaged 0.03% in the observed prevalence rates averaged across a number of drug use measures: two indexes of annual illicit drug use, the annual prevalence of each of the major illicit drug classes, and several measures of alcohol and cigarette use. For the individual drugs and drug indexes, the differences between the original and replacement schools, averaged across grades and years, fell within  $\pm 0.9\%$ .

participation rates. As would be expected, the *absolute* prevalence-of-use estimates for a given year are not as accurate using just the half-sample because the sample size is only half as large.

### Student Participation

In 2008, completed questionnaires were obtained from 90% of all sampled students in 8th grade, 88% in 10th grade, and 79% in 12th grade (see Table 3-1 for response rates in earlier years). In most cases, students are missed due to absence from class at the time of data collection; for reasons of cost efficiency, we typically do not schedule special follow-up data collections for absent students. Because students with fairly high rates of absenteeism also report above-average rates of drug use, some degree of bias is introduced into the prevalence estimates by missing the absentees. Much of that bias could be corrected through the use of special weighting based on the reported absentee rates provided by the students who *did* respond; however, we decided not to use such a weighting procedure because the bias in overall drug use estimates was determined to be quite small *and* the necessary weighting procedures would have introduced greater sampling variance in the estimates.<sup>24</sup> Appendix A in *Volume I* illustrates the changes in trend and prevalence estimates that would result if corrections for absentees had been included. Of course, some students simply refuse, when asked, to complete a questionnaire. However, the proportion of explicit refusals amounts to less than 1.5% of the target sample for each grade.

### Sampling Accuracy of the Estimates

Confidence intervals (95%) are provided in Tables 4-1a through 4-1d for lifetime, annual, 30-day, and daily prevalence of use for 8th-, 10th-, and 12th-grade students. As can be seen in Table 4-1a, confidence intervals for lifetime prevalence for 12th graders average less than  $\pm 1.5\%$  across a variety of drug classes. That is, if we took a large number of samples of this size from the universe of all schools containing 12th graders in the coterminous United States, 95 times out of 100 the sample would yield a result that would be less than 1.5 percentage points divergent from the result we would get from a comparable massive survey of *all* 12th graders in *all* schools. This is a high level of sampling accuracy, permitting detection of fairly small changes from one year to the next. Confidence intervals for the other prevalence periods (last 12 months, last 30 days, and current daily use) are generally smaller than those for lifetime use. In general, confidence intervals for 8th and 10th graders are very similar to those observed for 12th graders. Some drugs (smokeless tobacco, PCP, nitrites, and others, as indicated in the footnotes for Tables 2-1 to 2-4) are measured on only one or two questionnaire forms; these drugs will have somewhat larger confidence intervals due to their smaller sample sizes. Appendix C of *Volume I* provides information on how to calculate confidence intervals around other point estimates, as well as information needed to compare trends across time or to test the significance of differences between subgroups in any given year.

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<sup>24</sup>See appendix A in the following publication for a discussion of this point: Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1984). *Drugs and American high school students: 1975-1983* (DHHS (ADM) 85-1374). Washington, DC: U.S. Government Printing Office.

## PANEL RETENTION

We discuss here the nature of the panel attrition problem generally, the response rates for MTF panel surveys in recent years, and evidence relevant to assessing the impact of attrition on the study's research results.

### The Problem of Panel Attrition

Virtually all longitudinal studies of drug use—including MTF—experience attrition, which is often differential with respect to substance use.<sup>25</sup> In addition, survey response rates in general have been declining over the past few decades,<sup>26</sup> highlighting an important challenge in the conduct of population-based research.

A vital feature of the MTF panel studies is their very low cost per respondent. There are many advantages to collecting panel data through low-cost mail surveys, as we have done since the outset of the study. Indeed, given the number of questionnaires sent each year (roughly 18,000) across the entire coterminous United States, using low-cost mail surveys is our best (and really the only) cost-effective option. One disadvantage of this mode of data collection is that attrition rates tend to be higher than those that might be obtained with much more expensive methods, such as intensive personal tracking and interviewing. Certainly there exist a few large epidemiological/etiological surveys that have better retention rates, but their procedures are extremely expensive and not realistic for an ongoing effort like this one. Nevertheless, our retention rates compare favorably with those of most longitudinal studies (including interview studies) reported in the field.

### Response Rates

The series of survey data on American college students now encompasses 29 years. We know about our respondents' actual college attendance only from those who are invited and do complete follow-up questionnaires. We can use 12th-grade questionnaire answers (i.e., college intentions and program of study) to predict college attendance with a high degree of accuracy. The study's retention of college-bound 12th graders remains quite good. Among those participants in high school who were targeted for follow-up, *and* who reported planning to attend college and being enrolled in a college-prep curriculum, the follow-up retention rates for the three most recent classes surveyed at each follow-up point were: 61% in the first follow-up, one to two years past high school (based on the classes of 2005–2007); 59% in the second follow-up, three to four years past high school (based on the classes of 2003–2005); and 56% in the third follow-up, five to six years past high school (based on the classes of 2001–2003). These rates compare quite favorably with another national survey of substance use among college students, the Harvard College Alcohol Study, which had cross-sectional response rates of 59% in 1997 and 1999, and 52% in 2001.<sup>27</sup> To date in *Volume II*, we have reported only on college students who are one to four years past high school graduation. As the average age of attendance rises,

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<sup>25</sup>McGuigan, K. A., Ellickson, P. L., Hays, R. D., & Bell, R. M. (1997). Adjusting for attrition in school-based samples: Bias, precision, and cost trade-off of three methods. *Evaluation Review*, 21, 554–567.

<sup>26</sup>Groves, R. M., Dillman, D. A., Eltinge, J. L., & Little, R. J. A. (Eds.) (2002). *Survey nonresponse*. New York: Wiley.

<sup>27</sup>Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, T. F., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts: Findings from 4 Harvard School of Public Health College Alcohol Study surveys: 1993–2001. *Journal of American College Health*, 50, 203–217.

having the extended age coverage will be of growing importance. Retention rates in the biennial follow-ups of *all* panel members modal ages 19–30 (corresponding to the first six follow-ups) decline with the length of the follow-up interval, of course. For the five surveys from 2004 to 2008, the response rate in the first follow-up (corresponding to one to two years past high school) averaged 56%; and for the second through sixth follow-ups (corresponding to 3–12 years past high school) response rates averaged 52%. Among long-term respondents—the 35-, 40-, 45-, and 50-year-olds—the retention rates are quite good, apparently because some of the decline with age in retention rates reflects cohort differences. Among the 35-year-old respondents surveyed from 2004 to 2008, corresponding to 17 years past high school, the average response rate was 48%. Among the 40-year-old respondents surveyed from 2004 to 2008, corresponding to a 22-year follow-up interval, the average retention rate was 53%. Among 45-year-olds surveyed in 2004 to 2008, the average retention rate was 59%. In sum, the response rates attained under the current design range from respectable to quite good, especially when the low-cost nature of the procedures, the long time intervals, and the substantial length of the questionnaires are taken into account. More importantly, the evidence leaves us confident that the data resulting from these follow-up panels are reasonably accurate, which brings us to our adjustments for panel attrition and the comparison of our results with those from other sources.

### **The Impact of Panel Attrition on Research Results**

An important purpose of the MTF follow-ups is to allow estimation of drug prevalence rates among American high school graduates at various age levels. Thus, we have always been concerned about making the appropriate adjustments to account for panel attrition. In essence, our standard adjustment process is a poststratification procedure in which we reweight the data obtained from the follow-up samples so that their reweighted 12th-grade distribution on a given drug reproduces the original distribution of use observed for that drug based on all participating seniors. This procedure is carried out separately for cigarettes, alcohol, and marijuana, as well as other illicit drugs (combined). As expected, this produces prevalence estimates that are somewhat higher than those uncorrected for attrition, indicating that there is indeed some positive association between drug use and panel attrition. However, the adjustments are relatively modest, as is documented next.

One reason the adjustments are modest is that attrition rates do not differ greatly by levels of 12th-grade substance use; they differ some, but less than one might expect. For example, among all respondents who had never used marijuana, an average of 79% of the classes of 1976–1998 participated in the first follow-up. The proportion responding is somewhat lower among those who had used marijuana once or twice in the last 12 months: 75%. This proportion decreases gradually with increasing levels of marijuana use; but even among those who used marijuana on 20 or more occasions in the last 30 days in 12th grade, 67% participated in the first follow-up. The corresponding participation rates for the same drug use strata at the fourth follow-up (i.e., at modal ages 25–26) were 66%, 63%, and 56%, respectively. Thus, even among those who were quite heavy users of marijuana in high school, response rates at the fourth follow-up were only 10 percentage points lower than among those who had never used marijuana by 12th grade. That is not to say that we assume all types of drug users remain in the panels at comparably high rates. We believe that people who become dependent on or addicted to heroin or cocaine are unlikely to be retained in reasonable proportions. That is why we are careful not to quantify or characterize these special segments of the population. But we note that they constitute very low

proportions of the drug-using portion of the population, and even lower proportions of the entire adult population.

The National Survey on Drug Use and Health (NSDUH) seems to provide the best available data against which to validate the estimates generated for adult age groups in MTF because it is also based on national samples, but uses cross-sectional surveys that do not carry the burden of panel attrition. Their results, of course, may be affected by their own nonresponse rates; but that will be true of any comparison survey. The overall response rate for the NSDUH in 2006 was 74%.

In some earlier analyses, we compared the prevalence rates on a set of drugs—cigarettes, alcohol, marijuana, and cocaine—for which there was reasonable similarity in question wording across the two studies. The comparisons that follow are for the age group 19–28 in the MTF panel data, and for 19–28 (or 19–29 for 1999 only) in the NSDUH cross-sectional data. We used the most recent readily available comparable data—2004, but similar results are found in a number of prior years. Other things equal, NSDUH should have higher rates than MTF because it includes school dropouts. Nevertheless, the MTF estimates for the 30-day prevalence of marijuana are actually higher (14.4% without poststratification and 16.5% with it) than the NSDUH estimate (14.0%). The same is true for the 12-month cocaine prevalence estimate (6.3% without poststratification and 7.1% with it, vs. 6.3% in the NSDUH estimate). The higher MTF estimates for both marijuana and cocaine suggest that attrition does not produce substantially lower estimates of drug use than would be obtained if response rates were higher.

Comparisons for alcohol and cigarettes show larger differences, with alcohol use consistently higher in MTF and cigarette use consistently higher in NSDUH. We believe it likely that both are due to definitional differences in the exact question wording. In 2004, MTF estimates of 30-day alcohol prevalence were 67.8% and 68.4% (with poststratification) versus 62.6% in NSDUH. For cigarettes, the 30-day MTF prevalence estimates were 27.1% and 29.2%, respectively, versus 39.4% in NSDUH. (Because cigarette smoking rates are particularly high among dropouts, some of this difference should be explainable by differences in the populations covered by the two studies.) It is worth noting that the nature and magnitude of the differences between MTF and NSDUH estimates tend to be quite consistent for each of the four drugs at least as far back as 1992.

Even with attrition, substantial proportions of recent drug users remain in the MTF follow-up samples. In recent years, about 15–17% of the 19–28-year-old respondents reported marijuana use in just the prior 30 days, and about 5–7% reported past 12-month use of cocaine. These proportions and the underlying numbers of actual cases are quite adequate for analytic purposes.

An important point worth emphasizing here is that in the MTF panel, attrition is not necessarily as great a problem as in a cross-sectional study. This is because we already know a great deal about each of the follow-up nonrespondents, including their substance use, based on a lengthy questionnaire in senior year (and, for many, in subsequent years as well). Thus, adjustments can be made utilizing data that are highly informative about the missing individuals.

### **Effects on Relational Analyses**

While differential attrition (uncorrected) may contribute to some bias in point estimates and other univariate statistics, such attrition tends to have less influence on bivariate and multivariate

statistics. This was found to be true in a secondary analysis of data from seven panel studies that followed adolescents over time,<sup>28</sup> and we have found this to be true in MTF panel analyses<sup>29</sup> and in analyses with other panel data sets.<sup>30</sup> Thus, differential attrition may be of less concern in multivariate panel analyses focused on understanding the course, causes, and consequences of substance use. Still, as we summarized above, correcting for attrition can be important, and we continue to do it.

## VALIDITY OF THE MEASURES OF SELF-REPORTED DRUG USE

Are sensitive behaviors such as drug use honestly reported? Like most studies dealing with sensitive behaviors, we have no direct, totally objective validation of the present measures; however, the considerable amount of existing inferential evidence strongly suggests that the self-report questions used in MTF produce largely valid data. A more complete discussion of the contributing evidence leading to this conclusion may be found in other publications.<sup>31</sup> Here we only briefly summarize the evidence.

First, using a three-wave panel design, we established that the various measures of self-reported drug use have a high degree of reliability—a necessary condition for validity.<sup>32</sup> In essence, respondents were highly consistent in their self-reported behaviors over a three- to four-year time interval. Second, we found a high degree of consistency among logically related measures of use within the same questionnaire administration. Third, the proportion of 12th graders reporting some illicit drug use by senior year has reached two thirds of all respondents in peak years and over 80% in some follow-up years, constituting *prima facie* evidence that the degree of underreporting must be very limited. Fourth, 12th graders' reports of use by their unnamed friends—about whom they would presumably have considerably less reason to conceal information about use—have been highly consistent with self-reported use in the aggregate, in terms of both prevalence *and* trends in prevalence, as will be discussed in chapter 9, *Volume I*.

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<sup>28</sup>Cordray, S., & Polk, K. (1983). The implication of respondent loss in panel studies of deviant behavior. *Journal of Research in Crime and Delinquency*, 20, 214–242.

<sup>29</sup>Bryant, A. L., Schulenberg, J. E., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (2000). Understanding the links among school misbehavior, academic achievement, and cigarette use: A national panel study of adolescents. *Prevention Science*, 1(2), 71–87; Schulenberg, J. E., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (1994). High school educational success and subsequent substance use: A panel analysis following adolescents into young adulthood. *Journal of Health and Social Behavior*, 35, 45–62.

<sup>30</sup>Bachman, J. G., O'Malley, P. M., & Johnston, J. (1978). *Youth in Transition: Vol. 6. Adolescence to adulthood: A study of change and stability in the lives of young men*. Ann Arbor, MI: Institute for Social Research; Schulenberg, J. E., Bryant, A. L., & O'Malley, P. M. (2004). Taking hold of some kind of life: How developmental tasks relate to trajectories of well-being during the transition to adulthood. *Development and Psychopathology*, 16, 1119–1140.

<sup>31</sup>Johnston, L. D., & O'Malley, P. M. (1985). Issues of validity and population coverage in student surveys of drug use. In B. A. Rouse, N. J. Kozel, & L. G. Richards (Eds.), *Self-report methods of estimating drug use: Meeting current challenges to validity* (NIDA Research Monograph No. 57 (ADM) 85-1402). Washington, DC: U.S. Government Printing Office; Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1984). *Drugs and American high school students: 1975–1983* (DHHS (ADM) 85-1374). Washington, DC: U.S. Government Printing Office; Wallace, J. M., Jr., & Bachman, J. G. (1993). Validity of self-reports in student-based studies on minority populations: Issues and concerns. In M. de LaRosa (Ed.), *Drug abuse among minority youth: Advances in research and methodology* (NIDA Research Monograph No. 130). Rockville, MD: National Institute on Drug Abuse.

<sup>32</sup>O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1983). Reliability and consistency in self-reports of drug use. *International Journal of the Addictions*, 18, 805–824.

Fifth, we have found self-reported drug use to relate in consistent and expected ways to a number of other attitudes, behaviors, beliefs, and social situations—in other words, there is strong evidence of construct validity. Sixth, the missing data rates for the self-reported use questions are only very slightly higher than for the preceding nonsensitive questions, in spite of explicit instructions to respondents immediately preceding the drug section to leave blank those drug use questions they felt they could not answer honestly. Seventh, an examination of consistency in reporting of lifetime use conducted on the long-term panels of graduating seniors found quite low levels of recanting of earlier reported use of the illegal drugs.<sup>33</sup> There was a higher level of recanting for the psychotherapeutic drugs, suggesting that adolescents may actually overestimate their use of some drugs because of misinformation about definitions that is corrected as they get older. Finally, the great majority of respondents, when asked, say they would answer such questions honestly if they were users.<sup>34</sup>

This is not to argue that self-reported measures of drug use are valid in all cases. In the present study we have gone to great lengths to create a situation and set of procedures in which students recognize that their confidentiality will be protected. We have also tried to present a convincing case as to why such research is needed. The evidence suggests that a high level of validity has been obtained. Nevertheless, insofar as any remaining reporting bias exists, we believe it to be in the direction of underreporting. Thus, with the possible exception of the psychotherapeutic drugs, we believe our estimates to be lower than their true values, even for the obtained samples, but not substantially so.

As an additional step to assure the validity of the data, we check for logical inconsistencies in the triplets of answers about the use of each drug (i.e., about lifetime, annual, and past 30-day use), and if a respondent exceeds a minimum number of inconsistencies across the drug use questions, his or her record is deleted from the data set. Similarly, we check for improbably high rates of use of multiple drugs and delete such cases, on the assumption that the respondents are not taking the task seriously. Fortunately, relatively few cases have to be eliminated for these reasons.

### **Consistency and the Measurement of Trends**

MTF is designed to be sensitive to changes from one time period to another. A great strength of this study, in our opinion, is that the measures and procedures have been standardized and applied consistently across many years. To the extent that any biases remain because of limits in school and/or student participation, and to the extent that there are distortions (lack of validity) in the responses of some students, it seems very likely that such problems will exist in much the same proportions from one year to the next. In other words, biases in the survey estimates will tend to be consistent from one year to another, meaning that our measurement of *trends* should be affected very little. The smooth and consistent nature of most trend curves reported for the various drugs provides rather compelling empirical support for this assertion.

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<sup>33</sup>Johnston, L. D., & O'Malley, P. M. (1997). The recanting of earlier reported drug use by young adults. In L. Harrison (Ed.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (NIDA Research Monograph No. 167, pp. 59–80). Rockville, MD: National Institute on Drug Abuse.

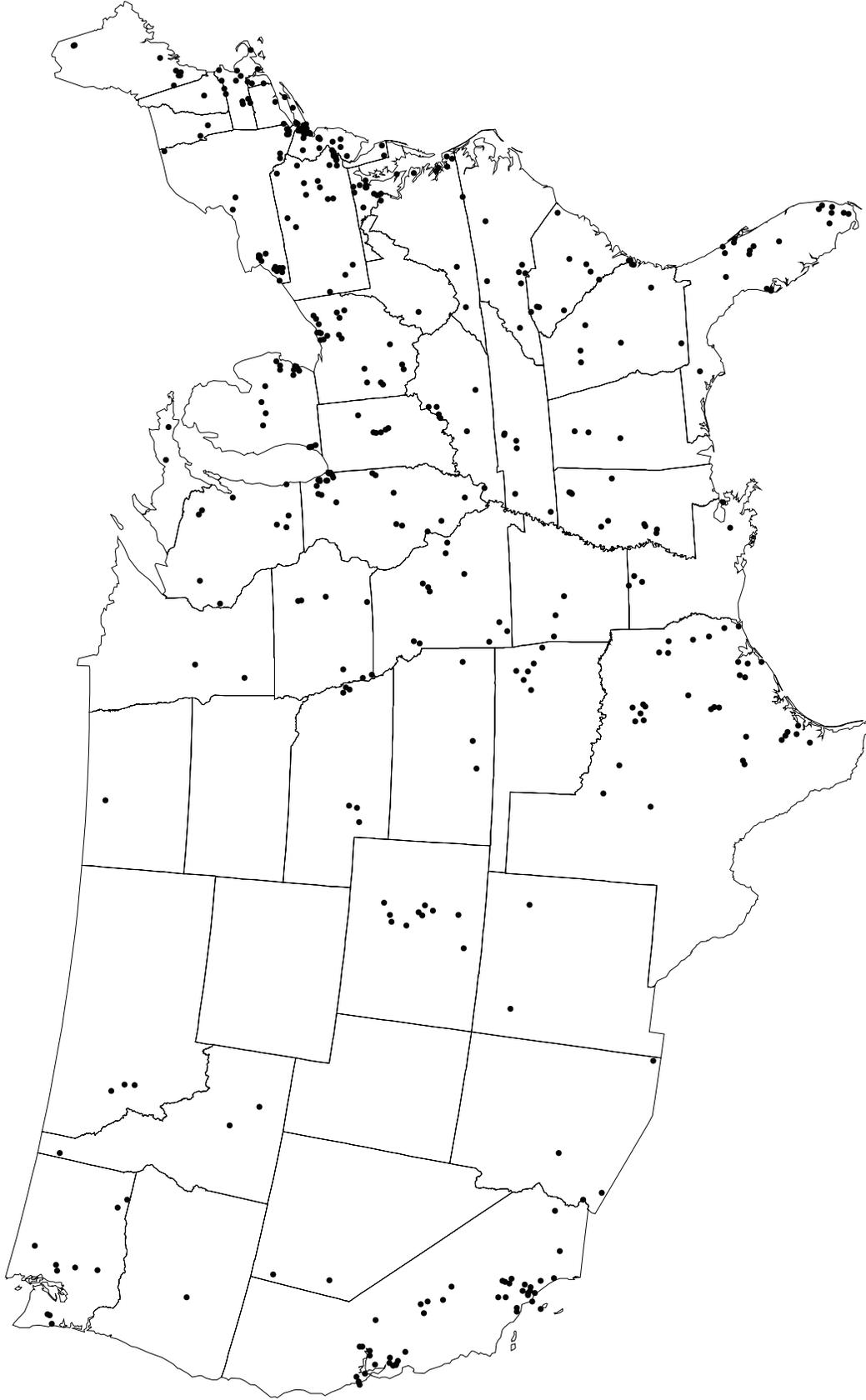
<sup>34</sup>For a discussion of reliability and validity of student self-report measures of drug use like those used in MTF across varied cultural settings, see Johnston, L. D., Driessen, F. M. H. M., & Kokkevi, A. (1994). *Surveying student drug misuse: A six-country pilot study*. Strasbourg, France: Council of Europe.

**TABLE 3-1**  
**Sample Sizes and Response Rates**

Grade:	Number of Public Schools			Number of Private Schools			Total Number of Schools				Total Number of Students				Student Response Rate (%)		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	Total	8th	10th	12th	Total	8th	10th	12th
1975	—	—	111	—	—	14	—	—	125	—	—	—	15,791	—	—	—	78
1976	—	—	108	—	—	15	—	—	123	—	—	—	16,678	—	—	—	77
1977	—	—	108	—	—	16	—	—	124	—	—	—	18,436	—	—	—	79
1978	—	—	111	—	—	20	—	—	131	—	—	—	18,924	—	—	—	83
1979	—	—	111	—	—	20	—	—	131	—	—	—	16,662	—	—	—	82
1980	—	—	107	—	—	20	—	—	127	—	—	—	16,524	—	—	—	82
1981	—	—	109	—	—	19	—	—	128	—	—	—	18,267	—	—	—	81
1982	—	—	116	—	—	21	—	—	137	—	—	—	18,348	—	—	—	83
1983	—	—	112	—	—	22	—	—	134	—	—	—	16,947	—	—	—	84
1984	—	—	117	—	—	17	—	—	134	—	—	—	16,499	—	—	—	83
1985	—	—	115	—	—	17	—	—	132	—	—	—	16,502	—	—	—	84
1986	—	—	113	—	—	16	—	—	129	—	—	—	15,713	—	—	—	83
1987	—	—	117	—	—	18	—	—	135	—	—	—	16,843	—	—	—	84
1988	—	—	113	—	—	19	—	—	132	—	—	—	16,795	—	—	—	83
1989	—	—	111	—	—	22	—	—	133	—	—	—	17,142	—	—	—	86
1990	—	—	114	—	—	23	—	—	137	—	—	—	15,676	—	—	—	86
1991	131	107	117	31	14	19	162	121	136	419	17,844	14,996	15,483	48,323	90	87	83
1992	133	106	120	26	19	18	159	125	138	422	19,015	14,997	16,251	50,263	90	88	84
1993	126	111	121	30	17	18	156	128	139	423	18,820	15,516	16,763	51,099	90	86	84
1994	116	116	119	34	14	20	150	130	139	419	17,708	16,080	15,929	49,717	89	88	84
1995	118	117	120	34	22	24	152	139	144	435	17,929	17,285	15,876	51,090	89	87	84
1996	122	113	118	30	20	21	152	133	139	424	18,368	15,873	14,824	49,065	91	87	83
1997	125	113	125	27	18	21	152	131	146	429	19,066	15,778	15,963	50,807	89	86	83
1998	122	110	124	27	19	20	149	129	144	422	18,667	15,419	15,780	49,866	88	87	82
1999	120	117	124	30	23	19	150	140	143	433	17,287	13,885	14,056	45,228	87	85	83
2000	125	121	116	31	24	18	156	145	134	435	17,311	14,576	13,286	45,173	89	86	83
2001	125	117	117	28	20	17	153	137	134	424	16,756	14,286	13,304	44,346	90	88	82
2002	115	113	102	26	20	18	141	133	120	394	15,489	14,683	13,544	43,716	91	85	83
2003	117	109	103	24	20	19	141	129	122	392	17,023	16,244	15,200	48,467	89	88	83
2004	120	111	109	27	20	19	147	131	128	406	17,413	16,839	15,222	49,474	89	88	82
2005	119	107	108	27	20	21	146	127	129	402	17,258	16,711	15,378	49,347	90	88	82
2006	122	105	116	29	18	20	151	123	136	410	17,026	16,620	14,814	48,460	91	88	83
2007	119	103	111	32	17	21	151	120	132	403	16,495	16,398	15,132	48,025	91	88	81
2008	116	103	103	28	19	17	144	122	120	386	16,253	15,518	14,577	46,348	90	88	79

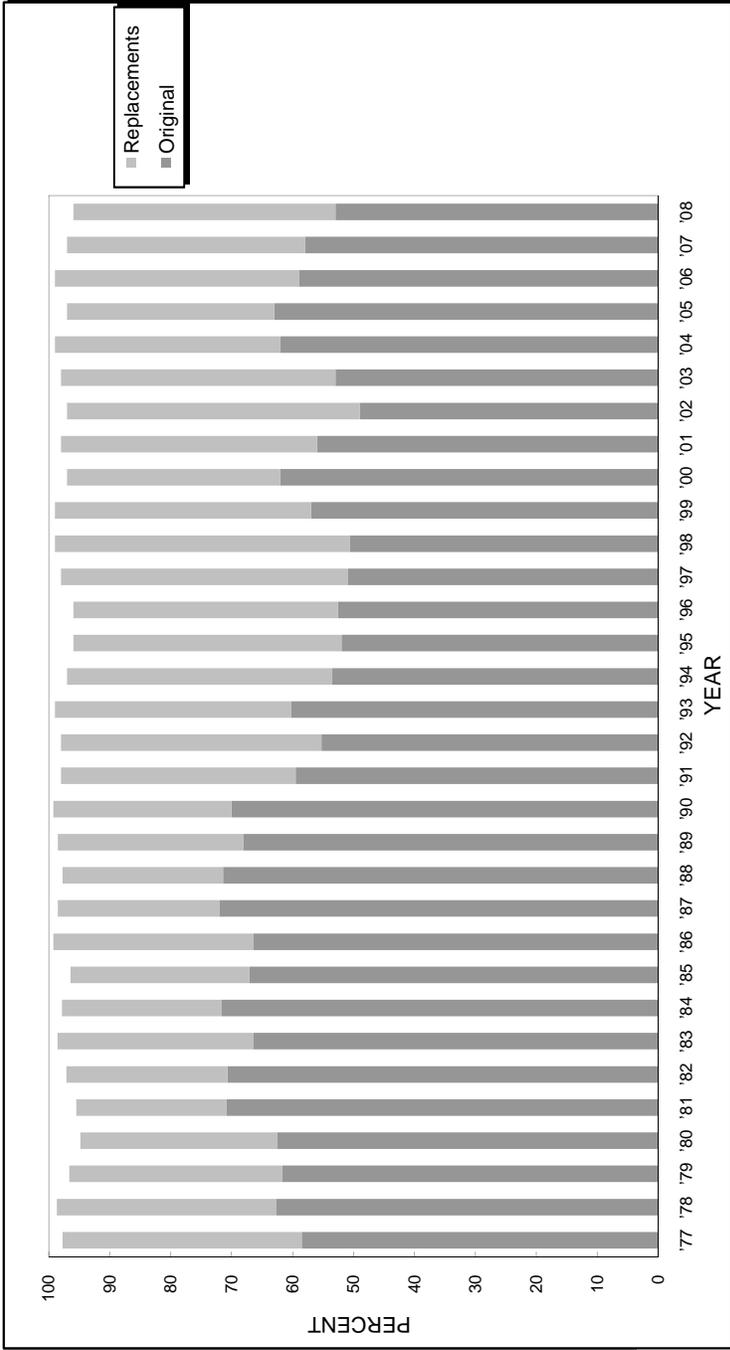
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 3-1**  
**Schools included in 1 Year's Data Collection**  
**8th, 10th, and 12th Grades**



Source. The Monitoring the Future study, the University of Michigan.  
Note. One dot equals one school.

**FIGURE 3-2**  
**School Participation Rates\***



Percent of slots filled by...	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08
Original	59	63	62	63	71	66	66	72	72	66	66	71	68	70	59	55	60	53	52	53	51	51	57	62	56	49	53	62	63	59	58	53
Replacements	39	36	35	32	25	32	32	26	26	33	26	26	30	29	39	43	39	44	44	43	47	48	42	35	42	45	37	34	40	39	43	
Total	98	99	97	95	96	97	99	98	98	99	99	98	99	99	98	98	99	97	96	96	98	99	99	97	98	97	98	99	97	99	97	96

Source. The Monitoring the Future study, the University of Michigan.  
 \*The data for the years prior to 1991 are for 12th grade only; beginning in 1991, the data are for 8th, 10th, and 12th grades combined.



## Chapter 4

### PREVALENCE AND FREQUENCY OF DRUG USE

Drug use can be measured in terms of prevalence (the proportion of a defined population or sub-population who have used a drug once or more in a particular time interval) or in terms of frequency (how many times they used the drug within a defined time interval). In this chapter, both of these important dimensions of drug use are addressed in relation to each of the three time intervals used in MTF—lifetime, past 12 months, and past 30 days—utilizing data from the most recently completed cross-sectional surveys of 8th-, 10th-, and 12th- grade students, conducted in the spring of 2008. We also examine how use varies across a number of important demographic subgroups. In addition, the prevalence of current daily use is provided for selected drugs, as are the prevalence and frequency of having five or more drinks in a row in the past two weeks. For cigarettes, the rate of smoking a half pack or more per day is included, in addition to a measure of daily smoking. For a few drug classes added to the study in recent years, only the prevalence and frequency of use in the past 12 months are reported, because, due to space limitations in the questionnaires, their use was addressed by only a single question. (We refer to such questions as “tripwire” questions, because their purpose is to alert us to an emerging problem. If the tripwire question reveals a sizeable problem, we usually convert to a full set of questions covering the three standard time intervals.)

Later in this chapter, prevalence estimates are given for key *subgroups* in the population based on six dimensions: gender, college plans, region of the country, population density (or urbanicity), socioeconomic status (as measured by the average educational level of the parents), and racial/ethnic identification. These estimates are provided separately for 8th, 10th, and 12th grades.

It should be noted that all of the prevalence statistics are based on students in attendance on the day of the survey administration. Selected prevalence rate estimates for 12th-grade students, reflecting adjustments for the missing absentees, as well as for dropouts, may be found in appendix A (21% of 12th graders were absent on the day of the survey in 2008). (The adjustments are not particularly large and have virtually no effect on trend estimates.) The absentee and dropout adjustments for 8th and 10th graders would be much smaller than those shown in appendix A for 12th graders, because 8th and 10th graders have considerably lower rates of absenteeism (10% and 12%, respectively, in 2008) and far lower rates of dropping out.

### PREVALENCE AND FREQUENCY OF DRUG USE IN 2008: ALL STUDENTS

#### Prevalence of Lifetime, Annual, and 30-Day Use

Prevalence-of-use estimates are provided in Tables 4-1a through 4-1d, respectively, for lifetime, past 12 months, past 30 days, and current daily use. These tables also include the 95% confidence intervals around each estimate, which means that if samples of this size and type were drawn repeatedly from all students in that grade level in the coterminous United States, they would be expected to generate observed prevalence rates that fell within the confidence

interval 95 times out of 100. The confidence intervals take into account the effects of sample stratification, the clustering of the sample in schools, and unequal weighting. Of course, the single best estimate that we can make is the value actually observed in our sample—our point estimate.

To facilitate comparisons, Table 4-2 brings together the point estimates for all four prevalence periods.

Table 4-3 gives a more detailed breakdown for *heroin* by mode of administration, differentiating use with and without a needle.

The key findings are summarized below:

- Nearly half of all 12th graders (47%) in 2008 reported *any illicit drug use* at some time in their lives (see Table 4-2). About one third (34%) of 10th graders and one fifth (20%) of 8th graders said they have used an illicit drug at some time.
- *Marijuana* is by far the most widely used illicit drug. Over two fifths of all 12th graders (43%) reported some marijuana use in their lifetime, 32% reported some use in the past year, and 19% reported some use in the past month. Among 10th graders, the corresponding rates are 30%, 24%, and 14%, respectively. Even among 8th-grade students, marijuana has been used at least once by one in seven (15%), with 11% reporting use in the prior year and 6% in the prior month. Current *daily marijuana use* (defined as use on 20 or more occasions in the past 30 days) is also noteworthy. One in 19 twelfth graders (5.4%) used marijuana daily in the month prior to the survey, as did 1 in 37 tenth graders (2.7%) and 1 in 111 eighth graders (0.9%). *Long-term* daily use of marijuana is covered in chapter 10.
- Of all the students in each grade reporting some illicit drug use (not including inhalants) in their lifetime, roughly half reported using *only marijuana*: 43% of all 8th-grade users of any illicit drug (or 8% of the total 8th-grade sample), 53% of all 10th-grade users of any illicit drug (or 18% of the total 10th-grade sample), and 48% of the 12th-grade users of any illicit drug (or 23% of the total 12th-grade sample). (These figures are not explicitly provided in the tables but can be derived from the information therein.) Put another way, about half of the 8th, 10th, and 12th graders who have ever used an illicit drug have used an illicit drug other than marijuana (usually in addition to marijuana).
- When inhalants are included in the index of illicit drug use, the proportions categorized as having ever used an illicit drug rise, especially for 8th graders. The percentages using *any illicit drug including inhalants* in their lifetime are 28% for 8th graders, 39% for 10th graders, and 49% for 12th graders.
- The proportions having used *any illicit drug other than marijuana (or inhalants)* are striking. In 2008, the lifetime prevalence rates were 11% in 8th grade, 16% in 10th grade,

and 25% in 12th grade. Thus, by 12th grade, one in four has tried an illicit drug other than marijuana.<sup>35</sup>

- **Inhalants** are a popular and sometimes deadly class of drugs, showing the highest lifetime prevalence rate among 8th graders (16%), the second highest among 10th graders (13%), and the fourth highest among 12th graders (10%) of any illicit drug. However, in terms of any use in the past 30 days (current use), inhalants rank lower for all grade levels because many who had used them at a younger age have discontinued use, thus making inhalants the only class of substances for which active use declines with age during adolescence.

This seemingly anomalous finding of lifetime prevalence declining across grade levels could be due to various factors. One is that there might be lower lifetime prevalence at older ages because the eventual school dropout segment is included only in the lower grades. If those who will become dropouts are unusually likely to use inhalants, lifetime use rates could decline with grade level. That would lead to a relatively stable difference between the grades in lifetime use (because dropout rates have been fairly stable in recent years); however, the degree of difference has changed some over time, as the data in Table 2-1 show, with larger differences emerging in the mid-1990s. Another possible factor is changing validity of reporting with age; but in order to account for the trend data, one would have to hypothesize that this tendency became stronger in the 1990s, and we have no reason to believe that it did. Cohort differences may be a factor, but the changes in lifetime prevalence are too large to be due completely to cohort differences. It seems likely that all of these factors account for some of the differences observed in the retrospective reporting by the different ages, and possibly some additional ones as well.

Use of **amyl and butyl nitrites**, a specific class of inhalants, is asked only of 12th graders; they have been tried by 0.6% of 2008 seniors. These inhalants have been sold legally in the past and have gone by such street names as “poppers” or “snappers” and such brand names as Locker Room and Rush. When questions specifically about nitrite use were included for the first time in one 1979 twelfth-grade questionnaire form, we discovered that some users of amyl and butyl nitrites did not report themselves as inhalant users, although they should have. We were able to estimate the degree to which inhalant use was being underreported. As a result, we introduced an ***inhalants adjusted*** prevalence estimate, which corrects for the underinclusion of nitrite use. Such correction has made very little difference in recent years because of the very low rates of nitrite use.<sup>36</sup>

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<sup>35</sup>For 12th graders, use of “any illicit drug other than marijuana” includes any use of LSD, hallucinogens other than LSD, crack, other cocaine, or heroin *and/or* any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers that is not under a doctor’s orders. For 8th and 10th graders, the list of drugs is the same except that the use of narcotics other than heroin and sedatives (barbiturates) has been excluded both from the illicit drug indexes and from separate presentation in this volume. Questions on these drugs were included in the questionnaires given to 8th and 10th graders, but the results led us to believe that some respondents were including nonprescription drugs in their answers, resulting in exaggerated prevalence rates.

<sup>36</sup>Because the data to adjust inhalant and hallucinogen use for 12th graders are available from only a single questionnaire form in a given year, the original uncorrected variables will be used in most relational analyses. We believe relational analyses will be least affected by these underestimates and that the most serious impact is on prevalence estimates, which have been adjusted appropriately. Today, the levels of use for nitrites and PCP—the two drugs that were used to adjust the estimates for inhalants and hallucinogens, respectively—are so low that these adjustments are hardly relevant any longer. Therefore, questions about their use were not even included in the 8th- and 10th-grade questionnaires, and the 12th-grade adjustment of daily use data for these two drugs is no longer included in the tables.

- For 8th graders, inhalant use is followed closely in the rankings by *marijuana*, with a lifetime prevalence rate of 15%, and then by *amphetamines*, at 6.8% for lifetime prevalence.<sup>37</sup> Among 10th graders, the ranking for lifetime prevalence of use is *marijuana* (30%), *inhalants* (13%), and *amphetamines* (9.0%). Among 12th graders, lifetime use rates are higher for *narcotics other than heroin* (13%) and *amphetamines* (10.5%) than for inhalants (9.9%). (Considerably lower prevalence rates are found for the specific class *methamphetamine*, with 2.3%, 2.4%, and 2.8% of 8th, 10th, and 12th graders, respectively, reporting any lifetime use. *Crystal methamphetamine* [“ice”], also has a low lifetime prevalence among 12th graders [2.8%]; use is not asked in the lower grades.)
- *Hallucinogens* are another fairly widely used class of substances. Lifetime prevalence of use is 3.3% for 8th graders, 5.5% for 10th graders, and 8.7% for 12th graders. Until 2001, hallucinogen prevalence rates ranked this high primarily due to the prevalence of LSD use. In 2008, larger proportions of students—2.5%, 4.8%, and 7.8%, respectively, for the three grade levels—indicate using *hallucinogens other than LSD* (particularly “*shrooms*” or *psilocibin*) compared to 1.9%, 2.6%, and 4.0% for *LSD*.
- Another drug used for its somewhat hallucinogenic properties is “*ecstasy*” (*MDMA*). At present, the lifetime prevalence rates for this drug stand at 2.4%, 4.3%, and 6.2% in grades 8, 10, and 12, respectively—rates that are higher than those for LSD in all three grades.
- When specific questions about *PCP* use were added in 1979, we discovered that some PCP users did not report themselves as users of hallucinogens, even though PCP is explicitly included as an example in the questions on hallucinogens. Thus, from 1979 onward, we have included the *hallucinogens adjusted* prevalence and trend estimates for 12th graders to correct for this known underreporting. As with the correction for underreporting of nitrites, this adjustment has made very little difference in recent years among 12th graders because the rate of PCP use is so low. (See Footnote 36 regarding nitrites.)
- Lifetime prevalence of use among 12th graders for *PCP* now stands at 1.8%, lower than the lifetime prevalence of the other widely used hallucinogens, *LSD* (4.0%) and *ecstasy* (6.2%).
- Lifetime prevalence rates for *cocaine* use by 8th, 10th, and 12th graders are 3.0%, 4.5%, and 7.2%, respectively.
- *Crack*, a form of cocaine that comes in small chunks or “rocks,” can be smoked to produce a rapid and intense but short-lasting high. It currently has a relatively low lifetime prevalence rate in all grade levels: 2.0% for 8th graders, 2.0% for 10th graders, and 2.8% for 12th graders.

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<sup>37</sup>For findings on specific amphetamines, including Ritalin, see appendix E.

Of all students reporting *any* cocaine use, significant proportions have some experience with crack: two thirds of the 8th-grade cocaine users (67%), and about two fifths of the 10th-grade (44%) and 12th-grade users (39%) reported using crack. (Data not shown.)

- **Heroin** is one of the least commonly used illicit drugs at each grade level. Lifetime use is 1.4% for 8th graders, 1.2% for 10th graders, and 1.3% for 12th graders. For many years, the heroin available in the United States had such a low purity that the only practical way to use it was by injection, usually intravenously. However, due to high production in various countries, purity rose substantially, thus making smoking and snorting more common modes of administration. Because of these changes, in 1995 we added separate questions on heroin use with and without a needle. We found that significant proportions of those reporting any heroin use in the previous 12 months reported using **heroin without a needle**. In 2008, one third of the 8th graders who indicated using heroin in the past year reported using only without a needle, one third reported using only with a needle, and one third reported using both ways (0.3% of all 8th graders in each case). The proportions for 10th graders were 0.3%, 0.2%, and 0.3%, respectively, and the proportions for 12th grade were 0.3%, 0.2%, and 0.2%, respectively. See Table 4-3 for more detail on heroin use by mode of administration.
- **Narcotics other than heroin** are now the class of drugs that is second highest in ranking among 12th graders (13% lifetime prevalence). (Data for 8th and 10th graders are not reported for narcotics other than heroin because the data are of questionable validity.)
- Tripwire questions were introduced beginning in 2002 about use without a doctor's orders of OxyContin and Vicodin. The results for **OxyContin**, a brand of oxycodone, show an annual prevalence rate in 2008 of 2.1%, 3.6%, and 4.7% for grades 8, 10, and 12, respectively. The rates for **Vicodin** are considerably higher, with the comparable prevalence rates being 2.9%, 6.7%, and 9.7%, respectively. These prevalence rates are far higher than for heroin. Among 12th graders (where the comparison is possible), slightly more students reported that they used Vicodin in the past 12 months (9.7%) than said they used **any narcotic other than heroin** (9.1%), of which Vicodin is a subclass. It thus appears that some Vicodin users do not recognize and report it as a narcotic drug.
- **Tranquilizers** also fall in the top third of the prevalence rankings of illicit drugs, with lifetime prevalence rates of 3.9%, 6.8%, and 8.9% for grades 8, 10, and 12, respectively.
- Within the general class of sedatives, **methaqualone** is used by many fewer 12th graders (0.8% lifetime prevalence of use) than the much broader subclass of sedatives, which is labeled in the tables as **sedatives (barbiturates)** (8.5% lifetime prevalence of use).<sup>38</sup> Because methaqualone use has become so limited among 12th graders, questions about

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<sup>38</sup>Barbiturates were the dominant form of sedatives in use when these questions were first introduced. In the intervening years, a number of nonbarbiturate sedatives have entered the market and largely displaced barbiturate sedatives. Because our question did not change, we believe that a number of users of nonbarbiturate sedatives have been reporting them in answer to the barbiturate question, which also defines them in terms of the conditions for which they are prescribed. In 2004, half of the questionnaires used the original question about barbiturates, while the other half had a question asking about "sedatives, which include barbiturates . . ." These two versions yielded 12th-grade prevalence rates that were almost identical, suggesting that, in the past, the users of nonbarbiturate sedatives had indeed been including them in their answers about barbiturate use. In 2005, the remaining questionnaire forms were changed as well.

its use have not been included in the 8th- and 10th-grade questionnaires. The sedative (barbiturate) questions are included in the 8th- and 10th-grade questionnaires, but the results are not reported because we suspect that the younger respondents include the use of drugs that are not sedatives/barbiturates.

- The illicit drug classes remain in roughly the same order whether ranked by lifetime, annual, or monthly prevalence of use, as the data in Figure 4-1 illustrate. The only important change in ranking occurs for *inhalant* use among 10th and 12th graders, for whom inhalants rank lower for current use than for lifetime use. This variation occurs because, as suggested above, use of a number of inhalants such as glues and aerosols tends to be discontinued at a relatively early age. Among 8th graders, however, it should be noted that 1 in 11 (8.9%) sniffed, “huffed,” or “bagged” some inhalant in the prior 12 months, and 1 in 24 (4.1%) did so in just the prior 30 days.
- Two other drugs that were thought to be increasingly common, *GHB* and *ketamine*, were included in the survey for the first time in 2000. These two drugs were each measured with a single tripwire question asking about their frequency of use in the prior 12 months. A single tripwire question about the use of *Rohypnol* had been introduced earlier, in 1996. None of these drugs turned out to have particularly high annual prevalence rates (see Table 4-6). In 2008, *GHB*, which stands for gamma-hydroxybutyrate (a central nervous system depressant) and goes by such street names as “grievous bodily harm” and “G,” had annual prevalence rates of 1.1%, 0.5%, and 1.2% in grades 8, 10, and 12, respectively. GHB is known as a “date rape drug” because of its ability to induce amnesia of events that occurred while under the influence. There was considerable adverse publicity in the media about this drug a few years ago, which may explain the limited rates of use. *Ketamine*, also known as “*special K*” and “*K*,” had only slightly higher annual prevalence rates in 2008: 1.2%, 1.0%, and 1.5%, respectively, for grades 8, 10, and 12. It is an anesthetic used mostly in veterinary medicine, and it can induce dreamlike states and hallucinations. *Rohypnol*, another so-called “date rape drug,” had annual prevalence rates of only 0.5%, 0.4%, and 1.3% in grades 8, 10, and 12, respectively, in 2008.
- *Alcohol* and *cigarettes* are the two major licit drugs included in the MTF surveys, though even these are legally prohibited for most respondents based on their age. Alcohol use is more widespread than use of any of the illicit drugs. Almost three out of every four 12th-grade students (72%) have at least tried *alcohol*, and over two fifths (43%) are current

drinkers—that is, they reported using alcohol in the 30 days prior to the survey (Table 4-2). Even among 8th graders, the proportion of students who reported some alcohol use in their lifetime is nearly two fifths (39%), and a sixth (16%) are current (past 30-day) drinkers.<sup>39</sup>

- Of greater concern than just any use of alcohol is its use to the point of inebriation: 18% of 8th graders, 37% of 10th graders, and 55% of 12th graders said they have *been drunk* at least once in their lifetime. The prevalence rates of self-reported drunkenness during the 30 days immediately preceding the survey are strikingly high—5%, 14%, and 28%, respectively, for grades 8, 10, and 12.
- Another measure of heavy drinking asks respondents to report how many occasions during the previous two-week period they had consumed *five or more drinks in a row*. Prevalence rates for this behavior are 8%, 16%, and 25% for the three grades, respectively.<sup>40</sup>
- Use of cigarettes, like alcohol, is generally more widespread than use of any of the illicit drugs. Almost half (45%) of 12th graders reported having tried *cigarettes* at some time, and one fifth (20%) smoked at least some in the prior 30 days. Even among 8th graders, nearly one quarter (21%) reported having tried cigarettes and 7% smoked in the prior 30 days. Among 10th graders, 12% reported smoking in the prior 30 days; this is actually lower than the percentage reporting using marijuana in the prior 30 days (14%). (As noted below, however, *daily* use in the prior 30 days is considerably higher for cigarettes than for marijuana or alcohol.)
- A question about *bidis*, a type of flavored cigarette imported from India, was included in the questionnaires for the first time in 2000, with a single tripwire question asking about the frequency of use in the past year. Some observers had been concerned that bidis might become popular among American youth, but that does not seem to have been the case. In 2006, the question on bidis was dropped from the 8th- and 10th-grade questionnaires to allow room for the addition of other questions. The 2008 proportion of 12th graders using bidis during the past year was 1.9%. Thirty-day and daily use would most likely be lower.

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<sup>39</sup>In 1993 the text of the alcohol prevalence-of-use question was changed slightly in half of the questionnaire forms used at each grade such that the respondent was told explicitly to *exclude* those occasions when they had “just a few sips” of an alcoholic beverage. In 1994 this change was made to the remaining forms. The 2008 data presented here are all based on the revised question. In figures in this volume, the 1993 data are presented only for the revised question. As would be expected, the prevalence rates dropped slightly as a result of this methodological change, with the largest shifts observed in the lifetime prevalence measures and among 8th-grade respondents. In 2004, there was another minor wording change in half of the forms to encompass the broader range of alcoholic beverages that were becoming more popular, with the wording “. . . alcoholic beverages including beer, wine, and liquor, and any other beverage that contains alcohol.” Previously we had asked about “. . . beer, wine, wine coolers, or liquor . . .” An examination of the data did not show any effect from dropping the explicit mention of wine coolers and replacing it with “any other beverage that contains alcohol.” The remaining questionnaire forms were changed in the same manner in 2005.

<sup>40</sup>We have noted previously that the prevalence of heavy drinking (five or more drinks in a row at least once in the past two weeks) seems inconsistent with 8th-grade students’ reported prevalence of getting drunk. In 2008, 8% of 8th graders said they had had five or more drinks in a row at least once in the past two weeks. However, only 5% said they had been drunk or very high from drinking in the past 30 days. It seems unlikely that more than one third of 8th graders who reported having five or more drinks in a row would not have become intoxicated from such an amount. We suspect that they may be overreporting their occasions of heavy drinking, perhaps forgetting what a drink means, even though the questionnaire explicitly tells them that a drink means a bottle of beer, a glass of wine, a wine cooler, a shot of liquor, or a mixed drink. We believe that of the two measures, the self-reports of getting drunk or very high are likely to be the more accurate, at least for 8th graders.

- A question about *kreteks*, a type of clove cigarette that, like bidis, is usually imported, was added in 2001 to the list of tripwire questions. Since the prevalence rates turned out to be low, the question was dropped from the 2006 eighth- and 10th-grade questionnaires to make room for other questions. In 2008, 6.8% of 12th graders reported any use in the prior 12 months.
- *Smokeless* or “spit” *tobacco* is used by a surprisingly large number of young people, considering the unattractive nature of its use. Among 8th, 10th, and 12th graders, prevalence rates are 10%, 12%, and 16%, respectively, for lifetime use; and 3.5%, 5.0%, and 6.5%, respectively, for use in the past 30 days. As will be discussed later in this chapter, the rates are considerably higher among boys.
- Questions about *anabolic steroids* were added to the MTF study in 1989. These drugs bear some resemblance to a number of others in that their distribution and sale are legally controlled, and they often find their way into an illicit market. They also carry a particular danger for HIV transmission when taken by injection. However, they differ from all other drugs discussed here in one important way: they are usually taken not for their direct psychoactive effects (although they may have some) but rather for muscle and physical performance enhancement. Clearly, their potential unintended consequences, including the transmission of HIV, make their illicit use a public health concern.<sup>41</sup>

The overall prevalence rates for anabolic steroids are modest relative to many other drugs. For 8th, 10th, and 12th graders, lifetime prevalence rates in 2008 were 1.4%, 1.4%, and 2.2%, respectively, while annual prevalence rates were 0.9%, 0.9%, and 1.5%, and past 30-day prevalence rates were 0.5%, 0.5%, and 1.0%, respectively. However, the annual prevalence rates for males are distinctly higher at 1.2%, 1.4%, and 2.5%, respectively, compared to 0.5%, 0.5%, and 0.4% for females.

- Another class of substance that is closely related to anabolic steroids is *androstenedione*, which is actually a precursor to anabolic steroids and is used for much the same purpose—to enhance strength and physique. It is different in that it had been legal to purchase over the counter (though this changed in 2005, when it was scheduled as a controlled substance by the Drug Enforcement Administration). Concern grew about adolescents’ use of androstenedione when their reported use of anabolic steroids increased sharply in 1999, a year marked by press reports of androstenedione use by a very prominent professional baseball player. A single tripwire question was added in 2001 to determine how widespread the use of this class of drug actually was, partly in order to check whether some of the increase in reported steroid use was actually due to androstenedione use. The 2008 annual prevalence rates for androstenedione were 0.9%, 0.9%, and 1.3% in 8th, 10th, and 12th grades, respectively. (As with steroids, the annual prevalence rates are considerably higher among males; in this case, they are 1.3%, 1.3%,

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<sup>41</sup>In 2006, the question about steroid use was changed in one of the three 12th-grade forms in which it occurred, and in two of the four 8th- and 10th-grade forms in which it occurred. The change was intended to assure that respondents were including only anabolic steroids and not corticosteroids in their answers. The phrase “. . . that are sometimes prescribed by doctors to promote healing from certain types of injuries” was replaced with the phrase “. . . are prescription drugs sometimes prescribed by doctors to treat certain conditions.” A comparison of the prevalence rates generated by the two question wordings revealed no evidence of any effect of the question wording change. In 2007 the remaining forms were changed in the same manner.

and 1.7% for males versus 0.5%, 0.6%, and 0.7% for females.) In the questionnaire forms containing both drugs, we find that a significant proportion of those students reporting anabolic steroid use in 2008 also reported using androstenedione in the later tripwire question specifically addressing androstenedione: 38%, 40%, and 29% in grades 8, 10, and 12, respectively. Therefore, it is possible that some of the reported steroid use is, in fact, androstenedione use and that some of the increase in reported steroid use in the late 1990s was indeed due to increasing use of androstenedione.<sup>42</sup>

- To deal with the issue of double counting, and also to consider the total proportion of students using either *steroids* or *androstenedione*, we have added a table to chapter 10 where we address the issue of these performance-enhancing substances at greater length (see Tables 10-9a through 10-9c). Our estimate of the proportion of boys using *either* of these drugs in the prior 12 months is 2.0% in 8th grade, 2.1% in 10th grade, and 3.2% in 12th grade. This means that about 1 in 33 twelfth-grade boys has used one of these drugs in just the prior year.
- Another physique-enhancing substance is *creatine*, though it is not usually considered a drug at all but rather a type of protein supplement that is believed to help build muscle mass. Because we thought that a number of boys were probably using this substance along with steroids and/or androstenedione, we added a tripwire question about its use in 2001. The use of creatine, which is sold over the counter, was even more widespread than we expected. This is troublesome given the limited knowledge about the long-term effects of using this substance. In 2008, the proportion of boys reporting use of creatine in the prior 12 months was 3.2%, 12%, and 16% in grades 8, 10, and 12. Many fewer girls reported use—0.7%, 0.9%, and 1.5%, respectively.

### Frequency of Lifetime, Annual, and 30-Day Use

While most of the discussion in this volume focuses on *prevalence*-of-use rates for different time periods (i.e., lifetime, annual, and 30-day), many readers are interested in more detailed information about the frequency with which various drugs have been used in these same time periods.

Table 4-4a provides data on *frequency* of use of various drugs for lifetime, 12-month, and 30-day periods.

Table 4-4b provides additional frequency-of-use estimates for alcohol, cigarettes, and smokeless tobacco.

Table 4-4c provides frequency estimates for nonprescription cough and cold medicines.

- As shown in these tables, a good proportion of lifetime users of *many drugs* could best be characterized as experimental users, because they report use on only one or two occasions.

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<sup>42</sup>Viewed the opposite way, the proportion of those reporting any androstenedione use in the prior 12 months who *also* reported any steroid use in the same interval is 11%, 40%, and 49% for 8th, 10th, and 12th graders, respectively. In other words, from one tenth to one half of androstenedione users are also reporting steroid use, which sets outer limits on the degree to which these two questions are double-counting the same behaviors.

- At the other extreme, certain drugs stand out for having had relatively high proportions reporting use on 20 or more occasions in their lifetime. For example, 7%, 16%, and 30% of all 8th, 10th, and 12th graders, respectively, consumed *alcohol* on 20 or more occasions in their lifetime. Indeed, 2%, 5%, and 17% of them indicate having *been drunk* on 20 or more occasions.
- *Cigarette* use is measured on a different type of frequency scale, making direct comparison with other drugs difficult, but there can be little doubt that cigarettes rank first in frequent use.
- Among the illicit drugs, *marijuana* shows the highest proportions reporting frequent use, with 4%, 11%, and 18% of 8th, 10th, and 12th graders, respectively, reporting use on 20 or more occasions in their lifetime.
- Most of the other illicit drugs have far lower frequencies of using on 20 or more occasions. However, young people may tend to underestimate the frequency with which they have engaged in these behaviors over a 12-month period, so the extent of frequent use may be somewhat underestimated.<sup>43</sup>

### Prevalence of Current Daily Use

Frequent use of illicit or licit drugs is a great concern for the health and safety of adolescents. Table 4-2 (and Table 5-4 in chapter 5) and Figure 4-2 show the prevalence of current daily or near-daily use of the various classes of drugs for 12th graders. See Table 4-2 for prevalence rates for selected drugs on which meaningful estimates could be made for 8th and 10th graders. For all drugs except cigarettes and smokeless tobacco, respondents are considered current daily users if they indicated that they had used the drug on 20 or more occasions in the preceding 30 days. Respondents are considered daily users of cigarettes if they explicitly stated the use of one or more cigarettes per day in the past 30 days, and daily users of smokeless tobacco if they stated using “about once a day” or more often in the past 30 days.

- Across all three grade levels in 2008, there are more current daily users of *cigarettes* than of any of the other drug classes: 3.1%, 5.9%, and 11.4% in grades 8, 10, and 12, respectively. Many of these daily smokers say that they currently smoke a half pack or more per day (1.2%, 2.0%, and 5.4% of all respondents in grades 8, 10, and 12).
- Daily use of *smokeless tobacco* is considerably lower than daily use of cigarettes, at 0.8%, 1.4%, and 2.7% for 8th, 10th, and 12th grades, respectively. The rates among boys are quite a bit higher, however, as discussed later in this chapter.

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<sup>43</sup>Bachman, J. G., & O'Malley, P. M. (1981). When four months equal a year: Inconsistencies in student reports of drug use. *Public Opinion Quarterly*, 45, 536–548. (Reprinted in E. Singer & S. Presser (Eds.), 1989, *Survey research methods*. Chicago: Univ. of Chicago Press.)

- The proportions of students who use **tobacco daily** in either or both forms (i.e., cigarettes and/or smokeless tobacco) are only slightly higher than the proportions who use cigarettes alone. This is because there are relatively few daily users of smokeless tobacco, but also because between one third to nearly one half of those daily smokeless tobacco users are also daily users of cigarettes (data not shown).
- For many years, **alcohol** was the next most frequently used drug on a daily basis at all three grade levels, but because daily marijuana use rose substantially in the 1990s, it now exceeds daily alcohol use. The daily prevalence rates for alcohol in 2008 were 0.7%, 1.0%, and 2.8% in grades 8, 10, and 12, respectively.
- **Marijuana** is now used on a daily or near-daily basis by 1 of every 19 twelfth graders (5.4%), by somewhat fewer 10th-grade students (2.7%), and by considerably fewer 8th-grade students (0.9%). (See chapter 10 for specific information on levels of past daily use and cumulative daily use of marijuana over the lifetime.)
- Daily use of **illicit drugs other than marijuana** is reported by 0.3% or less of 12th-grade respondents (see Table 4-2). While low, these figures are not inconsequential, because 1% of the high school class of 2008, for example, represents in excess of 30,000 individuals nationwide.

## NONCONTINUATION RATES

One indication of the proportion of people who try a drug but do not continue to use it can be derived from calculating the percentage of those who ever used a drug (once or more) and who did *not* use it in the 12 months preceding the survey.<sup>44</sup> We use the word “noncontinuation” rather than “discontinuation” because the latter might imply discontinuing an established pattern of use, whereas our current operational definition includes noncontinuation by experimental users as well as established users. Figure 4-3 provides these noncontinuation rates for most drug classes and all three grades in 2008; the drugs are ordered from lowest to highest rates for 12th graders. This figure shows that noncontinuation rates vary widely among the various drugs.

- Among 12th graders, the highest noncontinuation rate is observed for **crystal methamphetamine (ice)** (63%), followed by adjusted **inhalants** (61%). Many inhalants are used primarily at a younger age, and use is often not continued into the senior year. The rank ordering for noncontinuation of other drugs is as follows: **methamphetamine** (56%), **crack** and **heroin** (43%), **cocaine** (40%), **powder cocaine** (38%), **amphetamines**, **hallucinogens (adjusted)**, **steroids**, **sedatives (barbiturates)**, **LSD**, **narcotics other than heroin**, **tranquilizers** and **ecstasy (MDMA)** (all between 30% and 36%), **marijuana** (24%), **cigarettes** (18%), **been drunk** (17%), **smokeless tobacco** (16%), and **alcohol** (9%). Note that several of the psychotherapeutic drugs are among those most likely to

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<sup>44</sup>This operationalization of noncontinuation has an inherent problem in that users of a given drug who initiated use during the past year by definition cannot be noncontinuers. Thus, the definition tends to understate the noncontinuation rate, particularly for drug use that tends to be initiated late in high school rather than in earlier years or for newly popular drugs.

have their use continued. It is important to recognize, however, that substantial proportions of students who try the various illicit drugs do not continue their use, even into later adolescence.

- Because a relatively high proportion of marijuana users continue to use *marijuana* at some level over an extended period, it has consistently had one of the lowest noncontinuation rates in the senior year of any of the illicit drugs (24% in 2008).
- It is noteworthy that, of all the 12th graders who have ever used *crack* (2.8%), only about one quarter (0.8%) are current users and only 0.2% of the total sample are current daily users. While there is no question that crack is highly addictive, the evidence from this study has consistently suggested that it is not usually addictive on the first use, as was sometimes alleged.
- In contrast to illicit drugs, noncontinuation rates for the two licit drugs are extremely low. *Alcohol*, tried by the great majority of 12th graders (72%), is still used in the senior year by nearly all who have ever tried it (66% of all 12th graders), yielding a noncontinuation rate for alcohol of only 9%.
- Noncontinuation had to be defined differently for *cigarettes* because respondents are not asked to report on their cigarette use in the past year. The noncontinuation rate is thus defined as the percentage of those who say they ever smoked “regularly” and who also reported not smoking at all during the past 30 days. Of the 12th graders who said they were ever regular smokers, only 18% have ceased active use.
- Noncontinuation is defined for *smokeless tobacco* much the same way as for cigarettes. It also has a relatively low rate of noncontinuation by senior year—only 16% of the lifetime regular users did not use in the past 30 days.

In addition to providing 12th-grade data, Figure 4-3 presents comparable data on noncontinuation rates for the various drugs based on the responses of 8th and 10th graders. The drugs have been left in the same order as the rank-ordered drugs in 12th grade to facilitate comparison across grades.

## **PREVALENCE COMPARISONS FOR IMPORTANT SUBGROUPS**

The differences in prevalence of use for the various drugs associated with gender, college plans, region of the country, population density, parents’ education level, and racial/ethnic identification are presented and discussed next. Tables 4-5 through 4-8 provide statistics on the usage rates for these various subgroups for all three grades.

### **Gender Differences**

In general, higher proportions of males than females are involved in illicit drug use, especially heavy drug use; however, this picture is a somewhat complicated one.

- For all three grades, *marijuana* use is slightly higher among males than among females, and *daily use of marijuana* is more than twice as likely among males.
- Males have considerably higher prevalence rates than females on most other illicit drugs, too—at least by 12th grade. The annual prevalence rates for males in the senior year are three to six times higher for *heroin with a needle*, *GHB*, and *steroids*; and more than twice as high for *heroin*, *heroin without a needle*, *methamphetamine*, *LSD*, and *ketamine*. Use also tends to be at least one and one half to two times as high among males as among females for *hallucinogens*, *hallucinogens other than LSD*, *ecstasy*, *cocaine powder*, *Rohypnol*, and *crystal methamphetamine*. Further, males account for an even greater share of the frequent or heavy users of many of these various classes of drugs.
- For many of these drugs, however, there is little gender difference in use in the lower grades. In fact, for some drugs females have slightly higher rates of annual use in 8th grade, including *any illicit drug other than marijuana*, *inhalants*, *ecstasy*, *crack*, *amphetamines*, *methamphetamine*, and *tranquilizers*. Thus, the gender differences observed in 12th grade, with males more likely to use most drugs, seem to emerge over the course of middle to late adolescence. These gender differences in the early grades may result in part from girls tending to mature earlier and associating with older boys (this gender difference may then dissipate as same-age boys catch up in physical maturity and substance use opportunities).
- Annual prevalence rates for *amphetamines* are higher among females than among males in grades 8 and 10, and about equal in grade 12. Indeed, it is probably largely due to their higher use of amphetamines in the lower grades that females show higher levels of using some *illicit drug other than marijuana* in those grades.
- The proportions of 12th graders who reported using some *illicit drug other than marijuana* during the last year do not differ a great deal by gender (20% for males versus 16% for females; Table 4-6 and Figure 5-7 in chapter 5). If going beyond marijuana is an important threshold point in the sequence of illicit drug use, then fairly similar proportions of both genders were willing to cross that threshold at least once during the year. However, on average, female users take fewer types of drugs and tend to use them with less frequency than their male counterparts.
- The use of *anabolic steroids* is more heavily concentrated among males; for example, 12th-grade males have an annual prevalence rate of 2.5% compared to 0.4% for females.
- Frequent use of *alcohol* also tends to be disproportionately concentrated among males. *Daily alcohol use*, for example, is reported by 4.0% of 12th-grade males versus 1.7% of 12th-grade females. Males are more likely than females to drink large quantities of alcohol in a single sitting: 28% of 12th-grade males reported drinking *five or more drinks*

*in a row* in the prior two weeks versus 21% of 12th-grade females.<sup>45</sup> These gender differences have generally been observable at all three grade levels, but they become considerably larger in the upper grades. (This year females in 8th grade actually showed a very slightly higher rate of *being drunk* in the prior 30 days than did males—5.4% vs. 5.3%.)

- *Cigarette* smoking rates (30-day, daily, and half pack or more per day) are currently slightly higher among males than among females in all three grades; these gender differences are larger at 12th grade and for half-pack-a-day smoking. The single exception is for 30-day smoking among 8th graders, where both genders have the same prevalence (6.7%).
- The use of *smokeless* or “spit” *tobacco* is almost exclusively a male behavior. Although 12% of 12th-grade males reported some use in the prior month, only 1.0% of the females did. Rates of daily use by males are 1.2%, 2.6%, and 5.6% among 8th, 10th, and 12th graders. The comparable statistics for females are only 0.4%, 0.3%, and 0.0%, respectively.

### Differences Related to College Plans

Overall, students who say they probably or definitely will complete four years of college (referred to here as the “college-bound”) have lower rates of illicit drug use in secondary school than those who say they probably or definitely will not. (See Tables 4-5 through 4-8 and Figures 5-8 and 5-9 in chapter 5.)

An interesting note is that while the great majority of students at all three grade levels expect to complete college, the proportion who indicate college plans is higher at the lower grade levels than in the upper grades, despite the fact that the lower grades contain the 15–20% of each cohort who will eventually drop out of high school. There are likely cohort shifts in college attendance taking place, as there have been throughout the life of the study, that may partially explain this apparent anomaly; but there is probably a considerable age effect, as well, wherein early aspirations become reality-tested (and adjusted) as secondary school experience cumulates.

For any given drug, the differences between these two self-identified groups of college- or non-college-bound students tend to be greatest in the 8th grade, perhaps due to the inclusion of all or nearly all of those who will eventually drop out before completing 12th grade. Another possible explanation for this difference is that the non-college-bound students may tend to have an earlier age of initiation of use.

- Annual *marijuana* use, for example, is reported by 30% of the college-bound 12th graders versus 41% of the non-college-bound; but among 8th graders it is reported by only 9% of the college-bound versus 28% of the non-college-bound.

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<sup>45</sup>Because females tend to weigh less than males and may metabolize alcohol somewhat differently, a given quantity of ingested alcohol would, on average, lead to higher blood alcohol concentrations for females compared to males. Therefore, the difference in terms of a fixed number of drinks, such as five or more drinks, may not reflect the difference in intoxication rates. The difference in self-reported 30-day prevalence of drunkenness among 12th graders is six percentage points (32% for males versus 26% for females), which is close to the gender difference in having five or more drinks in a row (31% versus 22%).

- Among 2008 twelfth graders, 17% of the college-bound reported using **any illicit drug other than marijuana** in the prior year versus 25% of the non-college-bound.
- Frequent use of many of these illicit drugs shows even larger contrasts related to college plans (see Table 4-8). **Daily marijuana** use among 12th graders, for example, is more than twice as high among those who do not plan to attend college (9.2%) as among those who are college-bound (4.2%). It is five times as high among 10th graders and eight times as high among 8th graders.
- An examination of Table 4-6 will show that quite large ratio differences may be found between the college-bound and the non-college-bound for annual prevalence of use on virtually **all of the illicit drugs other than marijuana**; the ratios tend to be highest in the earlier grades. In all cases, the non-college-bound have the higher annual prevalence rate.
- Frequent **alcohol** use is also considerably more prevalent among the non-college-bound. For example, **daily drinking** is reported by 5.1% of the non-college-bound 12th graders versus 2.2% of the college-bound 12th graders. **Binge drinking** (five or more drinks in a row at least once during the preceding two weeks) is reported by 32% of the non-college-bound 12th graders versus 23% of the college-bound. There are also modest differences between the non-college-bound and college-bound 12th graders in lifetime (79% versus 71%), annual (72% versus 64%), and 30-day (50% versus 42%) prevalence of alcohol use. In the lower grades, there are even larger differences in the various drinking measures between those who say they expect to go to college and those who do not (see Tables 4-5 through 4-8). As has been shown in earlier editions of *Volume II*, those who eventually attend college increase their binge drinking to a level that exceeds that of their peers who do not attend college—an important reversal.
- At all three grade levels, more non-college-bound students use **steroids** compared to college-bound students.
- By far, the largest and most dramatic difference in substance use between the college- and non-college-bound involves **cigarette** smoking—3.8% of the college-bound 12th graders reported smoking a **half pack or more daily** compared to 11.9% of the non-college-bound 12th graders. The proportional differences are even larger in the lower grades: 0.8% versus 4.7%, respectively, in 8th grade and 1.3% versus 7.8% in 10th grade. (The absence of dropouts by 12th grade undoubtedly reduces the ratio because dropouts have a particularly high rate of smoking.)

### Regional Differences

Figure 4-4 provides a regional division map showing the states included in the four regions of the country as defined by the Census Bureau—the Northeast, South, Midwest (formerly called the North Central region), and West. The states comprising each region are also listed in appendix B. Regional differences in the rates of drug use are provided in Tables 4-5 through 4-8 for grades 8, 10, and 12; Figures 5-10a through 5-10c provide graphical displays for selected drugs for 12th graders.

- In 2008, the overall rates of **any illicit drug** use differed some among the regions, but the differences are not consistent across grades. Among 12th graders, the highest rate was in the Northeast, where 40% of 12th graders said they had used an illicit drug in the past year; the other three regions were similar in rates (35–37%) (Table 4-6 and Figure 5-10a in chapter 5). Among 10th graders, the regional differences were minor (ranging from 26% to 29%), and among 8th graders the Northeast was lower (at 11%) than the other three regions (12–16%).
- **Marijuana** use showed a regional pattern very similar to that for any illicit drug, with the Northeast highest in 12th grade, lowest in 8th grade, and little variation at 10th grade.
- At present, there is little regional variation in terms of the percentage of 12th graders using some **illicit drug other than marijuana** in the past year (17% to 19%). Among 8th and 10th graders, the Northeast is somewhat lower than the other regions (for 8th graders: 5.2% versus 6.7–8.8% in the other three regions; for 10th graders: 8.2% versus 12% to 13% in the other three regions).
- Consistently in the past, there was a large regional difference in the use of **crystal methamphetamine**, with the West tending to have the highest rate. The differences have diminished, though, with the highest rate in 2008 among 12th graders in the West at 1.7% annual prevalence, followed by the Northeast (1.4%), the South (0.9%), and the Midwest (0.5%).
- In the past, the largest observed regional differences have been in **cocaine** use, with the West tending to have the highest level of use. Regional differences in annual prevalence of use in recent years are much smaller, ranging from 1.2% to 2.2% in 8th grade, from 2.0% to 3.5% in 10th grade, and from 3.2% to 4.9% in 12th grade.
- For some years, the South has generally had the highest rate of **tranquilizer** use at all three grades.
- The South has also had the highest rate of **sedative (barbiturate)** use (reported only for 12th grade).
- **Rohypnol**—which, like tranquilizers and sedatives (barbiturates), is a central nervous system depressant—does not show regional differences that are at all consistent across grades.
- The use of **ecstasy** varied some by region in 2008, with use higher in the West and South. Among 12th graders, for example, the West was at 6.6%, the South at 4.6%, the Northeast at 2.9%, and the Midwest at 2.8%.
- For some years, the 30-day prevalence rates of **alcohol** use among 12th graders have been somewhat lower in the South and West than in the Northeast and Midwest regions, though there was less regional difference in the lower grades. In 2008, the West is lowest in all three grades.

- The West continues to have lower rates of **daily smoking** than the other regions at all three grade levels (Table 4-8).
- The use of **smokeless tobacco**, particularly current daily use in the upper grades, tends to be higher in the South and Midwest regions.

### Differences Related to Population Density

Three levels of population density (or urbanicity) have been distinguished for analytical purposes: (a) large MSAs, which contain most of the largest Metropolitan Statistical Areas from the most recent Census data; (b) other MSAs, which are the remaining ones; and (c) non-MSAs. (See appendix B for more detailed definitions.)

In general, differences in the use of most illicit drugs across these various-sized communities are small, reflecting how widely illicit drug use has diffused through the population (see Tables 4-5 through 4-8). There are a few exceptions, though:

- In 12th grade, annual **marijuana** use is a little higher in the large MSAs (35%) than in the other MSAs (31%) and non-MSAs (32%). Differences in 8th or 10th grades are not large.
- There are no large differences in the use of **inhalants**, but use does tend to be highest in the nonurban areas, particularly in 12th grade, consistent with past differences.
- Rates of **binge drinking** do not differ much by population density, though the non-MSAs have slightly higher rates than the other two groups in all three grades.
- **Cigarette** use is inversely related to community size at all three grade levels (see Table 4-8). For example, in 12th grade, 30-day prevalence in non-MSAs is 24% in 2008, compared to 20% in the other MSAs and 19% in the large MSAs.
- **Smokeless tobacco** use is also highest in the nonurban areas at all three grade levels. For example, among 8th graders, 30-day prevalence is 2.8% in the large MSAs, 3.1% in the other MSAs, and 5.4% in the non-MSAs. Daily use of smokeless tobacco is also concentrated in the more rural areas (see Table 4-8). Clearly, the use of smokeless or “spit” tobacco continues to be a largely rural phenomenon.

### Differences Related to Parental Education

The best measure of family socioeconomic status available in the study is an index of parental education, which is based on the average of the educational levels reported for both parents by the respondent (or on the data for one parent, if data for both are not available). The scale values on the questions read as follows: (1) completed grade school or less, (2) some high school, (3) completed high school, (4) some college, (5) completed college, and (6) graduate or professional school after college. The respondent is instructed to indicate on this scale the highest level of education each parent attained. (It should be noted that the average educational level obtained by students’ parents has risen over the years, as discussed in the next chapter on trends.) Tables 4-5 through 4-8 give the distributions for each grade level.

By senior year there is rather little association with family socioeconomic status for the use of most drugs. This again speaks to the extent to which illicit drug use has permeated all social strata in American society.

However, an examination of Table 4-6 shows that in 8th grade, there tends to be a negative ordinal relationship between socioeconomic level and annual prevalence of use of a number of drugs, although the relationships are not always entirely ordinal.

- Many of these differences have disappeared by 10th or 12th grade. This is true for *marijuana*, *inhalants*, *hallucinogens*, *LSD*, *hallucinogens other than LSD*, *ecstasy*, *amphetamines*, and *tranquilizers*; but *not* for *heroin*, *cocaine*, or *crack*. For these latter drugs, the lower strata (or lowest stratum in some cases) generally continue to have the highest proportion of users, even at the upper grade levels. The diminished socioeconomic differences by 12th grade could be explained by the higher socioeconomic status teenagers “catching up” with their more precocious peers from lower socioeconomic status backgrounds, or by differential rates of dropping out among the strata, or both.
- The 30-day prevalence of *alcohol* use is negatively associated with socioeconomic status in 8th grade, but that association is slightly positive by 12th grade. The prevalence of getting *drunk* in the prior 30 days is also negatively associated with socioeconomic status in 8th grade, but slightly positive in 12th grade.
- *Steroid* use is highest in the lowest stratum in all three grades in 2008.
- *Daily cigarette smoking* tends to bear a strong inverse relationship with parental education among 8th graders (see Table 4-8), but this relationship attenuates considerably by grade 12, probably due to the absence of dropouts. (The attenuation is much less for heavier smoking.)

### **Racial/Ethnic Differences**

Racial/ethnic comparisons for African Americans, Hispanics, and Whites were added to this monograph series for the first time in 1991.<sup>46</sup> Although the design of this project did not include an oversampling of any minority groups, the large overall sample sizes at each grade level do produce fair numbers of African-American and Hispanic respondents each year. However, in the findings presented in this volume, we routinely present combined data from two adjacent years to increase the sample sizes on which they are based and, thus, the reliability of the estimates.

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<sup>46</sup>We recognize that the Hispanic category is a broad one, encompassing people with various Latin American, Caribbean, and European origins, but for the purposes of this monograph the sample sizes are unfortunately too small to differentiate among them. For a more complete treatment of racial/ethnic differences, in which additional subgroups are distinguished and males and females are examined separately within each racial/ethnic category, see Bachman, J. G., Wallace, J. M., Jr., O'Malley, P. M., Johnston, L. D., Kurth, C. L., & Neighbors, H. W. (1991). Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors, 1976–1989. *American Journal of Public Health*, *81*, 372–377; Wallace, J. M., Jr., Bachman J. G., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Cooper, S. M. (2002). Tobacco, alcohol, and illicit drug use: Racial and ethnic differences among U.S. high school seniors, 1976–2000. *Public Health Reports*, *117* (Supplement 1), S67–S75; Delva, J., Wallace, J. M., Jr., O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American 8th-grade students in the United States: 1991–2002. *American Journal of Public Health*, *95*, 696–702.

Otherwise, misleading findings about the size of racial/ethnic differences may emerge, as well as (and perhaps more importantly) misleading findings about their trends. We caution the reader that the sampling error of differences among groups is likely to be larger than would be true for other demographic and background variables such as gender or college plans because African Americans and Hispanics are more likely to be clustered by school.

In 2005, the question about race/ethnicity was changed in half of the MTF questionnaire forms. In the original race/ethnicity question, respondents were asked “How do you describe yourself?” and were instructed to select *one* race/ethnicity category. In 2005, in half of the questionnaire forms, respondents were instructed to select one or more categories. About 6% selected more than one racial/ethnic group. The following method was used to combine data from the original question and the revised question: For the original question, respondents were assigned to the racial/ethnic group specified in their response. For the revised question, those checking only White and no other racial/ethnic group were categorized as White; those checking only Black or African American and no other racial/ethnic group were categorized as African American; and those checking one or more of the four Hispanic categories but no other racial/ethnic group were categorized as Hispanic. Respondents who checked more than one group, and respondents who checked any of the other racial/ethnic groups, have been excluded from these analyses reporting racial/ethnic differences because of small numbers of cases. Note that, because some drug use questions occur in only a few questionnaire forms, there is some variation in the version of the race/ethnicity question upon which the 2005 and the 2004–2005 combined race/ethnicity data are based. These permutations did not appear to make any appreciable difference in the results. In 2006, the race/ethnicity question in the remaining forms was changed to the new “select one or more responses” version.

Tables 4-5 to 4-8 give the *combined* 2007–2008 prevalence estimates for lifetime, annual, 30-day, and selected daily use for the three racial/ethnic groups at all three grade levels, along with the numbers of cases upon which the estimates are based.

- Several general points can be derived from the tables. First, for nearly *all drugs*, licit and illicit, African-American students in 12th grade reported lifetime, annual, 30-day, and daily prevalence rates that are lower—sometimes dramatically lower—than those for White or Hispanic 12th graders.

Second, use rates for most drugs are generally lower for African-American students in 8th and 10th grades, as well; therefore, the low usage rates in 12th grade are almost certainly not due to differential dropout rates.

- The association between annual *marijuana* use and race/ethnicity varies by grade level. Hispanic students have the highest rate in 8th and 10th grades. White students have the lowest rate of marijuana use in 8th grade but the highest in 12th grade. African-American students have the lowest rates in 10th and 12th grades.
- A number of other drugs have consistently been much less popular among African-American teens than among White teens, including *inhalants*, *hallucinogens*, *LSD* specifically, *ecstasy*, *cocaine* (in recent years), *powder cocaine*, *crack*, *amphetamines*,

*methamphetamines, sedatives (barbiturates), heroin, narcotics other than heroin, and tranquilizers*. The reasons for these large racial discrepancies are unclear.

- By 12th grade, White students have the highest lifetime and annual prevalence rates among the three major racial/ethnic groups for many substances, including *marijuana, LSD, hallucinogens other than LSD, ecstasy, other cocaine, narcotics other than heroin, amphetamines, sedatives (barbiturates), tranquilizers, alcohol* (in general), *been drunk, occasions of heavy drinking in the last two weeks, cigarettes, and smokeless tobacco*. The differentials for *LSD* and *ecstasy* have narrowed considerably in recent years as overall prevalence has declined substantially for these two drugs. Not all of these findings are replicated at lower grade levels, however. See Tables 4-5 and 4-6 for specifics.
- Hispanic seniors now have the highest (or close to highest) lifetime, annual, and 30-day prevalence rates for *crack* and *heroin* (in general and with and without a needle). The rate of *cocaine* use by Hispanic students has tended to be high compared to the other two racial/ethnic groups, particularly in the lower grades. It bears repeating that Hispanics have a considerably higher dropout rate than Whites or African Americans, based on Census Bureau statistics, which would tend to diminish any such differences by senior year.
- An examination of the racial/ethnic comparisons at lower grade levels shows Hispanics having higher rates of use of many of the substances on which they have the highest prevalence of use in 12th grade, as well as for several other drugs. For example, in 8th grade, 4.0% of Hispanic students reported ever having used *crack*, compared to 1.6% of White students and 0.9% of African-American students. For *heroin*, the lifetime prevalence of use in 8th grade for Hispanics, Whites, and African Americans is 2.2%, 1.2%, and 0.6%, respectively; and for *other cocaine*, 4.4%, 2.2%, and 0.9%, respectively. In other words, in 8th grade—before most dropping out occurs—Hispanics have the highest rates of use of almost all of the substances, whereas by 12th grade Whites have the highest rates of use of most drugs. Certainly the considerably higher dropout rate among Hispanics could explain this shift, and it may be the most plausible explanation. Another explanation worth consideration is that Hispanics may tend to start using drugs at a younger age, but Whites overtake them at older ages. These explanations are not mutually exclusive, of course, and to some degree both explanations may hold true. A more extensive discussion of possible explanations (including the possibility of differential validity of reporting) for the racial/ethnic differences in reported substance use can be found in Wallace et al. (1995).<sup>47</sup>
- Table 4-8 shows large absolute and proportional differences between the three groups in their rates of *daily cigarette smoking*. Among 12th graders, Whites have a 14.3% daily smoking rate, Hispanics 6.7%, and African Americans only 5.8%. Similar differences are found in the lower grades.

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<sup>47</sup>Wallace, J. M., Jr., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (1995). Racial/ethnic differences in adolescent drug use: Exploring possible explanations. In G. Botvin, S. Schinke, & M. Orlandi (Eds.), *Drug abuse prevention with multi-ethnic youth* (pp. 59–80). Thousand Oaks, CA: Sage.

- African-American students have the lowest 30-day prevalence rate for *alcohol* use. They also have the lowest rates for self-reports of having been *drunk* during the prior 30 days.
- Recent *occasions of heavy drinking* (having five or more drinks in a row during the prior two weeks) is also lowest among African Americans in all three grades; in 12th grade their rate is 11% versus 30% for Whites and 22% for Hispanics. In 8th grade, Hispanics have the highest rate at 12%, compared to 8% for Whites and 6% for African Americans.

**TABLE 4-1a**  
**Ninety-Five Percent Confidence Limits: Lifetime Prevalence of Use**  
**for 8th, 10th, and 12th Graders, 2008**

*(Approximate weighted Ns: 8th grade = 15,700, 10th grade = 15,100, 12th grade = 14,000)*

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug <sup>a</sup>	18.2	19.6	21.2	32.0	34.1	36.2	44.7	47.4	50.1
Any Illicit Drug other than Marijuana <sup>a</sup>	10.1	11.2	12.4	14.5	15.9	17.4	23.0	24.9	26.9
Any Illicit Drug including									
Inhalants <sup>a,b</sup>	26.6	28.3	30.0	36.6	38.7	40.8	45.5	49.3	53.2
Marijuana/Hashish	13.3	14.6	15.9	27.9	29.9	31.9	40.0	42.6	45.3
Inhalants <sup>b</sup>	14.5	15.7	17.0	11.7	12.8	14.0	8.5	9.9	11.6
Inhalants, Adjusted <sup>b,c</sup>	—	—	—	—	—	—	8.7	10.1	11.8
Amyl/Butyl Nitrites <sup>d</sup>	—	—	—	—	—	—	0.3	0.6	1.2
Hallucinogens	2.7	3.3	4.1	4.7	5.5	6.5	7.6	8.7	10.0
Hallucinogens, Adjusted <sup>c</sup>	—	—	—	—	—	—	7.9	9.0	10.2
LSD	1.5	1.9	2.6	2.0	2.6	3.3	3.2	4.0	4.8
Hallucinogens other than LSD	2.1	2.5	3.0	4.2	4.8	5.4	7.1	7.8	8.6
PCP <sup>d</sup>	—	—	—	—	—	—	1.2	1.8	2.7
Ecstasy (MDMA) <sup>e,f</sup>	1.9	2.4	3.1	3.5	4.3	5.1	5.1	6.2	7.5
Cocaine	2.4	3.0	3.8	3.8	4.5	5.4	6.2	7.2	8.4
Crack	1.7	2.0	2.4	1.7	2.0	2.3	2.4	2.8	3.2
Other Cocaine <sup>g</sup>	1.9	2.4	3.1	3.3	4.0	4.8	5.3	6.5	7.8
Heroin	1.1	1.4	1.6	0.9	1.2	1.4	1.0	1.3	1.6
With a Needle <sup>b</sup>	0.7	0.9	1.1	0.5	0.7	0.9	0.5	0.7	1.0
Without a Needle <sup>b</sup>	0.7	0.9	1.2	0.6	0.8	1.0	0.8	1.1	1.5
Narcotics other than Heroin <sup>h</sup>	—	—	—	—	—	—	12.3	13.2	14.2
Amphetamines <sup>h</sup>	6.0	6.8	7.8	8.0	9.0	10.0	9.5	10.5	11.7
Methamphetamine <sup>f,i</sup>	1.8	2.3	3.0	1.9	2.4	3.1	2.2	2.8	3.5
Crystal Methamphetamine (Ice) <sup>f</sup>	—	—	—	—	—	—	2.2	2.8	3.6
Sedatives (Barbiturates) <sup>h</sup>	—	—	—	—	—	—	7.7	8.5	9.3
Sedatives, Adjusted <sup>h,j</sup>	—	—	—	—	—	—	8.1	8.9	9.7
Methaqualone <sup>d,h</sup>	—	—	—	—	—	—	0.4	0.8	1.5
Tranquilizers <sup>h</sup>	3.4	3.9	4.4	6.2	6.8	7.5	8.2	8.9	9.8
Rohypnol <sup>k</sup>	0.4	0.7	1.3	0.5	0.9	1.5	—	—	—
Alcohol	37.2	38.9	40.7	56.5	58.3	60.1	70.2	71.9	73.6
Been Drunk <sup>f</sup>	16.6	18.0	19.4	35.4	37.2	39.0	51.5	54.7	58.0
Flavored Alcoholic Beverages <sup>d,i</sup>	30.7	32.8	35.0	51.1	53.5	55.8	62.2	65.5	68.7
Cigarettes	19.0	20.5	22.0	30.0	31.7	33.4	42.7	44.7	46.6
Smokeless Tobacco <sup>d,e</sup>	8.4	9.8	11.4	10.6	12.2	14.0	12.5	15.6	19.3
Steroids <sup>b</sup>	1.1	1.4	1.6	1.2	1.4	1.7	1.7	2.2	2.7

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available.

See relevant footnotes at the end of Table 4-1d.

**TABLE 4-1b**  
**Ninety-Five Percent Confidence Limits: Annual Prevalence of Use**  
**for 8th, 10th, and 12th Graders, 2008**

*(Approximate weighted Ns: 8th grade = 15,700, 10th grade = 15,100, 12th grade = 14,000)*

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug <sup>a</sup>	12.9	14.1	15.3	25.1	26.9	28.7	34.1	36.6	39.1
Any Illicit Drug other than Marijuana <sup>a</sup>	6.6	7.4	8.3	10.2	11.3	12.5	16.7	18.3	19.9
Any Illicit Drug including									
Inhalants <sup>a,b</sup>	17.7	19.0	20.4	27.1	28.8	30.7	33.8	37.3	41.0
Marijuana/Hashish	9.9	10.9	12.0	22.3	23.9	25.7	30.0	32.4	34.9
Inhalants <sup>b</sup>	8.0	8.9	9.8	5.2	5.9	6.7	3.0	3.8	4.8
Inhalants, Adjusted <sup>b,c</sup>	—	—	—	—	—	—	3.2	4.0	5.0
Amyl/Butyl Nitrites <sup>d</sup>	—	—	—	—	—	—	0.3	0.6	1.1
Hallucinogens	1.7	2.1	2.7	3.3	3.9	4.7	5.1	5.9	6.8
Hallucinogens, Adjusted <sup>c</sup>	—	—	—	—	—	—	5.3	6.1	7.1
LSD	1.0	1.3	1.7	1.4	1.8	2.3	2.2	2.7	3.4
Hallucinogens other than LSD	1.3	1.6	1.9	2.9	3.3	3.8	4.5	5.0	5.7
PCP <sup>d</sup>	—	—	—	—	—	—	0.7	1.1	1.8
Ecstasy (MDMA) <sup>e,f</sup>	1.3	1.7	2.2	2.4	2.9	3.6	3.5	4.3	5.4
Cocaine	1.4	1.8	2.3	2.4	3.0	3.6	3.7	4.4	5.2
Crack	0.9	1.1	1.3	1.1	1.3	1.5	1.3	1.6	1.8
Other Cocaine <sup>g</sup>	1.1	1.4	1.9	2.1	2.6	3.2	3.2	4.0	5.0
Heroin	0.7	0.9	1.1	0.7	0.8	1.0	0.6	0.7	0.9
With a Needle <sup>b</sup>	0.4	0.5	0.7	0.4	0.5	0.7	0.2	0.4	0.6
Without a Needle <sup>b</sup>	0.5	0.6	0.8	0.5	0.6	0.8	0.3	0.5	0.7
Narcotics other than Heroin <sup>h</sup>	—	—	—	—	—	—	8.4	9.1	9.9
OxyContin <sup>b,h,i</sup>	1.6	2.1	2.8	2.9	3.6	4.5	4.0	4.7	5.6
Vicodin <sup>b,h,i</sup>	2.1	2.9	3.9	5.5	6.7	8.2	8.4	9.7	11.2
Amphetamines <sup>h</sup>	3.9	4.5	5.2	5.6	6.4	7.2	6.0	6.8	7.6
Ritalin <sup>f,i</sup>	1.2	1.6	2.3	2.3	2.9	3.8	2.6	3.4	4.3
Methamphetamine <sup>f,i</sup>	0.9	1.2	1.6	1.1	1.5	2.0	0.9	1.2	1.7
Crystal Methamphetamine (Ice) <sup>f</sup>	—	—	—	—	—	—	0.7	1.1	1.5
Sedatives (Barbiturates) <sup>h</sup>	—	—	—	—	—	—	5.2	5.8	6.5
Sedatives, Adjusted <sup>h,j</sup>	—	—	—	—	—	—	5.5	6.1	6.8
Methaqualone <sup>d,h</sup>	—	—	—	—	—	—	0.3	0.5	1.1
Tranquilizers <sup>h</sup>	2.1	2.4	2.9	4.1	4.6	5.2	5.6	6.2	6.9
OTC Cough/Cold Medicines <sup>f,i</sup>	3.0	3.6	4.2	4.6	5.3	6.1	4.6	5.5	6.6
Rohypnol <sup>f,k</sup>	0.3	0.5	0.9	0.2	0.4	0.9	1.0	1.3	1.8
GHB <sup>d,i</sup>	0.8	1.1	1.5	0.3	0.5	0.9	0.8	1.2	1.9
Ketamine <sup>b,i</sup>	0.9	1.2	1.6	0.7	1.0	1.3	1.2	1.5	1.9
Alcohol	30.5	32.1	33.8	50.7	52.5	54.3	63.7	65.5	67.3
Been Drunk <sup>f</sup>	11.6	12.7	14.0	28.4	30.0	31.7	42.3	45.6	48.9
Flavored Alcoholic Beverages <sup>d,i</sup>	23.1	25.0	26.9	41.2	43.4	45.7	48.5	51.8	55.0
Cigarettes	—	—	—	—	—	—	—	—	—
Bidis <sup>f</sup>	—	—	—	—	—	—	1.3	1.9	2.6
Kreteks <sup>f</sup>	—	—	—	—	—	—	5.8	6.8	8.1
Smokeless Tobacco <sup>d,e</sup>	—	—	—	—	—	—	—	—	—
Steroids <sup>b</sup>	0.7	0.9	1.1	0.8	0.9	1.1	1.2	1.5	1.9
Androstenedione <sup>f,i</sup>	0.6	0.9	1.5	0.6	0.9	1.4	0.9	1.3	2.0
Creatine <sup>f,i</sup>	1.4	2.0	2.7	4.8	5.8	6.9	7.1	8.3	9.6

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available.

See relevant footnotes at the end of Table 4-1d.

**TABLE 4-1c**  
**Ninety-Five Percent Confidence Limits: 30-Day Prevalence of Use**  
**for 8th, 10th, and 12th Graders, 2008**

(Approximate weighted Ns: 8th grade = 15,700, 10th grade = 15,100, 12th grade = 14,000)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Any Illicit Drug <sup>a</sup>	6.8	7.6	8.5	14.6	15.8	17.1	20.4	22.3	24.4
Any Illicit Drug other than Marijuana <sup>a</sup>	3.3	3.8	4.3	4.7	5.3	6.0	8.3	9.3	10.3
Any Illicit Drug including									
Inhalants <sup>a,b</sup>	9.4	10.4	11.4	15.6	16.8	18.2	20.1	22.8	25.7
Marijuana/Hashish	5.0	5.8	6.6	12.7	13.8	15.1	17.6	19.4	21.4
Inhalants <sup>b</sup>	3.6	4.1	4.6	1.8	2.1	2.5	1.0	1.4	1.9
Inhalants, Adjusted <sup>b,c</sup>	—	—	—	—	—	—	1.2	1.5	2.1
Amyl/Butyl Nitrites <sup>d</sup>	—	—	—	—	—	—	0.1	0.3	0.7
Hallucinogens	0.7	0.9	1.2	1.0	1.3	1.7	1.8	2.2	2.7
Hallucinogens, Adjusted <sup>c</sup>	—	—	—	—	—	—	2.1	2.6	3.1
LSD	0.4	0.5	0.8	0.5	0.7	0.9	0.8	1.1	1.5
Hallucinogens other than LSD	0.6	0.7	0.9	0.8	1.0	1.2	1.4	1.6	1.9
PCP <sup>d</sup>	—	—	—	—	—	—	0.3	0.6	1.1
Ecstasy (MDMA) <sup>e,f</sup>	0.6	0.8	1.1	0.9	1.1	1.5	1.3	1.8	2.3
Cocaine	0.6	0.8	1.1	0.9	1.2	1.6	1.5	1.9	2.3
Crack	0.4	0.5	0.6	0.4	0.5	0.7	0.6	0.8	1.0
Other Cocaine <sup>g</sup>	0.5	0.6	0.9	0.8	1.0	1.3	1.3	1.7	2.2
Heroin	0.3	0.4	0.6	0.3	0.4	0.5	0.3	0.4	0.5
With a Needle <sup>b</sup>	0.2	0.3	0.4	0.2	0.2	0.3	0.1	0.2	0.4
Without a Needle <sup>b</sup>	0.2	0.2	0.4	0.2	0.3	0.4	0.1	0.2	0.4
Narcotics other than Heroin <sup>h</sup>	—	—	—	—	—	—	3.4	3.8	4.3
Amphetamines <sup>h</sup>	1.9	2.2	2.6	2.4	2.8	3.3	2.5	2.9	3.3
Methamphetamine <sup>f,i</sup>	0.5	0.7	1.1	0.5	0.7	1.1	0.3	0.6	0.9
Crystal Methamphetamine (Ice) <sup>f</sup>	—	—	—	—	—	—	0.4	0.6	0.9
Sedatives (Barbiturates) <sup>h</sup>	—	—	—	—	—	—	2.5	2.8	3.1
Sedatives, Adjusted <sup>h,j</sup>	—	—	—	—	—	—	2.5	2.9	3.3
Methaqualone <sup>d,h</sup>	—	—	—	—	—	—	0.1	0.2	0.6
Tranquilizers <sup>h</sup>	1.0	1.2	1.4	1.6	1.9	2.2	2.3	2.6	3.0
Rohypnol <sup>k</sup>	0.0	0.1	0.4	0.1	0.2	0.6	—	—	—
Alcohol	14.6	15.9	17.3	27.2	28.8	30.4	41.3	43.1	45.0
Been Drunk <sup>f</sup>	4.7	5.4	6.3	13.2	14.4	15.8	24.8	27.6	30.6
Flavored Alcoholic Beverages <sup>d,i</sup>	9.2	10.2	11.3	18.8	20.2	21.7	25.1	27.4	29.8
Cigarettes	6.0	6.8	7.8	11.1	12.3	13.6	18.9	20.4	22.0
Smokeless Tobacco <sup>d,e</sup>	2.6	3.5	4.5	4.0	5.0	6.2	4.6	6.5	9.3
Steroids <sup>b</sup>	0.3	0.5	0.6	0.4	0.5	0.7	0.8	1.0	1.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available.

See relevant footnotes at the end of Table 4-1d.

**TABLE 4-1d**  
**Ninety-Five Percent Confidence Limits: Daily Prevalence of Use**  
**for 8th, 10th, and 12th Graders, 2008**

(Approximate weighted Ns: 8th grade = 15,700, 10th grade = 15,100, 12th grade = 14,000)

	8th Grade			10th Grade			12th Grade		
	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit	Lower limit	Observed estimate	Upper limit
Marijuana/Hashish <sup>l</sup>	0.7	0.9	1.1	2.4	2.7	3.1	4.8	5.4	6.2
Alcohol									
Daily <sup>j</sup>	0.6	0.7	0.9	0.8	1.0	1.2	2.5	2.8	3.2
Been Drunk <sup>f</sup>	0.1	0.2	0.3	0.2	0.3	0.4	1.1	1.4	1.9
5+ Drinks in a Row in Last 2 Weeks	7.1	8.1	9.1	14.7	16.0	17.3	23.0	24.6	26.3
Cigarettes									
Daily	2.5	3.1	3.8	5.1	5.9	6.8	10.2	11.4	12.7
1/2 Pack+/Day	0.9	1.2	1.5	1.6	2.0	2.5	4.7	5.4	6.2
Smokeless Tobacco <sup>d,e</sup>	0.4	0.8	1.4	0.9	1.4	2.2	1.6	2.7	4.8

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>For 12th graders only: Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>For 12th graders only: Data based on three of six forms; *N* is three sixths of *N* indicated.

<sup>c</sup>For 12th graders only: Adjusted for underreporting of certain drugs. See text for details.

<sup>d</sup>For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated.

<sup>e</sup>For 8th and 10th graders only: Data based on two of four forms; *N* is one half of *N* indicated.

<sup>f</sup>For 12th graders only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>g</sup>For 12th graders only: Data based on four of six forms; *N* is four sixths of *N* indicated.

<sup>h</sup>Only drug use not under a doctor's orders is included here.

<sup>i</sup>For 8th and 10th graders only: Data based on one of four forms; *N* is one third of *N* indicated.

<sup>j</sup>For 12th graders only: "Sedatives, adjusted" data are a combination of barbiturate and methaqualone data. Data based on six forms of barbiturate data adjusted by one form of methaqualone data.

<sup>k</sup>For 8th and 10th graders only: Data based on one of four forms; *N* is one sixth of *N* indicated.

<sup>l</sup>Daily use of marijuana and alcohol is defined as use on 20 or more occasions in the past 30 days.

**TABLE 4-2**  
**Prevalence of Use of Various Drugs**  
**for 8th, 10th, and 12th Graders, 2008**

Grade:	Lifetime			Annual			30-Day			Daily		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
<i>Approximate wtd. N =</i>	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000
Any Illicit Drug <sup>a</sup>	19.6	34.1	47.4	14.1	26.9	36.6	7.6	15.8	22.3	—	—	—
Any Illicit Drug other than Marijuana <sup>a</sup>	11.2	15.9	24.9	7.4	11.3	18.3	3.8	5.3	9.3	—	—	—
Any Illicit Drug including Inhalants <sup>a,b</sup>	28.3	38.7	49.3	19.0	28.8	37.3	10.4	16.8	22.8	—	—	—
Marijuana/Hashish	14.6	29.9	42.6	10.9	23.9	32.4	5.8	13.8	19.4	0.9	2.7	5.4
Inhalants <sup>b</sup>	15.7	12.8	9.9	8.9	5.9	3.8	4.1	2.1	1.4	—	—	0.1
Inhalants, Adjusted <sup>b,c</sup>	—	—	10.1	—	—	4.0	—	—	1.5	—	—	—
Amyl/Butyl Nitrites <sup>d</sup>	—	—	0.6	—	—	0.6	—	—	0.3	—	—	0.1
Hallucinogens	3.3	5.5	8.7	2.1	3.9	5.9	0.9	1.3	2.2	—	—	0.3
Hallucinogens, Adjusted <sup>e</sup>	—	—	9.0	—	—	6.1	—	—	2.6	—	—	—
LSD	1.9	2.6	4.0	1.3	1.8	2.7	0.5	0.7	1.1	—	—	0.2
Hallucinogens other than LSD	2.5	4.8	7.8	1.6	3.3	5.0	0.7	1.0	1.6	—	—	0.2
PCP <sup>d</sup>	—	—	1.8	—	—	1.1	—	—	0.6	—	—	0.3
Ecstasy (MDMA) <sup>f,g</sup>	2.4	4.3	6.2	1.7	2.9	4.3	0.8	1.1	1.8	—	—	0.1
Cocaine	3.0	4.5	7.2	1.8	3.0	4.4	0.8	1.2	1.9	—	—	0.2
Crack	2.0	2.0	2.8	1.1	1.3	1.6	0.5	0.5	0.8	—	—	0.2
Other Cocaine <sup>h</sup>	2.4	4.0	6.5	1.4	2.6	4.0	0.6	1.0	1.7	—	—	0.1
Heroin												
Any Use	1.4	1.2	1.3	0.9	0.8	0.7	0.4	0.4	0.4	—	—	0.1
With a Needle <sup>b</sup>	0.9	0.7	0.7	0.5	0.5	0.4	0.3	0.2	0.2	—	—	*
Without a Needle <sup>b</sup>	0.9	0.8	1.1	0.6	0.6	0.5	0.2	0.3	0.2	—	—	*
Narcotics other than Heroin <sup>i</sup>	—	—	13.2	—	—	9.1	—	—	3.8	—	—	0.3
OxyContin <sup>b,i,j</sup>	—	—	—	2.1	3.6	4.7	—	—	—	—	—	—
Vicodin <sup>b,i,j</sup>	—	—	—	2.9	6.7	9.7	—	—	—	—	—	—
Amphetamines <sup>i</sup>	6.8	9.0	10.5	4.5	6.4	6.8	2.2	2.8	2.9	—	—	0.2
Ritalin <sup>g,i,j</sup>	—	—	—	1.6	2.9	3.4	—	—	—	—	—	—
Methamphetamine <sup>g,i</sup>	2.3	2.4	2.8	1.2	1.5	1.2	0.7	0.7	0.6	—	—	0.1
Crystal Meth. (Ice) <sup>g</sup>	—	—	2.8	—	—	1.1	—	—	0.6	—	—	0.2
Sedatives (Barbiturates) <sup>i</sup>	—	—	8.5	—	—	5.8	—	—	2.8	—	—	0.1
Sedatives, Adjusted <sup>i,k</sup>	—	—	8.9	—	—	6.1	—	—	2.9	—	—	0.2
Methaqualone <sup>d,i</sup>	—	—	0.8	—	—	0.5	—	—	0.2	—	—	*
Tranquilizers <sup>i</sup>	3.9	6.8	8.9	2.4	4.6	6.2	1.2	1.9	2.6	—	—	0.1
OTC Cough/Cold Medicines <sup>g,i</sup>	—	—	—	3.6	5.3	5.5	—	—	—	—	—	—
Rohypnol <sup>g,l</sup>	0.7	0.9	—	0.5	0.4	1.3	0.1	0.2	—	—	—	—
GHB <sup>d,j</sup>	—	—	—	1.1	0.5	1.2	—	—	—	—	—	—
Ketamine <sup>b,j</sup>	—	—	—	1.2	1.0	1.5	—	—	—	—	—	—
Alcohol												
Any Use	38.9	58.3	71.9	32.1	52.5	65.5	15.9	28.8	43.1	0.7	1.0	2.8
Been Drunk <sup>g</sup>	18.0	37.2	54.7	12.7	30.0	45.6	5.4	14.4	27.6	0.2	0.3	1.4
Flavored Alcoholic Beverages <sup>d,j</sup>	32.8	53.5	65.5	25.0	43.4	51.8	10.2	20.2	27.4	—	—	1.3
5+ Drinks in a Row in Last 2 Weeks	—	—	—	—	—	—	—	—	—	8.1	16.0	24.6

(Table continued on next page.)

**TABLE 4-2 (cont.)**  
**Prevalence of Use of Various Drugs**  
**for 8th, 10th, and 12th Graders, 2008**

	Grade:	Lifetime			Annual			30-Day			Daily		
		8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
	Approximate wtd. N =	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000
<b>Cigarettes</b>													
Any Use		20.5	31.7	44.7	—	—	—	6.8	12.3	20.4	3.1	5.9	11.4
1/2 Pack+/Day		—	—	—	—	—	—	—	—	—	1.2	2.0	5.4
Bidis <sup>g</sup>		—	—	—	—	—	1.9	—	—	—	—	—	—
Kreteks <sup>g</sup>		—	—	—	—	—	6.8	—	—	—	—	—	—
Smokeless Tobacco <sup>d,f</sup>		9.8	12.2	15.6	—	—	—	3.5	5.0	6.5	0.8	1.4	2.7
Steroids <sup>b</sup>		1.4	1.4	2.2	0.9	0.9	1.5	0.5	0.5	1.0	—	—	0.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available.

\*\*\* indicates less than 0.05% but greater than 0%.

<sup>a</sup>For 12th graders only: Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded, because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>For 12th graders only: Data based on three of six forms; *N* is three sixths of *N* indicated.

<sup>c</sup>For 12th graders only: Adjusted for underreporting of amyl and butyl nitrites. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of inhalant use and fairly stable rates of nitrite use.

<sup>d</sup>For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated.

<sup>e</sup>Adjusted for underreporting of PCP. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of hallucinogen use and fairly stable rates of PCP use.

<sup>f</sup>For 8th and 10th graders only: Data based on two of four forms; *N* is one half of *N* indicated.

<sup>g</sup>For 12th graders only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>h</sup>For 12th graders only: Data based on four of six forms; *N* is four sixths of *N* indicated.

<sup>i</sup>Only drug use not under a doctor's orders is included here.

<sup>j</sup>For 8th and 10th graders only: Data based on one of four forms; *N* is one third of *N* indicated.

<sup>k</sup>For 12th graders only: "Sedatives, adjusted" data are a combination of barbiturate and methaqualone data. Data based on six forms of barbiturate data adjusted by one form of methaqualone data.

<sup>l</sup>For 8th and 10th graders only: Data based on one of four forms; *N* is one sixth of *N* indicated due to changes in the questionnaire forms.

**TABLE 4-3**  
**Prevalence of Use of Heroin *with* and *without* a Needle**  
**for 8th, 10th, and 12th Graders, 2008**  
(Entries are percentages of all respondents.)

	<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>
<b>8th Graders</b>			
Used heroin only <i>with</i> a needle	0.4	0.3	0.2
Used heroin only <i>without</i> a needle	0.5	0.3	0.1
Used heroin both ways	<u>0.5</u>	<u>0.3</u>	<u>0.1</u>
Used heroin at all	1.4	0.9	0.4
<i>Approximate weighted N =</i>	<i>15,700</i>	<i>15,700</i>	<i>15,700</i>
<b>10th Graders</b>			
Used heroin only <i>with</i> a needle	0.3	0.2	0.1
Used heroin only <i>without</i> a needle	0.5	0.3	0.1
Used heroin both ways	<u>0.3</u>	<u>0.3</u>	<u>0.1</u>
Used heroin at all	1.2	0.8	0.4
<i>Approximate weighted N =</i>	<i>15,100</i>	<i>15,100</i>	<i>15,100</i>
<b>12th Graders</b>			
Used heroin only <i>with</i> a needle	0.3	0.2	0.2
Used heroin only <i>without</i> a needle	0.6	0.3	0.1
Used heroin both ways	<u>0.3</u>	<u>0.2</u>	<u>0.1</u>
Used heroin at all	1.3	0.7	0.4
<i>Approximate weighted N =</i>	<i>7,000</i>	<i>7,000</i>	<i>7,000</i>

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding.

For 12th graders only: Data based on three of six forms except for "used heroin at all," which is based on all six forms. The six-form *N* is approximately 14,000.

**TABLE 4-4a**  
**Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

Lifetime Frequency	Marijuana			Inhalants <sup>ab</sup>			Amyl/Butyl <sup>c</sup> Nitrites			Hallucinogens <sup>d</sup>			LSD			Hallucinogens other than LSD			PCP <sup>e</sup>					
	Grade:	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th		
	Approx. wtd. N =	15,700	15,100	14,000	15,700	15,100	7,000	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	14,000		
No occasions	85.4	70.1	57.4	84.3	87.2	90.1	—	—	—	99.4	96.7	94.5	91.3	98.1	97.4	96.0	97.5	95.2	92.2	—	—	—	98.2	
1-2 occasions	5.7	8.2	10.2	9.1	7.6	5.6	—	—	—	0.1	1.7	2.7	3.9	1.2	1.6	2.3	1.5	3.0	4.4	—	—	—	1.1	
3-5 occasions	2.4	4.6	6.0	2.9	2.3	2.0	—	—	—	*	0.9	1.5	2.6	0.3	0.4	0.7	0.5	0.8	1.8	—	—	—	0.1	
6-9 occasions	1.3	3.2	4.0	1.3	1.0	0.8	—	—	—	0.0	0.2	0.4	0.7	0.1	0.3	0.4	0.1	0.3	0.6	—	—	—	0.1	
10-19 occasions	1.4	3.2	4.5	1.0	0.7	0.6	—	—	—	0.1	0.2	0.4	0.7	0.1	0.1	0.2	0.1	0.3	0.4	—	—	—	*	
20-39 occasions	1.1	2.7	4.1	0.5	0.5	0.3	—	—	—	*	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	—	—	—	0.1	
40 or more	2.7	8.0	13.9	0.9	0.6	0.6	—	—	—	0.2	0.3	0.4	0.6	0.1	0.2	0.3	0.1	0.2	0.4	—	—	—	0.4	
Annual Frequency																								
No occasions	89.1	76.1	67.6	91.1	94.1	96.2	—	—	—	99.4	97.9	96.1	94.1	98.7	98.2	97.3	98.4	96.7	95.0	—	—	—	98.9	
1-2 occasions	4.5	7.7	9.3	5.6	3.5	2.0	—	—	—	0.2	1.2	2.1	3.1	0.9	1.1	1.6	1.0	2.3	3.2	—	—	—	0.5	
3-5 occasions	1.9	4.0	5.0	1.5	1.1	0.9	—	—	—	*	0.5	1.1	1.7	0.1	0.3	0.5	0.3	0.6	1.1	—	—	—	0.2	
6-9 occasions	1.1	2.7	3.6	0.8	0.6	0.4	—	—	—	0.2	0.1	0.2	0.4	0.1	0.2	0.2	0.1	0.2	0.3	—	—	—	0.2	
10-19 occasions	1.2	2.8	3.6	0.5	0.3	0.2	—	—	—	0.1	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.2	—	—	—	*	
20-39 occasions	0.8	2.2	2.6	0.3	0.2	0.1	—	—	—	0.1	0.1	0.1	0.1	*	0.1	0.1	*	*	*	—	—	—	*	
40 or more	1.4	4.6	8.2	0.3	0.2	0.2	—	—	—	0.1	0.1	0.1	0.4	*	*	0.2	0.1	*	0.3	—	—	—	0.3	
30-Day Frequency																								
No occasions	94.2	86.2	80.6	95.9	97.9	98.6	—	—	—	99.7	99.1	98.7	97.8	99.5	99.3	98.9	99.3	99.0	98.4	—	—	—	99.4	
1-2 occasions	2.7	5.5	6.9	2.8	1.3	0.8	—	—	—	*	0.5	0.7	1.3	0.4	0.4	0.7	0.5	0.7	1.1	—	—	—	0.2	
3-5 occasions	1.0	2.4	2.9	0.6	0.5	0.3	—	—	—	*	0.2	0.3	0.4	0.1	0.1	0.2	0.1	0.1	0.2	—	—	—	0.1	
6-9 occasions	0.6	1.5	2.0	0.3	0.1	0.2	—	—	—	*	0.1	0.1	0.1	*	0.1	0.1	0.1	0.1	0.1	—	—	—	*	
10-19 occasions	0.5	1.7	2.2	0.2	0.1	*	—	—	—	0.1	0.1	0.1	0.1	*	*	*	0.1	*	0.1	—	—	—	*	
20-39 occasions	0.3	1.1	1.8	0.1	*	*	—	—	—	0.0	*	*	0.1	*	*	0.1	*	*	0.0	—	—	—	0.0	
40 or more	0.6	1.6	3.6	0.1	0.1	0.1	—	—	—	0.1	*	0.1	0.2	*	*	0.1	*	*	0.2	—	—	—	0.3	

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available. "\*" indicates less than 0.05% but greater than 0%.

(Table continued on next page.)

**TABLE 4-4a (cont.)**  
**Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Ecstasy (MDMA) <sup>d,e</sup>			Cocaine			Crack			Other Cocaine <sup>f</sup>			Heroin			Heroin with a Needle <sup>b</sup>			Heroin without a Needle <sup>b</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
	7,900	7,600	4,700	15,700	15,100	14,000	15,700	15,100	14,000	15,700	15,100	9,300	15,700	15,100	14,000	15,700	15,100	7,000	15,700	15,100	7,000
Approx. wtd. N =																					
Lifetime Frequency																					
No occasions	97.6	95.7	93.8	97.0	95.5	92.8	98.0	98.0	97.2	97.6	96.0	93.5	98.6	98.8	98.7	99.1	99.3	99.3	99.1	99.2	98.9
1-2 occasions	1.4	2.2	2.7	1.3	2.0	2.8	1.3	1.2	1.4	1.4	2.2	2.5	0.6	0.5	0.6	0.4	0.4	0.2	0.5	0.5	0.6
3-5 occasions	0.4	0.7	1.3	0.9	1.1	1.4	0.3	0.3	0.4	0.4	0.7	1.1	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2
6-9 occasions	0.2	0.5	0.5	0.2	0.4	0.8	0.1	0.1	0.3	0.1	0.4	0.7	0.1	0.1	0.2	0.1	*	0.1	0.1	*	0.1
10-19 occasions	0.2	0.4	0.6	0.2	0.4	0.7	0.1	0.1	0.2	0.1	0.3	0.6	0.2	0.1	0.1	0.1	*	0.1	0.1	*	*
20-39 occasions	0.1	0.2	0.6	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.1	0.5	*	0.1	*	*	0.1	*	*	*	*
40 or more	0.2	0.2	0.4	0.3	0.4	1.1	0.1	0.2	0.4	0.2	0.3	1.0	0.1	0.2	0.2	0.1	0.1	0.1	*	0.1	0.1
Annual Frequency																					
No occasions	98.3	97.1	95.7	98.2	97.0	95.6	98.9	98.7	98.4	98.6	97.4	96.0	99.1	99.2	99.3	99.5	99.5	99.6	99.4	99.4	99.5
1-2 occasions	1.0	1.7	2.2	0.8	1.3	1.8	0.7	0.7	0.7	0.8	1.4	1.8	0.4	0.4	0.3	0.3	0.3	0.1	0.4	0.4	0.2
3-5 occasions	0.3	0.5	0.9	0.5	0.7	0.9	0.2	0.2	0.3	0.2	0.5	0.8	0.2	0.2	0.2	0.1	0.1	0.1	0.1	*	0.1
6-9 occasions	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.1	0.2	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10-19 occasions	0.1	0.2	0.5	0.2	0.3	0.4	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.1	0.1	*	*	*	*	*	*
20-39 occasions	0.1	0.2	0.1	*	0.1	0.3	0.1	*	0.1	0.1	0.1	0.3	*	0.1	0.1	*	*	*	*	*	*
40 or more	0.1	0.1	0.2	0.1	0.2	0.5	0.1	0.1	0.2	*	0.1	0.3	0.1	0.1	0.1	*	*	*	*	*	0.1
30-Day Frequency																					
No occasions	99.2	98.9	98.3	99.2	98.8	98.1	99.5	99.5	99.2	99.4	99.0	98.3	99.6	99.6	99.6	99.7	99.8	99.8	99.8	99.7	99.8
1-2 occasions	0.4	0.6	1.1	0.4	0.6	0.9	0.3	0.3	0.4	0.4	0.7	0.9	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
3-5 occasions	0.2	0.3	0.4	0.2	0.3	0.4	0.1	0.1	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.1	*	0.1	*	0.1	*
6-9 occasions	0.1	0.1	0.2	0.1	0.1	0.2	*	0.1	0.1	*	*	0.2	0.1	*	0.1	*	*	*	*	*	*
10-19 occasions	0.1	0.1	0.1	*	0.1	0.1	*	*	*	*	0.1	0.1	*	*	0.1	*	*	*	*	*	0.0
20-39 occasions	*	*	*	*	*	0.1	*	0.0	*	0.0	*	*	*	*	*	*	0.0	0.0	0.0	0.0	*
40 or more	*	0.0	*	*	0.1	0.2	*	*	0.1	*	0.1	0.1	*	*	0.1	0.0	*	*	0.0	*	*

Source: The Monitoring the Future study, the University of Michigan.

Notes: “—” indicates data not available. “\*” indicates less than 0.05% but greater than 0%.

(Table continued on next page.)

**TABLE 4-4a (cont.)**  
**Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Narcotics other than Heroin									Crystal																	
	OxyContin <sup>b,g,h</sup>			Vicodin <sup>b,g,h</sup>			Amphetamines <sup>h,i</sup>			Methamphetamine <sup>e,g</sup>			Methamphetamine (Ice) <sup>e</sup>			Ritalin <sup>e,g,h</sup>											
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th									
Approx. wtd. N =	14,000			7,000			7,000			15,700			14,000			5,200			4,700			5,000			4,700		
Lifetime Frequency																											
No occasions	—	—	86.8	—	—	—	—	—	—	93.2	91.0	89.5	97.7	97.6	97.2	—	—	—	—	—	—	—	—	—	—	—	—
1–2 occasions	—	—	4.9	—	—	—	—	—	—	3.7	4.1	4.0	1.5	1.3	1.5	—	—	—	—	—	—	—	—	—	—	—	—
3–5 occasions	—	—	2.6	—	—	—	—	—	—	1.2	1.7	2.1	0.3	0.4	0.4	—	—	—	—	—	—	—	—	—	—	—	—
6–9 occasions	—	—	1.7	—	—	—	—	—	—	0.7	0.9	1.4	0.1	0.3	0.2	—	—	—	—	—	—	—	—	—	—	—	—
10–19 occasions	—	—	1.4	—	—	—	—	—	—	0.5	0.8	1.2	0.1	0.2	0.1	—	—	—	—	—	—	—	—	—	—	—	—
20–39 occasions	—	—	0.9	—	—	—	—	—	—	0.3	0.6	0.6	0.1	0.2	0.2	—	—	—	—	—	—	—	—	—	—	—	—
40 or more	—	—	1.6	—	—	—	—	—	—	0.5	0.8	1.3	0.2	0.2	0.4	—	—	—	—	—	—	—	—	—	—	—	—
Annual Frequency																											
No occasions	—	—	90.9	97.9	96.4	95.3	97.1	93.3	90.3	95.5	93.6	93.2	98.8	98.5	98.8	—	—	—	—	—	—	—	—	—	98.4	97.1	96.6
1–2 occasions	—	—	4.0	1.0	1.8	2.4	1.4	3.4	4.7	2.5	3.3	3.1	0.7	0.7	0.5	—	—	—	—	—	—	—	—	—	0.9	1.5	1.7
3–5 occasions	—	—	1.8	0.4	1.0	1.0	0.5	1.4	2.1	0.9	1.1	1.5	0.2	0.3	0.3	—	—	—	—	—	—	—	—	—	0.3	0.5	0.8
6–9 occasions	—	—	1.2	0.3	0.3	0.4	0.4	0.7	1.2	0.4	0.7	0.8	0.1	0.2	0.1	—	—	—	—	—	—	—	—	—	0.2	0.3	0.3
10–19 occasions	—	—	1.0	0.1	0.3	0.3	0.2	0.6	0.8	0.3	0.6	0.6	0.1	0.1	0.1	—	—	—	—	—	—	—	—	—	*	0.3	0.2
20–39 occasions	—	—	0.5	0.1	0.1	0.2	0.1	0.1	0.4	0.2	0.4	0.3	0.1	0.1	0.1	—	—	—	—	—	—	—	—	—	0.1	0.1	0.1
40 or more	—	—	0.7	0.2	0.2	0.3	0.2	0.4	0.5	0.1	0.3	0.4	*	0.1	0.1	—	—	—	—	—	—	—	—	—	0.1	0.1	0.2
30-Day Frequency																											
No occasions	—	—	96.2	—	—	—	—	—	—	97.8	97.2	97.1	99.3	99.3	99.5	—	—	—	—	—	—	—	—	—	—	—	—
1–2 occasions	—	—	2.1	—	—	—	—	—	—	1.5	1.6	1.5	0.4	0.3	0.2	—	—	—	—	—	—	—	—	—	—	—	—
3–5 occasions	—	—	0.8	—	—	—	—	—	—	0.4	0.5	0.6	0.1	0.2	0.2	—	—	—	—	—	—	—	—	—	—	—	—
6–9 occasions	—	—	0.3	—	—	—	—	—	—	0.2	0.4	0.3	0.1	*	0.1	—	—	—	—	—	—	—	—	—	—	—	—
10–19 occasions	—	—	0.3	—	—	—	—	—	—	0.1	0.2	0.2	0.1	*	0.0	—	—	—	—	—	—	—	—	—	—	—	—
20–39 occasions	—	—	0.1	—	—	—	—	—	—	*	0.1	0.1	*	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—
40 or more	—	—	0.2	—	—	—	—	—	—	*	*	0.1	*	*	*	—	—	—	—	—	—	—	—	—	—	—	—

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available. "\*" indicates less than 0.05% but greater than 0%.

(Table continued on next page.)

**TABLE 4-4a (cont.)**  
**Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

Grade:	Sedatives (Barbiturates) <sup>h</sup>									Methaqualone <sup>c,h</sup>			Tranquilizers <sup>h</sup>			Rohypnol <sup>g</sup>			GHB <sup>c,g</sup>			Ketamine <sup>b,g</sup>			Alcohol			
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	
	14,000			2,300			15,700 15,100 14,000			2,600 2,500 4,700			5,200 5,000 2,300			5,200 5,000 7,000			15,700 15,100 14,000									
Lifetime Frequency																												
No occasions	—	—	91.5	—	—	99.2	96.1	93.2	91.1	99.3	99.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1–2 occasions	—	—	3.1	—	—	0.4	2.1	3.5	3.4	0.3	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3–5 occasions	—	—	1.8	—	—	0.1	0.7	1.4	1.7	0.1	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6–9 occasions	—	—	1.3	—	—	0.2	0.4	0.7	1.3	0.1	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10–19 occasions	—	—	0.8	—	—	0.1	0.2	0.5	1.0	0.0	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20–39 occasions	—	—	0.6	—	—	0.1	0.2	0.4	0.5	*	0.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40 or more	—	—	0.9	—	—	*	0.3	0.4	1.0	0.1	*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual Frequency																												
No occasions	—	—	94.2	—	—	99.5	97.6	95.4	93.8	99.5	99.6	98.7	98.9	99.5	98.8	98.8	99.0	98.5	67.9	47.5	34.5	—	—	—	—	—	—	—
1–2 occasions	—	—	2.6	—	—	0.4	1.4	2.5	2.8	0.3	0.2	0.6	0.7	0.3	0.5	0.6	0.4	0.7	14.8	18.4	17.2	—	—	—	—	—	—	—
3–5 occasions	—	—	1.3	—	—	0.1	0.5	1.0	1.3	*	*	0.2	0.2	0.1	0.2	0.1	0.1	0.3	7.8	12.9	13.3	—	—	—	—	—	—	—
6–9 occasions	—	—	0.8	—	—	*	0.3	0.5	0.9	*	0.1	0.1	*	0.1	0.3	0.1	0.3	0.2	4.0	8.3	9.7	—	—	—	—	—	—	—
10–19 occasions	—	—	0.5	—	—	0.0	0.2	0.3	0.7	0.0	0.0	0.1	*	*	0.1	0.2	0.1	0.1	2.8	6.4	10.5	—	—	—	—	—	—	—
20–39 occasions	—	—	0.2	—	—	0.0	0.1	0.2	0.2	*	0.0	0.1	*	0.0	0.1	*	0.0	0.1	1.4	3.6	6.8	—	—	—	—	—	—	—
40 or more	—	—	0.3	—	—	*	0.1	0.2	0.3	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.2	1.2	3.0	8.0	—	—	—	—	—	—	—
30-Day Frequency																												
No occasions	—	—	97.2	—	—	99.8	98.8	98.1	97.4	99.9	99.8	—	—	—	—	—	—	—	84.1	71.2	56.9	—	—	—	—	—	—	—
1–2 occasions	—	—	1.6	—	—	0.2	0.7	1.1	1.5	*	0.2	—	—	—	—	—	—	—	9.8	16.6	20.4	—	—	—	—	—	—	—
3–5 occasions	—	—	0.6	—	—	0.0	0.2	0.3	0.6	0.0	0.0	—	—	—	—	—	—	—	3.1	6.3	10.4	—	—	—	—	—	—	—
6–9 occasions	—	—	0.3	—	—	0.0	0.1	0.2	0.3	*	0.1	—	—	—	—	—	—	—	1.5	3.0	6.1	—	—	—	—	—	—	—
10–19 occasions	—	—	0.2	—	—	0.0	0.1	0.2	0.2	*	0.0	—	—	—	—	—	—	—	0.8	1.8	3.4	—	—	—	—	—	—	—
20–39 occasions	—	—	0.1	—	—	0.0	*	*	*	0.0	0.0	—	—	—	—	—	—	—	0.4	0.5	1.3	—	—	—	—	—	—	—
40 or more	—	—	0.1	—	—	*	*	0.1	0.1	*	0.0	—	—	—	—	—	—	—	0.4	0.5	1.6	—	—	—	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available. "\*" indicates less than 0.05% but greater than 0%.

(Table continued on next page.)

**TABLE 4-4a (cont.)**  
**Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

Lifetime Frequency	Grade: N =			Flavored Alcoholic Beverages <sup>c,d</sup>						Bidis <sup>e</sup>			Kreteks <sup>e</sup>			Steroids <sup>b</sup>					
	Approx. wtd. N =			8th		10th		12th		8th		10th		12th		8th		10th		12th	
	15700	15100	4700	5200	5000	2300	4700	4700	4700	4700	4700	4700	4700	4700	4700	15700	15100	7000	15700	15100	7000
No occasions	82.0	62.8	45.3	67.2	46.5	34.5	—	—	—	—	—	—	—	—	98.6	98.6	97.8	—	—	—	—
1–2 occasions	9.5	15.0	15.1	11.6	14.7	14.0	—	—	—	—	—	—	—	—	0.8	0.7	1.0	—	—	—	—
3–5 occasions	3.7	8.1	8.9	8.0	12.5	13.5	—	—	—	—	—	—	—	—	0.2	0.3	0.2	—	—	—	—
6–9 occasions	1.7	5.0	5.7	4.9	9.3	9.3	—	—	—	—	—	—	—	—	0.1	0.1	0.2	—	—	—	—
10–19 occasions	1.4	3.8	7.5	3.8	7.4	9.6	—	—	—	—	—	—	—	—	0.1	0.1	0.1	—	—	—	—
20–39 occasions	0.8	2.5	7.1	1.8	4.6	8.0	—	—	—	—	—	—	—	—	0.1	0.1	0.1	—	—	—	—
40 or more	0.9	2.8	10.3	2.6	5.1	11.1	—	—	—	—	—	—	—	—	0.2	0.2	0.5	—	—	—	—
Annual Frequency																					
No occasions	87.3	70.0	54.4	75.0	56.6	48.2	—	—	98.1	—	—	—	—	—	99.1	99.1	98.5	—	—	—	—
1–2 occasions	7.8	15.2	16.7	12.6	17.3	17.9	—	—	0.8	—	—	—	—	—	3.3	0.5	0.6	—	—	—	—
3–5 occasions	2.4	6.5	7.8	5.9	11.6	12.2	—	—	0.5	—	—	—	—	—	1.3	0.2	0.1	—	—	—	—
6–9 occasions	1.1	3.8	6.5	2.9	5.9	7.2	—	—	0.2	—	—	—	—	—	0.7	0.1	0.2	—	—	—	—
10–19 occasions	0.7	2.4	6.2	1.9	4.8	7.2	—	—	0.1	—	—	—	—	—	0.4	0.1	0.2	—	—	—	—
20–39 occasions	0.4	1.2	3.8	0.9	2.2	3.4	—	—	0.2	—	—	—	—	—	0.5	*	0.1	—	—	—	—
40 or more	0.4	1.0	4.5	0.8	1.7	3.8	—	—	0.2	—	—	—	—	—	0.5	0.1	0.3	—	—	—	—
30-Day Frequency																					
No occasions	94.6	85.6	72.4	89.8	79.8	72.6	—	—	—	—	—	—	—	—	99.5	99.5	99.0	—	—	—	—
1–2 occasions	3.7	9.9	14.4	6.0	11.5	14.0	—	—	—	—	—	—	—	—	0.2	0.2	0.4	—	—	—	—
3–5 occasions	0.9	2.6	6.1	1.9	4.9	6.5	—	—	—	—	—	—	—	—	0.1	0.1	0.1	—	—	—	—
6–9 occasions	0.3	1.1	3.5	1.1	1.9	3.3	—	—	—	—	—	—	—	—	*	0.1	0.2	—	—	—	—
10–19 occasions	0.2	0.6	2.1	0.7	1.2	2.3	—	—	—	—	—	—	—	—	*	0.1	0.1	—	—	—	—
20–39 occasions	0.1	0.1	0.6	0.2	0.3	0.6	—	—	—	—	—	—	—	—	*	*	*	—	—	—	—
40 or more	0.1	0.2	0.8	0.3	0.5	0.7	—	—	—	—	—	—	—	—	0.1	0.1	0.2	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available. "\*" indicates less than 0.05% but greater than 0%.

(Table continued on next page.)

**TABLE 4-4a (cont.)  
Frequency of Use of Various Drugs: Lifetime, Annual, and 30-Day  
8th, 10th, and 12th Graders, 2008**

<sup>a</sup>Unadjusted for known underreporting of certain drugs. See text for details.

<sup>b</sup>12th grade only: Data based on three of six forms.

<sup>c</sup>12th grade only: Data based on one of six forms.

<sup>d</sup>8th and 10th grades only: Data based on two of four forms.

<sup>e</sup>12th grade only: Data based on two of six forms.

<sup>f</sup>12th grade only: Data based on four of six forms.

<sup>g</sup>8th and 10th grades only: Data based on one of four forms.

<sup>h</sup>Only drug use not under a doctor's orders is included here.

<sup>i</sup>Based on the data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription stimulants.

**TABLE 4-4b**  
**Frequency of Occasions of Heavy Drinking,**  
**Cigarette Smoking, and Smokeless Tobacco Use**  
**8th, 10th, and 12th Graders, 2008**

(Entries are percentages.)

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
<i>Think back over the LAST TWO WEEKS. How many times have you had five or more drinks in a row?</i>			
None	91.9	84.0	75.4
Once	3.5	6.7	9.1
Twice	2.3	4.5	6.8
3 to 5 times	1.4	3.1	6.0
6 to 9 times	0.4	0.8	1.5
10 or more times	0.4	0.8	1.2
<i>Approximate weighted N =</i>	15,700	15,100	14,000
<i>Have you ever smoked cigarettes?</i>			
Never	79.5	68.3	55.3
Once or twice	12.5	17.0	19.2
Occasionally but not regularly	4.0	7.0	11.9
Regularly in the past	2.1	3.5	4.5
Regularly now	1.8	4.3	9.1
<i>Approximate weighted N =</i>	15,700	15,100	14,000
<i>How frequently have you smoked cigarettes during the past 30 days?</i>			
Not at all (includes "never" category from question above)	93.2	87.7	79.6
Less than one cigarette per day	3.7	6.4	9.0
One to five cigarettes per day	1.9	3.8	5.9
About one-half pack per day	0.6	1.1	3.3
About one pack per day	0.2	0.5	1.5
About one and one-half packs per day	0.1	0.2	0.3
Two packs or more per day	0.2	0.2	0.3
<i>Approximate weighted N =</i>	15,700	15,100	14,000
<i>Have you ever taken or used smokeless tobacco (snuff, plug, dipping tobacco, chewing tobacco)?</i>			
Never	90.2	87.8	84.4
Once or twice	6.1	6.6	8.4
Occasionally but not regularly	2.0	2.8	3.0
Regularly in the past	0.7	1.4	1.5
Regularly now	1.1	1.4	2.7
<i>Approximate weighted N =</i>	7,900	7,600	2,300
<i>How frequently have you taken smokeless tobacco during the past 30 days?</i>			
Not at all (includes "never" category from question above)	96.5	95.0	93.5
Once or twice	1.6	2.5	2.9
Once or twice per week	0.7	0.5	0.6
Three to five times per week	0.4	0.5	0.3
About once a day	0.1	0.4	0.4
More than once a day	0.6	1.0	2.3
<i>Approximate weighted N =</i>	7,900	7,600	2,300

Source. The Monitoring the Future study, the University of Michigan.

**TABLE 4-4c**  
**Frequency of Use of Nonprescription Cough and Cold Medicines to Get High**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

*During the LAST 12 MONTHS, on how many occasions (if any) have you taken a nonprescription cough or cold medicine (robos, DXM, etc.) to get high?*

	<u>8th Grade</u>	<u>10th Grade</u>	<u>12th Grade</u>
0 occasions	96.4	94.7	94.5
1–2 occasions	1.6	2.4	3.0
3–5 occasions	0.8	1.2	1.3
6–9 occasions	0.2	0.9	0.5
10–19 occasions	0.3	0.4	0.4
20–39 occasions	0.2	0.1	*
40 or more occasions	0.4	0.3	0.3
<i>Approximate weighted N =</i>	5,200	5,000	4,700

*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* The active ingredient in these substances is dextromethorphan.

**TABLE 4-5**  
**Lifetime Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Approximate Wtd. N <sup>a</sup>			Any Illicit Drug <sup>b</sup>			Any Illicit Drug other than Marijuana <sup>b</sup>			Marijuana			Inhalants <sup>c,d</sup>			Hallucinogens <sup>d</sup>			LSD		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	15,700	15,100	14,000	19.6	34.1	47.4	11.2	15.9	24.9	14.6	29.9	42.6	15.7	12.8	9.9	3.3	5.5	8.7	1.9	2.6	4.0
Gender:																					
Male	7,600	7,000	6,400	19.8	35.0	48.8	9.4	15.1	25.8	16.3	31.7	44.8	13.4	11.4	11.0	3.5	6.4	11.0	2.1	3.2	5.5
Female	7,600	7,700	6,900	19.5	33.0	45.8	13.0	16.5	23.5	12.7	28.0	40.1	18.2	14.1	9.2	3.0	4.6	6.3	1.7	2.0	2.2
College Plans:																					
None or under 4 years	1,200	1,600	2,300	43.5	55.9	58.7	28.6	30.5	33.5	35.0	51.7	54.2	26.8	20.7	14.3	11.5	13.6	13.1	6.8	7.1	7.1
Complete 4 years	14,000	13,200	10,800	17.5	31.2	44.6	9.7	14.0	22.7	12.7	27.0	39.6	14.8	11.8	9.2	2.6	4.4	7.6	1.5	2.0	3.1
Region:																					
Northeast	2,600	2,800	2,400	16.3	34.7	51.0	8.1	11.6	25.3	11.7	31.5	46.7	14.3	12.0	9.2	1.7	4.3	10.9	1.0	2.0	4.2
Midwest	3,400	3,600	3,500	21.1	32.2	46.0	11.4	15.8	23.5	16.6	27.8	41.3	15.4	12.9	9.2	3.4	5.7	7.1	1.9	2.9	3.6
South	5,600	4,800	5,000	22.1	35.7	47.1	13.2	18.2	25.9	15.8	31.1	42.0	17.0	12.7	10.2	3.6	5.8	8.5	2.1	2.9	4.5
West	4,100	3,900	3,100	17.0	33.2	46.8	10.1	16.3	24.7	12.9	29.0	42.0	15.2	13.5	10.9	4.0	5.8	9.2	2.3	2.5	3.3
Population Density:																					
Large MSA	5,100	4,700	3,700	17.7	33.6	48.1	10.3	13.9	22.7	12.9	30.1	44.4	15.5	12.2	8.5	3.2	4.9	9.6	2.1	2.2	3.8
Other MSA	7,500	7,300	7,100	21.0	34.8	46.2	11.8	17.0	24.7	15.9	30.2	41.2	15.6	13.4	9.9	3.6	6.0	8.2	2.1	2.8	4.0
Non-MSA	3,100	3,100	3,200	19.4	33.1	49.4	11.1	16.5	28.1	14.2	28.6	43.8	16.5	12.3	11.7	2.8	5.1	8.9	1.4	2.7	4.0
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	1,300	1,300	1,200	30.9	45.0	46.8	19.3	21.2	23.5	24.5	39.7	42.6	21.6	16.3	9.2	6.4	6.6	7.2	3.7	2.9	3.6
2.5-3.0	2,800	3,000	3,000	25.9	40.1	50.5	14.0	19.1	25.4	19.7	35.8	46.3	18.4	14.8	10.3	4.0	6.4	8.4	2.4	2.7	3.9
3.5-4.0	3,500	3,800	3,900	21.1	36.6	47.8	11.6	17.1	26.1	16.0	32.3	42.9	17.4	14.3	10.8	3.1	5.8	8.4	1.7	2.9	3.7
4.5-5.0	4,100	4,000	3,500	15.3	28.1	45.1	8.7	13.0	24.0	11.0	24.0	40.1	13.3	10.5	9.3	3.1	4.5	8.8	1.7	2.2	3.7
5.5-6.0 (High)	2,300	2,000	1,700	13.6	25.7	45.0	9.2	12.5	23.5	8.3	21.8	40.2	13.2	10.2	10.2	2.6	4.7	10.2	1.7	2.5	4.5
Race/Ethnicity <sup>f</sup>																					
White	17,300	18,300	17,300	17.5	34.3	48.6	11.1	18.7	28.8	12.5	29.6	43.4	15.3	13.8	11.5	3.2	6.9	10.3	1.6	3.2	4.3
African American	4,000	3,600	3,500	19.4	33.0	40.7	6.1	7.3	10.3	15.9	30.0	38.0	11.8	8.2	5.4	1.4	1.7	2.0	0.9	1.1	1.1
Hispanic	5,100	4,500	4,000	23.9	39.4	45.9	14.0	19.0	21.8	18.1	34.8	40.1	18.0	13.7	9.3	4.0	5.4	5.9	2.3	2.7	2.7

Source: The Monitoring the Future study, the University of Michigan.

Note: "—" indicates data not available.

(Table continued on next page.)

**TABLE 4-5 (cont.)**  
**Lifetime Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Hallucinogens other than LSD			Ecstasy (MDMA) <sup>g,h</sup>			Cocaine			Crack			Other Cocaine <sup>i</sup>			Heroin, Any Use			Heroin with a Needle <sup>c</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	2.5	4.8	7.8	2.4	4.3	6.2	3.0	4.5	7.2	2.0	2.0	2.8	2.4	4.0	6.5	1.4	1.2	1.3	0.9	0.7	0.7
Gender:																					
Male	2.7	5.6	9.8	2.2	4.5	7.1	2.8	4.6	8.3	1.8	1.9	2.9	2.2	4.1	7.5	1.5	1.3	1.6	1.0	0.8	1.0
Female	2.2	3.9	5.7	2.6	4.1	5.4	3.3	4.4	6.2	2.2	2.1	2.5	2.6	3.9	5.4	1.2	1.0	0.8	0.7	0.6	0.3
College Plans:																					
None or under 4 years	9.4	12.1	11.1	8.7	10.4	9.4	10.2	11.9	11.7	6.9	5.4	5.6	8.1	10.7	10.3	4.9	3.0	3.1	3.6	2.2	2.1
Complete 4 years	1.9	3.8	6.9	1.9	3.5	5.5	2.4	3.5	6.1	1.6	1.5	2.0	1.9	3.1	5.4	1.0	0.9	0.9	0.7	0.5	0.4
Region:																					
Northeast	1.3	3.6	10.0	1.5	2.9	3.8	2.0	2.9	7.5	1.3	1.5	2.5	1.4	2.7	6.9	1.1	0.9	1.1	0.8	0.5	0.6
Midwest	2.5	4.9	6.4	2.3	3.4	4.5	3.1	3.8	5.8	2.1	1.7	2.3	2.6	3.3	5.7	1.5	1.2	1.0	0.9	0.7	0.6
South	2.6	5.0	7.3	2.7	4.6	7.1	3.5	5.5	8.0	2.1	1.8	3.1	2.8	5.0	6.8	1.4	1.3	1.4	0.8	0.8	0.6
West	3.1	5.2	8.4	2.8	5.6	8.4	3.1	5.1	7.5	2.4	2.8	2.9	2.3	4.3	6.5	1.4	1.1	1.5	1.1	0.6	1.0
Population Density:																					
Large MSA	2.2	4.3	8.7	2.6	4.8	6.7	3.1	4.4	6.9	2.3	1.8	2.3	2.4	3.9	6.3	1.7	1.0	1.4	1.2	0.5	0.4
Other MSA	2.7	5.3	7.3	2.6	4.2	6.9	3.1	4.9	7.3	1.9	2.1	2.7	2.4	4.4	6.2	1.2	1.1	1.3	0.8	0.7	0.9
Non-MSA	2.3	4.3	7.8	1.7	3.6	4.1	2.8	3.9	7.6	1.8	1.9	3.4	2.4	3.1	7.3	1.2	1.5	1.1	0.7	0.9	0.5
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	5.0	6.2	5.9	4.7	6.3	6.9	5.8	9.6	7.9	4.4	4.6	3.6	4.7	8.7	5.2	3.4	2.6	2.4	2.8	2.0	1.6
2.5-3.0	3.1	5.5	7.4	3.0	5.4	6.3	4.0	6.0	7.6	2.8	2.5	2.8	3.2	5.2	6.8	1.5	1.0	0.9	0.9	0.5	0.5
3.5-4.0	2.3	4.9	7.6	2.8	4.6	7.2	3.1	4.3	7.8	1.7	1.6	3.0	2.7	3.8	7.0	1.3	1.3	1.4	0.9	0.7	0.8
4.5-5.0	2.3	4.0	8.1	1.7	2.9	4.7	2.1	3.3	6.3	1.3	1.5	2.2	1.4	2.8	5.6	0.8	0.7	0.9	0.5	0.4	0.5
5.5-6.0 (High)	1.8	3.9	9.2	1.1	3.3	6.5	2.3	2.2	6.6	1.7	1.1	2.2	1.8	1.9	7.0	1.3	1.0	1.3	0.8	0.5	0.7
Race/Ethnicity <sup>f</sup>																					
White	2.6	6.1	9.4	2.1	4.8	7.0	2.6	4.8	8.6	1.6	1.9	3.1	2.2	4.3	7.9	1.2	1.2	1.5	0.7	0.6	0.6
African American	0.9	1.1	1.6	1.4	2.1	2.5	1.3	1.3	1.3	0.9	0.9	1.0	0.9	1.1	0.9	0.6	0.7	0.7	0.4	0.5	0.5
Hispanic	3.2	4.6	5.1	3.5	6.0	5.1	5.5	8.5	8.2	4.0	4.1	3.9	4.4	7.8	6.7	2.2	1.7	1.6	1.6	1.1	1.1

Source: The Monitoring the Future study, the University of Michigan.

Note: "—" indicates data not available.

(Table continued on next page.)

**TABLE 4-5 (cont.)**  
**Lifetime Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Heroin without a Needle <sup>c</sup>			Narcotics other than Heroin <sup>l</sup>			Amphetamines <sup>l</sup>			Methamphetamine <sup>h,k</sup>			Crystal Methamphetamine (Ice) <sup>h</sup>			Sedatives (Barbiturates) <sup>l</sup>			Tranquilizers <sup>l</sup>			
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	
Total	0.9	0.8	1.1	—	—	13.2	6.8	9.0	10.5	2.3	2.4	2.8	—	—	2.8	—	—	—	8.5	3.9	6.8	8.9
Gender:																						
Male	0.9	1.0	1.4	—	—	14.4	5.3	7.9	10.2	2.1	1.9	3.2	—	—	3.0	—	—	—	8.4	2.8	6.0	9.1
Female	0.9	0.7	0.7	—	—	12.2	8.4	9.9	10.7	2.6	2.9	2.3	—	—	2.6	—	—	—	8.5	4.9	7.5	8.9
College Plans:																						
None or under 4 years	3.1	2.0	2.7	—	—	19.1	16.1	17.2	16.6	6.4	5.6	5.4	—	—	5.3	—	—	—	12.8	9.3	14.0	12.8
Complete 4 years	0.7	0.7	0.7	—	—	12.0	6.1	7.9	9.1	2.0	2.1	2.0	—	—	2.2	—	—	—	7.5	3.4	5.9	8.1
Region:																						
Northeast	0.6	0.7	1.4	—	—	13.4	4.1	6.5	9.4	1.1	0.8	1.9	—	—	1.8	—	—	—	8.2	2.9	4.5	7.4
Midwest	1.1	1.0	1.0	—	—	14.0	7.4	9.7	10.9	2.2	2.6	2.4	—	—	1.7	—	—	—	8.1	3.9	7.0	8.3
South	1.1	0.8	1.0	—	—	12.7	8.5	10.1	11.3	3.0	2.7	3.0	—	—	3.2	—	—	—	9.6	5.1	8.7	10.8
West	0.7	0.7	1.0	—	—	12.9	5.8	8.7	9.9	2.4	3.1	3.4	—	—	4.2	—	—	—	7.3	2.8	5.9	7.9
Population Density:																						
Large MSA	1.1	0.7	1.1	—	—	11.1	6.2	7.5	9.1	2.0	1.9	2.1	—	—	1.9	—	—	—	6.8	3.0	5.1	7.3
Other MSA	0.8	0.8	1.1	—	—	13.3	7.4	9.4	10.6	2.6	2.8	2.9	—	—	3.3	—	—	—	8.9	4.4	7.5	9.6
Non-MSA	0.9	1.0	1.0	—	—	15.5	6.5	10.2	12.2	2.2	2.5	3.2	—	—	2.9	—	—	—	9.6	4.0	7.7	9.4
Parental Education: <sup>e</sup>																						
1.0–2.0 (Low)	2.1	1.7	1.3	—	—	10.8	11.4	10.7	10.0	4.2	4.2	4.0	—	—	3.5	—	—	—	8.6	7.3	8.5	8.5
2.5–3.0	1.1	0.7	1.0	—	—	13.5	8.7	11.1	11.7	2.9	3.8	2.4	—	—	2.3	—	—	—	9.0	4.9	8.2	8.4
3.5–4.0	0.7	0.9	1.0	—	—	14.7	7.8	10.6	10.9	2.4	1.6	2.9	—	—	3.1	—	—	—	9.5	3.7	7.4	10.3
4.5–5.0	0.7	0.6	0.9	—	—	12.6	5.2	7.7	9.5	1.9	2.4	2.0	—	—	2.5	—	—	—	7.4	3.2	5.3	8.4
5.5–6.0 (High)	0.8	0.7	1.2	—	—	13.4	5.6	6.0	10.7	2.3	1.2	3.1	—	—	1.7	—	—	—	7.6	3.2	5.9	8.2
Race/Ethnicity <sup>f</sup>																						
White	0.7	0.8	1.3	—	—	16.7	7.4	11.8	13.3	1.8	2.7	3.2	—	—	3.0	—	—	—	10.5	3.9	8.5	11.5
African American	0.5	0.5	0.8	—	—	4.0	3.3	4.2	3.3	1.3	0.7	1.2	—	—	1.1	—	—	—	3.7	1.8	2.1	1.9
Hispanic	1.1	1.2	1.3	—	—	6.4	6.4	8.8	8.1	2.9	4.2	2.8	—	—	4.6	—	—	—	7.0	5.2	5.7	6.8

Source. The Monitoring the Future study, the University of Michigan.

Note. "—" indicates data not available.

(Table continued on next page.)

**TABLE 4-5 (cont.)**  
**Lifetime Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Rohypnol <sup>l</sup>			Alcohol			Been Drunk <sup>h</sup>			Flavored Alcoholic Beverages <sup>k,m</sup>			Cigarettes			Smokeless Tobacco <sup>g,m</sup>			Steroids <sup>c</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.7	0.9	—	38.9	58.3	71.9	18.0	37.2	54.7	32.8	53.5	65.5	20.5	31.7	44.7	9.8	12.2	15.6	1.4	1.4	2.2
Gender:																					
Male	0.9	0.4	—	37.8	56.2	71.7	17.3	35.5	54.7	30.5	46.8	63.2	20.8	32.3	45.6	13.9	18.4	25.6	1.8	2.1	3.5
Female	0.5	1.0	—	39.9	60.3	72.3	18.5	38.7	54.1	35.0	59.3	68.3	19.9	31.0	43.4	5.9	6.5	6.4	0.8	0.8	0.8
College Plans:																					
None or under 4 years	3.1	2.6	—	57.6	74.0	79.1	36.8	55.4	63.8	53.0	65.7	70.2	43.2	56.5	61.2	25.6	27.2	22.3	3.3	2.9	4.7
Complete 4 years	0.4	0.6	—	37.3	56.6	70.6	16.5	35.2	52.2	31.2	52.0	64.6	18.3	28.5	40.7	8.5	10.5	14.1	1.2	1.2	1.6
Region:																					
Northeast	0.2	1.1	—	38.9	61.2	75.8	16.9	38.1	59.5	30.7	54.3	69.0	17.4	27.1	43.6	6.3	8.0	13.4	1.4	1.4	2.5
Midwest	0.9	0.2	—	40.6	59.3	73.5	18.2	39.4	58.2	34.4	54.7	67.1	22.8	32.4	45.9	10.2	16.1	18.1	1.4	1.6	2.7
South	0.9	1.4	—	42.9	59.4	72.1	21.2	37.9	52.0	37.0	54.2	64.7	24.2	36.2	46.9	13.8	16.2	16.0	1.7	1.5	2.2
West	0.4	0.5	—	32.1	54.0	67.0	14.1	33.5	51.5	26.8	50.9	62.6	15.4	28.7	40.6	6.0	6.6	14.0	0.9	1.2	1.3
Population Density:																					
Large MSA	0.5	0.5	—	38.2	56.0	72.7	16.6	34.0	55.9	32.2	51.3	65.0	16.9	29.5	41.6	7.7	8.0	7.8	1.3	1.2	1.2
Other MSA	0.8	1.0	—	39.6	58.3	69.1	18.6	37.4	50.5	33.1	53.7	63.4	21.4	30.3	43.1	9.0	12.0	14.6	1.4	1.6	2.0
Non-MSA	0.7	1.1	—	38.6	61.9	77.5	18.8	41.4	62.7	33.0	56.3	70.5	24.0	38.2	51.8	15.0	18.8	27.0	1.4	1.4	3.5
Parental Education: <sup>e</sup>																					
1.0–2.0 (Low)	2.5	2.0	—	52.6	68.3	72.0	27.6	43.6	53.1	47.6	58.9	64.6	34.9	43.1	46.5	13.7	12.1	10.5	2.0	2.1	3.1
2.5–3.0	0.7	0.4	—	46.7	63.7	74.9	23.6	42.2	57.7	42.4	60.7	66.3	28.1	39.9	49.7	13.7	14.9	17.1	1.5	1.5	2.0
3.5–4.0	0.7	1.6	—	41.7	61.3	71.9	19.5	39.2	55.5	38.0	56.8	68.4	21.8	33.7	45.7	10.2	14.3	17.5	1.5	1.5	2.2
4.5–5.0	0.4	0.4	—	33.3	53.5	70.8	14.0	33.7	53.9	26.5	49.9	67.1	14.6	25.3	40.3	8.3	10.6	16.2	1.1	1.2	2.1
5.5–6.0 (High)	0.4	0.7	—	31.5	51.5	71.2	12.6	32.1	52.7	22.2	45.3	59.6	11.1	20.6	39.6	6.2	8.3	13.6	1.3	1.5	1.8
Race/Ethnicity <sup>f</sup>																					
White	0.8	1.2	—	36.8	61.1	74.5	17.5	42.4	59.5	33.0	56.4	70.0	20.4	33.7	48.6	10.5	17.2	20.5	1.3	1.6	2.2
African American	0.3	0.0	—	37.1	52.4	61.6	14.6	27.0	36.8	29.0	46.2	50.9	20.8	27.9	31.9	6.6	6.6	3.5	1.2	1.1	2.3
Hispanic	1.3	0.8	—	47.1	64.6	72.5	23.2	40.1	51.4	39.2	57.5	69.8	24.1	36.1	44.3	7.8	7.8	7.2	1.4	1.7	1.9

Source. The Monitoring the Future study, the University of Michigan.

Note. "—" indicates data not available.

## Footnotes for Tables 4-5 through 4-8

<sup>a</sup>Subgroup *N*s may vary depending on the number of forms in which the use of each drug was asked about.

<sup>b</sup>Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor's orders. For 8th and 10th graders, the use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>c</sup>12th grade only: Data based on three of six forms; *N* is three sixths of *N* indicated.

<sup>d</sup>Unadjusted for known underreporting of certain drugs. See text for details.

<sup>e</sup>Parental education is an average score of mother's education and father's education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>f</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. See appendix B for details on how race/ethnicity is defined.

<sup>g</sup>8th and 10th grades only: Data based on two of four forms; *N* is one half of *N* indicated.

<sup>h</sup>12th grade only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>i</sup>12th grade only: Data based on four of six forms; *N* is four sixths of *N* indicated.

<sup>j</sup>Only drug use not under a doctor's orders is included here.

<sup>k</sup>8th and 10th grades only: Data based on one of four forms; *N* is one third of *N* indicated.

<sup>l</sup>8th and 10th grades only: Data based on one of four forms; *N* is one sixth of *N* indicated.

<sup>m</sup>12th grade only: Data based on one of six forms; *N* is one sixth of *N* indicated.

<sup>n</sup>This measure refers to having five or more drinks in a row in the last two weeks.

**TABLE 4-6**  
**Annual Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

Grade:	Approximate Wtd. N <sup>a</sup>			Any Illicit Drug <sup>b</sup>			Any Illicit Drug other than Marijuana <sup>b</sup>			Marijuana			Inhalants <sup>c,d</sup>			Hallucinogens <sup>d</sup>			LSD		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	15,700	15,100	14,000	14.1	26.9	36.6	7.4	11.3	18.3	10.9	23.9	32.4	8.9	5.9	3.8	2.1	3.9	5.9	1.3	1.8	2.7
Gender:																					
Male	7,600	7,000	6,400	14.3	27.9	38.8	6.0	10.9	19.9	12.2	25.5	35.1	7.0	5.4	4.4	2.2	4.7	7.8	1.4	2.2	3.7
Female	7,600	7,700	6,900	13.7	25.6	34.1	8.7	11.5	16.2	9.5	22.2	29.5	11.0	6.3	3.2	2.0	3.1	3.9	1.2	1.3	1.6
College Plans:																					
None or under 4 years	1,200	1,600	2,300	34.5	47.0	46.0	20.3	22.9	25.0	27.7	43.5	41.0	19.1	11.1	6.1	8.4	10.4	8.4	5.2	5.1	4.8
Complete 4 years	14,000	13,200	10,800	12.3	24.2	34.2	6.3	9.8	16.5	9.4	21.4	30.2	8.0	5.3	3.3	1.6	3.1	5.2	1.0	1.3	2.1
Region:																					
Northeast	2,600	2,800	2,400	11.3	28.6	40.0	5.2	8.2	18.9	8.3	26.3	36.6	7.9	4.9	3.5	1.4	3.5	8.0	0.8	1.5	3.0
Midwest	3,400	3,600	3,500	15.5	25.8	35.1	7.6	11.8	16.8	12.6	22.6	31.1	9.1	5.7	3.0	2.0	3.8	4.5	1.3	2.0	2.5
South	5,600	4,800	5,000	15.6	27.1	36.0	8.8	12.6	19.1	11.5	24.0	31.0	9.6	5.6	3.7	2.3	4.1	5.7	1.4	1.8	3.0
West	4,100	3,900	3,100	12.4	26.2	36.5	6.7	11.5	18.1	10.3	23.4	32.8	8.4	7.2	5.0	2.5	4.2	6.2	1.4	1.7	2.2
Population Density:																					
Large MSA	5,100	4,700	3,700	12.5	26.4	37.7	6.8	9.9	16.9	9.9	24.2	34.8	8.7	5.3	3.1	2.1	3.9	6.9	1.4	1.5	2.7
Other MSA	7,500	7,300	7,100	15.1	28.1	35.7	7.7	12.1	18.2	11.8	24.7	31.2	8.9	6.4	3.7	2.3	4.2	5.7	1.3	1.9	2.8
Non-MSA	3,100	3,100	3,200	14.2	24.8	37.2	7.6	11.8	19.8	10.4	21.7	32.2	9.2	5.5	4.7	1.7	3.4	5.3	1.0	1.7	2.6
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	1,300	1,300	1,200	23.3	33.6	34.6	13.6	15.2	16.4	18.5	30.2	30.5	13.3	8.7	3.6	4.2	5.0	4.4	2.4	2.2	2.3
2.5-3.0	2,800	3,000	3,000	19.2	31.7	37.5	9.7	13.2	17.7	14.6	28.3	32.8	10.8	6.7	3.6	2.4	4.1	5.0	1.6	1.6	2.4
3.5-4.0	3,500	3,800	3,900	15.3	29.2	35.9	8.0	12.7	18.7	11.8	26.0	32.0	9.5	6.3	4.4	2.1	4.2	5.5	1.1	1.9	2.4
4.5-5.0	4,100	4,000	3,500	10.5	22.3	36.5	5.4	9.0	18.2	8.2	19.8	32.7	7.3	5.0	3.6	1.7	3.3	6.7	1.0	1.5	2.8
5.5-6.0 (High)	2,300	2,000	1,700	9.6	21.7	36.7	5.7	8.6	17.9	6.7	18.9	32.8	7.8	4.5	3.4	1.9	3.3	7.2	1.3	1.9	3.2
Race/Ethnicity <sup>f</sup>																					
White	17,300	18,300	17,300	13.0	28.0	38.7	7.6	13.8	21.5	9.6	24.6	33.9	8.5	6.5	4.3	2.1	4.8	6.9	1.1	2.0	2.8
African American	4,000	3,600	3,500	12.3	22.4	28.6	3.4	4.1	7.0	10.6	20.6	26.8	5.6	2.9	1.5	0.8	1.1	1.4	0.6	0.7	0.8
Hispanic	5,100	4,500	4,000	16.1	30.1	31.4	8.4	12.4	13.7	13.2	26.6	27.3	10.2	7.2	3.3	2.5	3.6	3.5	1.6	1.8	1.8

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-6 (cont.)**  
**Annual Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Hallucinogens other than LSD			Ecstasy (MDMA) <sup>g,h</sup>			Cocaine			Crack			Other Cocaine <sup>i</sup>			Heroin, Any Use			Heroin with a Needle <sup>c</sup>			
	Grade:	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	1.6	3.3	5.0	1.7	2.9	4.3	1.8	3.0	4.4	1.1	1.3	1.6	1.4	2.6	4.0	0.9	0.8	0.7	0.5	0.5	0.4	
Gender:																						
Male	1.6	4.0	6.7	1.4	3.4	5.5	1.8	3.0	5.2	1.0	1.3	1.7	1.4	2.7	4.8	0.9	1.0	1.0	0.6	0.6	0.6	
Female	1.5	2.6	3.4	2.0	2.4	3.3	1.8	2.8	3.5	1.2	1.2	1.3	1.4	2.4	3.1	0.7	0.6	0.4	0.4	0.4	0.1	
College Plans:																						
None or under 4 years	6.9	9.0	6.3	6.9	7.5	7.2	6.9	8.7	7.4	4.3	3.9	3.3	5.5	7.8	6.8	3.5	2.5	1.4	2.1	1.7	1.0	
Complete 4 years	1.1	2.6	4.7	1.3	2.3	3.7	1.3	2.2	3.6	0.8	0.9	1.1	1.1	1.8	3.1	0.6	0.6	0.5	0.4	0.3	0.2	
Region:																						
Northeast	1.0	2.9	7.2	1.2	2.0	2.9	1.2	2.0	4.5	0.8	1.0	1.8	0.9	1.7	4.4	0.7	0.7	0.7	0.5	0.4	0.3	
Midwest	1.4	3.3	3.9	1.4	2.0	2.8	1.9	2.5	3.2	1.2	1.1	1.3	1.5	2.2	3.4	1.0	1.0	0.6	0.5	0.5	0.3	
South	1.7	3.5	4.6	1.8	2.8	4.6	2.2	3.5	4.8	1.2	1.1	1.6	1.8	3.2	4.2	0.8	0.9	0.7	0.5	0.6	0.3	
West	1.8	3.6	5.4	2.2	4.5	6.6	1.6	3.3	4.9	1.2	1.8	1.7	1.3	2.7	4.1	0.9	0.7	1.0	0.6	0.5	0.5	
Population Density:																						
Large MSA	1.4	3.3	6.0	1.9	3.8	4.7	2.0	2.8	4.4	1.4	1.1	1.3	1.5	2.4	4.1	1.2	0.6	0.9	0.7	0.4	0.2	
Other MSA	1.7	3.6	4.9	1.7	2.7	4.8	1.7	3.3	4.3	1.0	1.4	1.6	1.4	2.9	3.9	0.8	0.8	0.8	0.5	0.5	0.5	
Non-MSA	1.3	2.9	4.4	1.3	2.0	2.8	1.7	2.4	4.5	1.0	1.2	1.6	1.4	2.0	4.2	0.6	1.1	0.5	0.3	0.7	0.2	
Parental Education: <sup>e</sup>																						
1.0-2.0 (Low)	3.1	4.7	3.4	4.1	4.8	4.0	3.6	6.8	4.7	2.8	3.3	2.1	3.0	5.9	3.0	2.3	1.9	1.3	1.6	1.7	0.9	
2.5-3.0	1.7	3.3	3.9	1.7	3.5	4.0	2.3	3.5	4.0	1.6	1.3	1.4	1.8	3.1	3.8	1.0	0.5	0.5	0.5	0.2	0.3	
3.5-4.0	1.7	3.5	4.8	2.1	3.2	5.3	1.8	2.7	4.9	0.8	1.1	1.6	1.7	2.4	4.6	0.7	1.1	0.9	0.4	0.5	0.4	
4.5-5.0	1.2	2.9	6.0	1.0	2.0	3.6	1.2	2.2	4.0	0.7	1.0	1.4	0.8	1.9	3.5	0.4	0.6	0.5	0.3	0.3	0.3	
5.5-6.0 (High)	1.3	2.6	6.1	0.8	2.1	4.1	1.4	1.6	4.1	0.9	0.7	1.3	1.1	1.3	4.2	1.2	0.6	0.7	0.7	0.3	0.2	
Race/Ethnicity <sup>f</sup>																						
White	1.7	4.2	6.0	1.6	3.4	4.8	1.6	3.2	5.6	1.0	1.1	1.8	1.2	2.8	5.2	0.8	0.7	0.9	0.5	0.4	0.3	
African American	0.6	0.7	1.0	0.7	1.3	2.2	0.8	0.8	0.8	0.5	0.5	0.9	0.6	0.7	0.7	0.4	0.5	0.4	0.2	0.4	0.3	
Hispanic	1.9	2.9	3.0	2.1	3.8	3.2	3.5	5.2	4.7	2.5	2.4	2.0	2.8	4.6	3.7	1.3	1.0	0.9	1.0	0.7	0.4	

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-6 (cont.)**  
**Annual Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

	Heroin without a Needle <sup>c</sup>			Narcotics other than Heroin <sup>d</sup>			OxyContin <sup>e,j,k</sup>			Vicodin <sup>e,i,k</sup>			Amphetamines <sup>l</sup>			Ritalin <sup>h,j,k</sup>			Methamphetamine <sup>k,h</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.6	0.6	0.5	—	—	9.1	2.1	3.6	4.7	2.9	6.7	9.7	4.5	6.4	6.8	1.6	2.9	3.4	1.2	1.5	1.2
Gender:																					
Male	0.6	0.8	0.7	—	—	10.6	2.3	3.8	5.3	2.9	7.1	10.6	3.5	5.8	6.5	1.5	3.0	3.7	0.9	1.4	1.8
Female	0.6	0.4	0.3	—	—	7.9	1.8	3.5	4.0	2.7	6.4	8.9	5.5	6.9	6.8	1.5	2.9	2.9	1.5	1.6	0.7
College Plans:																					
None or under 4 years	2.6	1.6	1.0	—	—	13.1	6.1	10.2	7.6	7.0	16.5	15.0	12.4	12.5	10.7	5.7	8.6	4.2	3.8	3.6	1.9
Complete 4 years	0.4	0.4	0.3	—	—	8.3	1.8	2.9	4.1	2.5	5.6	8.5	3.8	5.6	5.7	1.2	2.3	3.2	1.0	1.2	1.0
Region:																					
Northeast	0.4	0.6	0.7	—	—	9.7	0.8	3.2	4.6	1.0	5.3	9.9	2.6	4.2	6.5	0.4	3.3	4.2	0.8	0.5	1.1
Midwest	0.8	0.8	0.3	—	—	10.0	1.4	3.9	4.4	3.1	8.4	11.7	5.1	7.3	6.9	2.0	3.1	3.4	1.6	1.4	0.8
South	0.7	0.6	0.3	—	—	8.3	2.9	4.1	4.9	2.9	5.2	7.3	5.5	6.8	7.1	2.2	3.0	3.4	1.4	1.9	1.2
West	0.5	0.4	0.8	—	—	9.0	2.3	3.0	4.9	3.7	7.9	11.1	3.8	6.6	6.3	1.2	2.4	2.8	1.0	1.8	1.9
Population Density:																					
Large MSA	0.8	0.5	0.5	—	—	7.9	1.7	2.5	3.9	2.7	6.2	8.4	4.1	5.4	6.2	1.1	2.0	4.1	0.7	1.2	1.3
Other MSA	0.5	0.6	0.6	—	—	9.0	2.2	4.1	5.0	3.0	6.7	10.0	4.8	6.6	6.7	1.8	3.3	3.5	1.5	1.8	1.2
Non-MSA	0.4	0.8	0.3	—	—	10.7	2.6	4.1	5.1	2.8	7.6	10.5	4.4	7.2	7.5	1.9	3.5	2.4	1.4	1.3	1.3
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	1.6	1.1	0.7	—	—	7.1	4.0	3.1	3.8	3.4	6.3	7.8	7.9	7.8	7.3	4.4	2.8	2.0	2.1	2.6	1.6
2.5-3.0	0.8	0.4	0.5	—	—	9.2	2.3	5.1	4.5	3.3	7.5	10.5	6.0	7.6	7.3	2.2	2.9	3.4	1.7	2.3	0.6
3.5-4.0	0.4	0.8	0.3	—	—	9.9	2.3	3.6	6.0	2.8	7.9	11.2	5.4	7.7	6.5	1.7	2.9	3.6	1.3	1.0	1.3
4.5-5.0	0.3	0.5	0.6	—	—	9.0	1.7	3.2	4.3	3.2	6.0	8.8	3.2	5.4	6.2	1.0	3.4	3.1	0.9	1.6	0.8
5.5-6.0 (High)	0.8	0.4	0.6	—	—	9.7	1.7	3.5	3.8	2.3	5.7	8.8	3.4	4.3	7.1	0.7	2.8	4.5	1.1	0.6	1.6
Race/Ethnicity <sup>f</sup>																					
White	0.5	0.5	0.8	—	—	11.7	2.3	4.7	6.0	3.2	8.5	11.6	4.9	8.7	8.7	1.9	3.5	4.3	1.1	1.6	1.5
African American	0.3	0.4	0.4	—	—	2.7	1.4	1.5	2.1	1.6	2.2	3.6	1.8	2.3	2.2	1.8	1.4	1.5	0.5	0.5	1.1
Hispanic	0.8	0.7	0.7	—	—	4.2	1.5	1.8	2.1	2.1	4.1	4.9	4.0	6.0	4.7	2.1	1.6	1.5	1.7	2.3	1.1

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-6 (cont.)**  
**Annual Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Crystal Methamphetamine (Ice) <sup>h</sup>			Sedatives (Barbiturates) <sup>i</sup>			Tranquilizers <sup>j</sup>			OTC Cough/Cold Medicines <sup>h,k</sup>			Rohypnol <sup>l,j</sup>			GHB <sup>k,m</sup>			Ketamine <sup>c,k</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	—	—	1.1	—	—	5.8	2.4	4.6	6.2	3.6	5.3	5.5	0.5	0.4	1.3	1.1	0.5	1.2	1.2	1.0	1.5
Gender:																					
Male	—	—	1.4	—	—	5.9	1.7	4.1	6.8	2.7	4.9	6.3	0.6	0.3	1.5	1.4	0.9	1.6	1.4	1.1	2.0
Female	—	—	0.7	—	—	5.7	3.2	5.0	5.7	4.3	5.7	4.7	0.3	0.6	0.8	0.7	0.3	0.4	0.8	0.9	0.9
College Plans:																					
None or under 4 years	—	—	1.7	—	—	8.9	5.9	9.6	9.3	7.1	11.3	7.6	2.6	0.5	2.3	2.8	1.8	1.8	3.4	3.0	2.3
Complete 4 years	—	—	0.8	—	—	5.2	2.2	3.9	5.5	3.3	4.6	4.9	0.3	0.4	1.0	1.0	0.4	0.9	1.0	0.7	1.2
Region:																					
Northeast	—	—	1.4	—	—	5.1	1.6	2.8	5.3	2.5	3.5	4.4	0.0	0.7	0.8	0.7	0.3	1.2	1.0	1.3	1.6
Midwest	—	—	0.5	—	—	5.7	2.5	4.7	5.2	3.8	5.4	4.4	0.7	0.2	1.0	0.7	0.5	1.2	1.0	1.1	0.9
South	—	—	0.9	—	—	6.8	3.3	6.2	7.8	4.1	6.6	6.7	0.6	0.4	2.0	1.4	0.7	1.5	1.0	0.9	2.1
West	—	—	1.7	—	—	5.0	1.8	3.7	5.5	3.3	4.8	5.8	0.5	0.4	0.9	1.3	0.5	0.6	1.7	0.6	1.2
Population Density:																					
Large MSA	—	—	0.6	—	—	4.3	1.8	3.3	5.2	3.1	4.3	4.9	0.6	0.1	0.6	1.0	0.3	0.7	1.2	0.8	1.2
Other MSA	—	—	1.2	—	—	6.2	2.8	5.2	6.6	3.5	6.2	5.5	0.5	0.7	1.8	1.4	0.6	1.7	1.3	1.0	1.9
Non-MSA	—	—	1.3	—	—	6.7	2.6	5.1	6.5	4.3	4.7	6.4	0.4	0.3	1.0	0.6	0.6	0.7	0.9	1.1	0.9
Parental Education: <sup>e</sup>																					
1.0–2.0 (Low)	—	—	1.4	—	—	6.0	4.7	5.4	5.9	4.8	6.8	6.8	0.7	1.2	1.6	2.6	0.7	0.3	2.1	0.6	1.9
2.5–3.0	—	—	0.6	—	—	6.3	3.0	5.9	5.5	4.4	5.9	5.0	0.5	0.3	1.7	0.9	0.7	1.6	1.2	1.2	1.5
3.5–4.0	—	—	1.0	—	—	6.2	2.5	5.2	7.4	3.8	5.0	6.3	0.7	0.5	1.3	0.7	0.5	1.2	0.7	0.8	1.6
4.5–5.0	—	—	0.7	—	—	5.0	2.1	3.5	5.7	3.4	5.6	4.8	0.2	0.2	0.7	0.7	0.6	0.7	0.9	1.4	1.4
5.5–6.0 (High)	—	—	1.2	—	—	5.4	1.7	3.6	6.0	2.5	3.9	4.4	0.3	0.6	0.6	1.4	0.2	0.0	1.5	0.5	0.7
Race/Ethnicity <sup>f</sup>																					
White	—	—	1.3	—	—	7.3	2.6	6.1	7.9	4.1	6.2	5.8	0.5	0.5	0.9	0.6	0.4	0.8	0.7	0.8	1.2
African American	—	—	0.6	—	—	2.2	0.9	1.0	1.0	2.3	3.1	4.2	0.2	0.0	2.1	1.4	0.7	1.4	1.5	0.7	1.9
Hispanic	—	—	1.8	—	—	4.3	2.9	3.5	4.2	3.8	4.0	6.0	1.0	0.6	0.8	1.1	0.7	0.8	1.8	1.1	1.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-6 (cont.)**  
**Annual Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Alcohol			Been Drunk <sup>h</sup>			Flavored Alcoholic Beverages <sup>k,m</sup>			Steroids <sup>c</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	32.1	52.5	65.5	12.7	30.0	45.6	25.0	43.4	51.8	0.9	0.9	1.5
Gender:												
Male	30.7	50.5	65.6	12.1	28.8	46.2	22.1	36.8	49.3	1.2	1.4	2.5
Female	33.6	54.3	65.5	13.2	31.2	44.8	27.9	49.2	54.7	0.5	0.5	0.4
College Plans:												
None or under 4 years	50.3	67.5	71.6	29.5	45.8	52.4	46.9	54.3	55.3	2.3	2.6	3.1
Complete 4 years	30.7	50.8	64.2	11.4	28.3	43.8	23.2	42.1	51.1	0.8	0.7	1.1
Region:												
Northeast	31.8	56.0	70.8	11.6	31.3	49.6	23.2	46.9	57.2	0.8	0.8	2.2
Midwest	33.6	54.0	67.0	13.0	32.4	49.6	26.2	45.5	51.2	0.9	1.0	1.7
South	36.2	53.3	64.9	15.0	29.7	42.9	28.4	43.0	51.6	1.1	1.0	1.4
West	25.6	47.5	60.5	10.2	27.3	42.2	20.1	39.7	48.9	0.6	0.8	0.9
Population Density:												
Large MSA	31.1	50.1	67.1	11.7	27.8	46.9	23.2	42.9	52.6	0.8	0.7	0.9
Other MSA	33.2	52.8	62.4	13.2	30.3	41.5	25.2	42.8	49.6	0.9	1.0	1.4
Non-MSA	31.4	55.4	70.5	13.2	32.8	52.9	27.0	45.6	55.3	1.0	1.1	2.4
Parental Education: <sup>e</sup>												
1.0–2.0 (Low)	43.5	61.0	62.7	19.8	35.9	41.6	37.5	45.8	49.3	1.7	1.5	2.1
2.5–3.0	39.1	57.5	67.4	17.1	32.8	45.1	33.9	49.2	51.2	1.0	1.0	1.6
3.5–4.0	35.2	54.8	65.4	13.9	31.9	47.0	30.0	45.7	54.8	1.0	0.9	1.3
4.5–5.0	27.6	48.1	65.4	9.5	27.4	47.7	19.4	40.9	52.0	0.7	0.8	1.4
5.5–6.0 (High)	25.3	47.8	66.4	9.0	27.2	43.9	15.7	39.2	50.1	0.8	1.0	1.5
Race/Ethnicity <sup>f</sup>												
White	31.1	56.5	69.5	13.1	36.2	51.7	25.9	47.1	56.4	0.8	1.0	1.5
African American	27.1	43.4	53.6	8.3	18.4	26.9	19.5	33.7	40.0	0.7	0.8	1.4
Hispanic	38.5	58.0	64.0	15.9	31.6	38.0	29.3	45.9	51.3	0.7	1.1	1.3

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

**TABLE 4-7**  
**Thirty-Day Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
(Entries are percentages.)

	Approximate Wtd. N <sup>a</sup>			Any Illicit Drug <sup>b</sup>			Any Illicit Drug other than Marijuana <sup>b</sup>			Marijuana			Inhalants <sup>c,d</sup>			Hallucinogens <sup>d</sup>			LSD		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	15,700	15,100	14,000	7.6	15.8	22.3	3.8	5.3	9.3	5.8	13.8	19.4	4.1	2.1	1.4	0.9	1.3	2.2	0.5	0.7	1.1
Gender:																					
Male	7,600	7,000	6,400	7.8	17.1	25.0	3.1	5.4	10.3	6.6	15.2	22.2	2.9	1.9	1.6	1.0	1.7	3.0	0.6	0.9	1.5
Female	7,600	7,700	6,900	7.3	14.4	19.4	4.3	5.1	7.8	4.8	12.3	16.2	5.3	2.3	1.2	0.8	0.9	1.2	0.5	0.4	0.6
College Plans:																					
None or under 4 years	1,200	1,600	2,300	23.2	31.6	29.0	11.4	12.6	13.1	19.1	28.4	24.9	10.2	5.0	2.2	4.0	3.8	2.9	2.1	2.1	1.9
Complete 4 years	14,000	13,200	10,800	6.2	13.7	20.4	3.1	4.3	8.1	4.5	11.9	17.7	3.5	1.8	1.3	0.7	0.9	1.9	0.4	0.4	0.8
Region:																					
Northeast	2,600	2,800	2,400	5.8	17.8	25.3	2.7	3.7	9.9	4.2	16.6	23.1	3.6	1.8	2.0	0.6	1.1	2.7	0.4	0.6	1.2
Midwest	3,400	3,600	3,500	8.6	14.4	20.3	4.0	5.1	8.3	6.8	12.5	17.5	4.1	1.8	1.0	0.9	1.1	1.9	0.5	0.8	1.1
South	5,600	4,800	5,000	8.5	16.3	22.6	4.5	6.1	10.1	6.0	14.0	19.2	4.5	2.2	1.3	1.0	1.2	2.1	0.5	0.6	1.3
West	4,100	3,900	3,100	6.6	15.0	21.9	3.2	5.6	8.5	5.6	12.9	19.2	3.7	2.6	1.6	1.1	1.7	2.3	0.6	0.7	0.7
Population Density:																					
Large MSA	5,100	4,700	3,700	6.3	15.6	24.1	3.2	4.5	8.8	4.9	13.9	21.8	3.6	2.1	1.4	0.9	1.2	2.6	0.5	0.6	1.2
Other MSA	7,500	7,300	7,100	8.3	16.3	21.3	4.1	5.6	9.0	6.3	14.4	18.6	4.1	2.4	1.1	1.0	1.4	2.1	0.6	0.7	1.1
Non-MSA	3,100	3,100	3,200	8.0	14.9	22.5	3.9	5.9	10.4	5.8	12.4	18.5	4.8	1.6	2.1	0.8	1.3	1.9	0.4	0.8	1.0
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	1,300	1,300	1,200	14.3	20.8	21.4	7.5	8.5	9.1	11.1	18.1	18.5	8.0	3.6	1.9	2.1	1.7	1.3	1.3	0.9	1.0
2.5-3.0	2,800	3,000	3,000	11.2	17.9	22.0	5.0	6.1	8.9	8.4	15.7	18.7	5.1	2.5	1.4	1.1	1.3	1.8	0.6	0.6	1.0
3.5-4.0	3,500	3,800	3,900	7.4	17.7	21.7	4.0	5.8	9.0	5.6	15.4	18.8	3.9	2.2	1.7	0.9	1.2	1.9	0.4	0.6	0.7
4.5-5.0	4,100	4,000	3,500	5.2	12.7	22.2	2.5	3.8	9.0	3.8	11.2	19.3	3.5	1.6	1.1	0.7	1.1	2.3	0.5	0.5	1.2
5.5-6.0 (High)	2,300	2,000	1,700	5.1	11.6	23.3	2.8	3.4	9.4	3.6	10.1	21.0	2.8	1.7	1.0	0.7	0.9	2.8	0.5	0.8	1.4
Race/Ethnicity <sup>f</sup>																					
White	17,300	18,300	17,300	6.9	16.8	23.6	3.7	6.9	11.0	5.0	14.2	20.1	3.7	2.1	1.3	0.9	1.6	2.1	0.4	0.6	0.8
African American	4,000	3,600	3,500	7.2	12.5	17.8	1.8	2.1	3.4	6.1	11.7	16.3	2.8	1.7	1.0	0.6	0.6	0.8	0.4	0.5	0.6
Hispanic	5,100	4,500	4,000	8.9	17.6	18.1	4.5	6.2	6.7	7.1	15.3	15.3	5.3	2.8	1.4	1.2	1.5	1.5	0.7	0.8	0.9

Source. The Monitoring the Future study, the University of Michigan.

Note. "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-7 (cont.)**  
**Thirty-Day Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Hallucinogens other than LSD			Ecstasy (MDMA) <sup>g,h</sup>			Cocaine			Crack			Other Cocaine <sup>i</sup>			Heroin, Any Use			Heroin with a Needle <sup>c</sup>		
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.7	1.0	1.6	0.8	1.1	1.8	0.8	1.2	1.9	0.5	0.5	0.8	0.6	1.0	1.7	0.4	0.4	0.4	0.3	0.2	0.2
Gender:																					
Male	0.7	1.3	2.3	0.7	1.6	2.3	0.9	1.4	2.3	0.4	0.6	0.9	0.7	1.2	2.2	0.5	0.5	0.5	0.4	0.3	0.3
Female	0.7	0.6	0.9	0.9	0.7	1.2	0.7	1.0	1.3	0.5	0.4	0.6	0.5	0.9	1.1	0.3	0.2	0.2	0.2	0.1	0.1
College Plans:																					
None or under 4 years	3.3	2.8	2.0	3.0	3.0	2.6	3.8	4.2	3.5	2.4	2.1	2.1	3.0	3.6	2.8	2.4	1.5	0.9	1.5	1.1	0.8
Complete 4 years	0.5	0.7	1.5	0.6	0.9	1.5	0.5	0.8	1.4	0.3	0.3	0.5	0.4	0.7	1.2	0.3	0.2	0.2	0.2	0.1	0.1
Region:																					
Northeast	0.5	0.8	2.0	0.7	0.6	0.9	0.7	0.9	1.9	0.6	0.5	0.9	0.5	0.6	1.7	0.4	0.3	0.5	0.2	0.1	0.2
Midwest	0.6	0.7	1.4	0.6	0.3	0.9	0.8	0.8	1.3	0.4	0.5	0.6	0.6	0.6	1.4	0.6	0.4	0.3	0.4	0.3	0.2
South	0.7	1.0	1.4	0.6	1.1	2.1	1.1	1.5	2.2	0.6	0.4	0.9	0.9	1.4	1.7	0.5	0.5	0.3	0.3	0.3	0.2
West	0.9	1.3	2.0	1.3	2.3	2.8	0.6	1.5	1.9	0.3	0.7	0.8	0.5	1.2	1.9	0.4	0.2	0.6	0.3	0.2	0.3
Population Density:																					
Large MSA	0.7	0.9	1.9	0.9	1.7	1.5	0.8	1.0	2.0	0.6	0.4	0.7	0.7	0.8	1.8	0.5	0.2	0.5	0.4	0.1	0.2
Other MSA	0.7	1.0	1.6	0.9	1.2	2.0	0.7	1.4	1.9	0.4	0.6	0.8	0.6	1.2	1.7	0.4	0.4	0.4	0.3	0.2	0.3
Non-MSA	0.7	0.9	1.4	0.4	0.2	1.5	0.9	1.0	1.5	0.5	0.5	1.0	0.8	0.8	1.5	0.4	0.6	0.2	0.3	0.4	0.2
Parental Education: <sup>e</sup>																					
1.0-2.0 (Low)	1.8	1.2	1.1	2.3	1.6	2.1	1.8	3.4	2.3	1.4	1.7	1.1	1.5	3.1	1.4	1.4	1.2	1.2	1.2	1.1	0.7
2.5-3.0	0.9	1.0	1.2	0.8	1.5	1.4	1.3	1.3	1.6	0.7	0.5	0.8	0.9	1.1	1.7	0.5	0.2	0.3	0.3	0.2	0.2
3.5-4.0	0.8	0.9	1.6	1.2	1.1	2.3	0.8	1.1	1.9	0.3	0.3	0.8	0.7	0.9	1.5	0.3	0.4	0.3	0.2	*	0.2
4.5-5.0	0.4	0.9	1.7	0.4	0.9	1.2	0.5	0.8	1.7	0.3	0.4	0.6	0.3	0.6	1.7	0.3	0.3	0.1	0.2	0.1	*
5.5-6.0 (High)	0.5	0.6	2.0	0.3	1.0	1.6	0.6	0.5	1.6	0.3	0.3	0.6	0.5	0.4	1.7	0.5	0.2	0.4	0.3	0.1	0.2
Race/Ethnicity <sup>f</sup>																					
White	0.7	1.3	1.6	0.6	1.2	1.7	0.6	1.1	2.1	0.4	0.3	0.8	0.5	1.0	2.0	0.4	0.3	0.4	0.3	0.2	0.2
African American	0.4	0.3	0.5	0.5	0.3	0.9	0.5	0.5	0.5	0.4	0.2	0.7	0.3	0.4	0.4	0.3	0.4	0.4	0.2	0.4	0.3
Hispanic	1.0	1.1	1.0	1.1	1.5	1.5	1.6	2.3	2.1	1.0	1.1	1.0	1.2	2.0	1.5	0.7	0.5	0.4	0.5	0.4	0.2

Source. The Monitoring the Future study, the University of Michigan.

Note. "—" indicates data not available.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-7 (cont.)**  
**Thirty-Day Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

Grade:	Heroin without a Needle <sup>c</sup>			Narcotics other than Heroin <sup>l</sup>			Amphetamines <sup>l</sup>			Methamphetamine <sup>h,k</sup>			Crystal Methamphetamine (Ice) <sup>h</sup>			Sedatives (Barbiturates) <sup>l</sup>			Tranquilizers <sup>l</sup>			
	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	
Total	0.2	0.3	0.2	—	—	3.8	2.2	2.8	2.9	0.7	0.7	0.6	—	—	—	—	—	2.8	1.2	1.9	2.6	
Gender:																						
Male	0.3	0.4	0.2	—	—	4.6	1.6	2.7	2.7	0.5	0.9	0.8	—	—	—	—	—	2.9	0.8	1.8	3.0	
Female	0.2	0.2	0.2	—	—	3.2	2.8	2.9	2.8	0.9	0.6	0.3	—	—	—	—	—	2.6	1.6	2.0	2.3	
College Plans:																						
None or under 4 years	1.6	0.9	0.4	—	—	5.6	6.3	6.7	4.7	2.8	2.8	1.2	—	—	—	—	—	4.5	2.9	4.5	4.0	
Complete 4 years	0.1	0.2	0.1	—	—	3.4	1.9	2.3	2.3	0.5	0.5	0.3	—	—	—	—	—	2.4	1.0	1.6	2.3	
Region:																						
Northeast	0.2	0.3	0.4	—	—	4.4	1.2	1.8	3.1	0.1	0.2	0.7	—	—	—	—	—	2.8	0.9	1.1	2.7	
Midwest	0.3	0.3	0.1	—	—	4.1	2.5	3.0	3.1	1.0	0.8	0.5	—	—	—	—	—	2.5	1.2	2.0	2.3	
South	0.3	0.3	0.1	—	—	3.7	2.9	3.3	3.1	0.9	1.1	0.6	—	—	—	—	—	3.3	1.5	2.6	3.3	
West	0.1	0.1	0.2	—	—	3.3	1.7	2.7	2.0	0.7	0.7	0.5	—	—	—	—	—	2.3	0.8	1.5	2.0	
Population Density:																						
Large MSA	0.3	0.2	0.3	—	—	3.2	1.9	2.5	2.9	0.5	0.4	0.2	—	—	—	—	—	2.0	1.0	1.3	2.2	
Other MSA	0.2	0.2	0.2	—	—	3.6	2.4	2.7	2.6	0.8	1.0	0.7	—	—	—	—	—	2.9	1.4	2.1	2.8	
Non-MSA	0.3	0.5	0.1	—	—	5.0	2.3	3.5	3.3	1.0	0.7	0.6	—	—	—	—	—	3.5	1.0	2.5	2.9	
Parental Education: <sup>e</sup>																						
1.0–2.0 (Low)	0.7	0.6	0.5	—	—	3.3	4.6	4.2	3.3	1.6	2.2	0.9	—	—	—	—	—	4.0	2.6	2.7	3.0	
2.5–3.0	0.3	0.1	0.3	—	—	3.6	2.9	3.6	3.3	1.0	0.7	0.1	—	—	—	—	—	3.0	1.3	2.5	2.7	
3.5–4.0	0.1	0.4	*	—	—	4.2	2.6	3.3	2.7	0.6	0.5	0.5	—	—	—	—	—	2.8	1.3	2.0	3.0	
4.5–5.0	0.2	0.2	0.2	—	—	3.9	1.6	2.2	2.3	0.4	0.8	0.5	—	—	—	—	—	1.8	1.0	1.2	2.0	
5.5–6.0 (High)	0.2	0.2	0.2	—	—	4.0	1.7	1.5	2.9	1.0	0.4	0.6	—	—	—	—	—	2.8	0.6	1.6	2.2	
Race/Ethnicity <sup>f</sup>																						
White	0.2	0.2	0.3	—	—	4.9	2.4	4.1	4.0	0.6	0.5	0.4	—	—	—	—	—	3.3	1.1	2.7	3.2	
African American	0.2	0.2	0.4	—	—	1.0	0.8	1.0	1.2	0.5	0.3	1.0	—	—	—	—	—	1.2	0.6	0.7	0.7	
Hispanic	0.4	0.4	0.1	—	—	2.0	2.0	2.9	2.1	0.8	1.0	0.5	—	—	—	—	—	1.8	1.5	1.4	1.8	

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available. "\*" indicates less than 0.05% but greater than 0%.

See relevant footnotes at the end of Table 4-5.

(Table continued on next page.)

**TABLE 4-7 (cont.)**  
**Thirty-Day Prevalence of Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

	Rohypnol <sup>f</sup>			Alcohol			Been Drunk <sup>h</sup>			Flavored Alcoholic Beverages <sup>k,m</sup>			Cigarettes			Smokeless Tobacco <sup>g,m</sup>			Steroids <sup>c</sup>			
	Grade:	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th
Total	0.1	0.2	—	15.9	28.8	43.1	5.4	14.4	27.6	10.2	20.2	27.4	6.8	12.3	20.4	3.5	5.0	6.5	0.5	0.5	1.0	
Gender:																						
Male	0.2	0.1	—	15.4	28.6	45.8	5.3	14.6	29.2	9.2	17.0	25.8	6.7	12.7	21.5	5.5	8.2	11.8	0.6	0.9	1.7	
Female	0.0	0.4	—	16.4	29.0	40.9	5.4	14.3	26.2	10.9	22.9	29.0	6.7	11.9	19.1	1.5	2.0	1.0	0.2	0.2	0.2	
College Plans:																						
None or under 4 years	0.6	0.3	—	30.4	44.6	49.7	14.9	25.2	32.0	24.0	29.1	29.0	21.1	30.1	32.4	12.7	14.6	12.4	1.6	1.6	2.1	
Complete 4 years	*	0.2	—	14.7	26.9	41.7	4.6	13.2	26.4	9.0	19.1	26.9	5.5	10.0	17.6	2.7	3.8	5.0	0.4	0.4	0.8	
Region:																						
Northeast	0.0	0.3	—	15.9	31.4	49.1	4.5	15.3	31.1	9.2	22.2	33.5	5.9	10.1	19.7	2.5	3.3	7.5	0.5	0.6	1.6	
Midwest	0.3	0.0	—	16.1	29.5	42.8	5.3	16.0	31.2	10.5	20.0	25.8	8.1	14.5	22.1	3.4	7.2	7.2	0.5	0.4	1.3	
South	*	0.4	—	18.2	29.0	42.9	6.8	14.9	25.5	12.6	20.3	26.9	7.7	14.0	22.4	5.2	6.5	6.1	0.5	0.6	0.9	
West	0.0	0.2	—	12.6	25.9	39.2	4.2	11.8	24.1	7.2	19.0	25.8	5.2	9.6	15.8	1.8	2.2	5.6	0.3	0.5	0.6	
Population Density:																						
Large MSA	0.0	0.0	—	15.2	27.4	46.1	5.4	12.7	31.4	11.1	19.0	28.7	5.2	10.3	18.8	2.8	3.4	2.6	0.5	0.3	0.6	
Other MSA	0.1	0.4	—	16.3	28.7	40.4	5.2	14.8	25.0	9.7	20.9	25.8	7.5	12.3	19.5	3.1	4.4	6.2	0.4	0.6	1.0	
Non-MSA	0.2	0.2	—	16.2	31.1	45.8	5.9	16.4	28.8	10.2	20.5	29.1	7.9	15.4	24.3	5.4	8.7	11.8	0.5	0.6	1.6	
Parental Education: <sup>e</sup>																						
1.0–2.0 (Low)	0.3	0.9	—	25.5	35.5	41.4	10.1	16.9	26.7	19.3	21.8	24.9	12.1	15.7	18.5	5.4	5.0	3.4	1.1	1.1	1.6	
2.5–3.0	0.0	0.0	—	19.3	30.9	42.4	7.4	15.0	25.3	14.4	23.4	28.3	8.7	15.8	22.4	5.1	6.5	7.2	0.4	0.5	0.9	
3.5–4.0	0.1	0.2	—	16.8	30.4	43.2	5.8	15.7	28.2	11.7	21.2	28.4	7.3	13.9	21.3	3.8	5.4	6.8	0.6	0.3	0.9	
4.5–5.0	0.1	0.2	—	13.4	25.9	43.9	3.7	13.3	30.0	7.2	19.0	27.6	4.7	9.6	18.6	2.4	4.6	6.5	0.3	0.4	1.0	
5.5–6.0 (High)	0.0	0.4	—	11.5	26.2	45.9	3.3	14.2	27.8	6.5	16.2	26.6	4.1	7.8	19.2	2.3	2.9	6.3	0.5	0.7	1.2	
Race/Ethnicity <sup>f</sup>																						
White	0.2	0.3	—	15.2	33.3	48.6	5.5	19.2	32.7	11.1	21.8	31.1	7.2	15.1	24.7	3.9	7.3	8.6	0.3	0.5	0.9	
African American	0.1	0.0	—	12.9	20.6	28.6	3.8	8.0	14.8	9.2	15.2	19.8	4.6	6.5	10.3	2.4	2.8	2.0	0.3	0.5	1.3	
Hispanic	0.5	0.0	—	21.5	33.7	38.9	6.7	14.0	22.2	13.9	23.1	26.2	7.0	11.1	15.0	2.4	2.6	2.3	0.4	0.6	0.9	

Source. The Monitoring the Future study, the University of Michigan.

Note. "—" indicates data not available. "\*\*\*\*" indicates less than 0.05% but greater than 0%.

See relevant footnotes at the end of Table 4-5.

**TABLE 4-8**  
**Thirty-Day Prevalence of Daily Use of Various Drugs by Subgroups**  
**8th, 10th, and 12th Graders, 2008**  
 (Entries are percentages.)

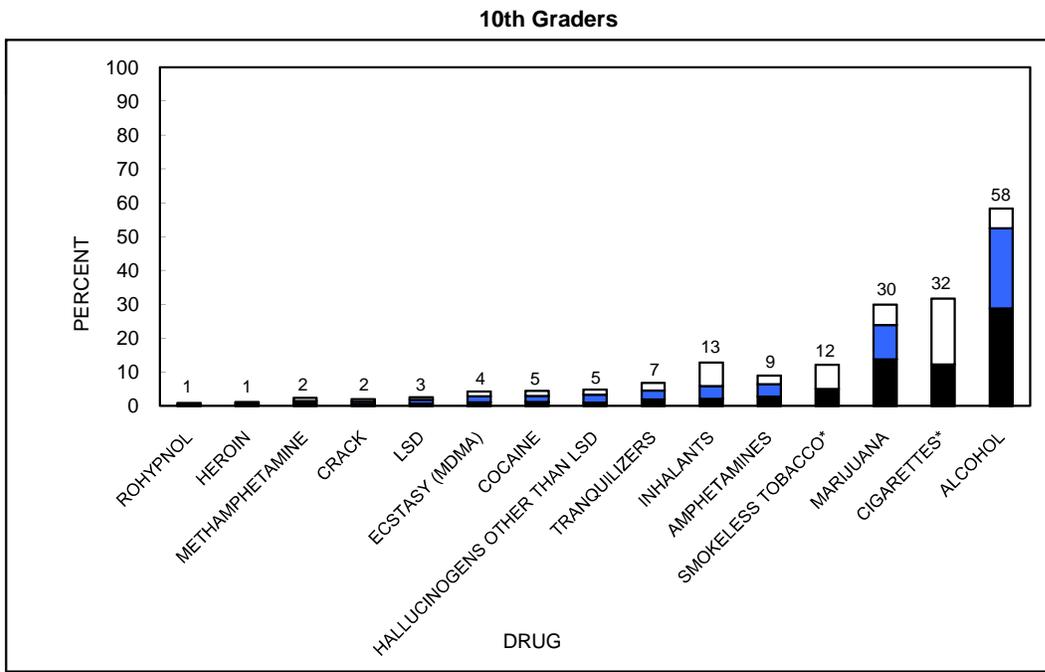
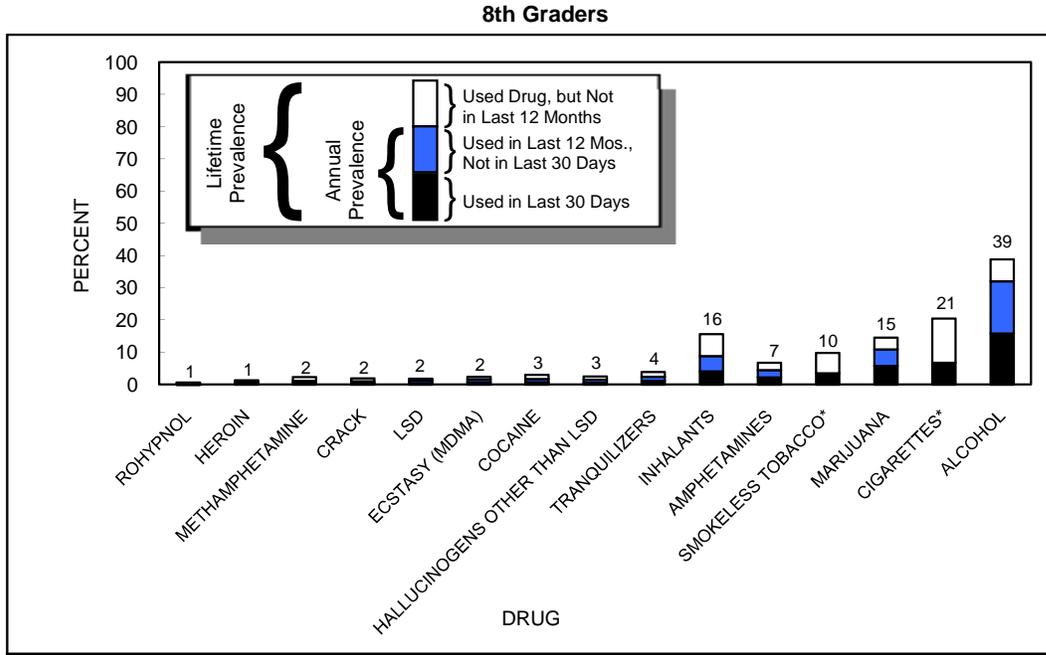
	Approximate Wtd. N <sup>a</sup>			Marijuana						Alcohol						Cigarettes						Smokeless Tobacco <sup>gm</sup>		
	Grade:	8th	10th	12th	Daily			5+ Drinks <sup>n</sup>			One or More Daily			Half Pack or More Daily			Daily							
					8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th	8th	10th	12th					
Total	15,700	15,100	14,000	0.9	2.7	5.4	0.7	1.0	2.8	8.1	16.0	24.6	3.1	5.9	11.4	1.2	2.0	5.4	0.8	1.4	2.7			
Gender:																								
Male	7,600	7,000	6,400	1.2	3.8	7.6	1.0	1.4	4.0	8.1	16.6	28.4	3.2	6.2	12.0	1.4	2.4	6.1	1.2	2.6	5.6			
Female	7,600	7,700	6,900	0.6	1.7	3.0	0.4	0.6	1.7	8.0	15.4	21.3	2.9	5.5	10.6	0.9	1.7	4.6	0.4	0.3	0.0			
College Plans:																								
None or under 4 years	1,200	1,600	2,300	4.7	9.2	9.2	2.7	2.1	5.1	21.3	29.1	31.5	10.8	17.9	21.1	4.7	7.8	11.9	5.0	6.2	6.6			
Complete 4 years	14,000	13,200	10,800	0.6	1.9	4.2	0.6	0.9	2.2	7.0	14.4	23.2	2.3	4.3	9.0	0.8	1.3	3.8	0.4	0.8	1.9			
Region:																								
Northeast	2,600	2,800	2,400	0.3	2.8	6.8	0.6	1.1	2.2	7.1	16.8	27.3	2.4	5.3	11.3	0.9	1.2	5.5	0.9	0.5	1.8			
Midwest	3,400	3,600	3,500	1.3	2.6	4.8	0.8	0.9	2.9	8.2	16.5	25.2	3.9	7.6	12.9	1.6	3.3	6.6	0.4	2.4	3.1			
South	5,600	4,800	5,000	1.0	3.2	5.5	0.9	1.1	3.8	9.7	16.3	24.7	3.7	6.9	13.1	1.3	2.6	6.5	1.3	2.1	2.7			
West	4,100	3,900	3,100	0.8	2.4	4.9	0.4	0.9	1.7	6.3	14.4	21.9	2.0	3.4	7.0	0.6	0.7	2.6	0.3	0.2	3.0			
Population Density:																								
Large MSA	5,100	4,700	3,700	0.9	2.5	5.6	0.7	0.9	2.1	8.1	14.5	25.8	2.2	4.3	8.9	0.7	1.1	3.4	0.4	0.7	0.5			
Other MSA	7,500	7,300	7,100	0.8	3.0	5.3	0.8	1.0	2.6	7.9	16.0	22.5	3.3	6.2	11.2	1.3	2.2	5.3	0.7	1.1	2.1			
Non-MSA	3,100	3,100	3,200	1.0	2.6	5.6	0.7	1.2	4.2	8.4	18.1	28.1	4.2	7.5	14.8	1.6	3.1	8.2	1.5	3.2	6.8			
Parental Education: <sup>e</sup>																								
1.0-2.0 (Low)	1,300	1,300	1,200	2.6	4.2	4.8	1.8	2.1	2.6	17.0	20.6	21.3	5.4	7.6	11.9	2.5	3.4	6.8	1.5	1.0	0.7			
2.5-3.0	2,800	3,000	3,000	1.4	3.7	5.4	0.9	1.0	2.6	10.5	17.8	23.0	4.4	8.7	13.4	1.5	3.2	6.9	1.3	1.7	3.4			
3.5-4.0	3,500	3,800	3,900	0.7	3.2	4.9	0.7	1.0	2.7	7.9	16.6	25.1	3.0	6.7	12.5	1.0	2.4	6.0	0.8	1.9	2.9			
4.5-5.0	4,100	4,000	3,500	0.4	1.8	5.8	0.2	0.4	2.9	5.7	14.7	26.2	1.9	3.8	9.0	0.7	1.1	3.7	0.3	1.3	2.7			
5.5-6.0 (High)	2,300	2,000	1,700	0.5	1.3	4.9	0.6	0.9	2.6	4.7	12.8	26.4	1.9	3.0	9.1	0.9	0.7	3.5	0.6	0.1	2.2			
Race/Ethnicity <sup>f</sup>																								
White	17,300	18,300	17,300	0.7	2.8	5.7	0.6	1.2	3.4	7.8	19.7	29.9	3.3	8.0	14.3	1.2	3.2	7.1	0.9	2.1	3.8			
African American	4,000	3,600	3,500	1.0	2.8	3.8	0.6	0.7	1.3	5.7	9.8	10.9	1.9	3.0	5.8	0.8	0.9	2.2	0.7	0.4	0.9			
Hispanic	5,100	4,500	4,000	1.0	2.5	3.4	1.0	2.0	2.8	12.3	19.6	21.5	2.5	3.8	6.7	0.9	0.9	2.1	0.4	0.2	0.6			

Source: The Monitoring the Future study, the University of Michigan.

Note: "n" indicates less than 0.05% but greater than 0%.

See relevant footnotes at the end of Table 4-5.

**FIGURE 4-1**  
**Prevalence and Recency of Use of**  
**Various Types of Drugs in Grades 8, 10, and 12**  
**2008**

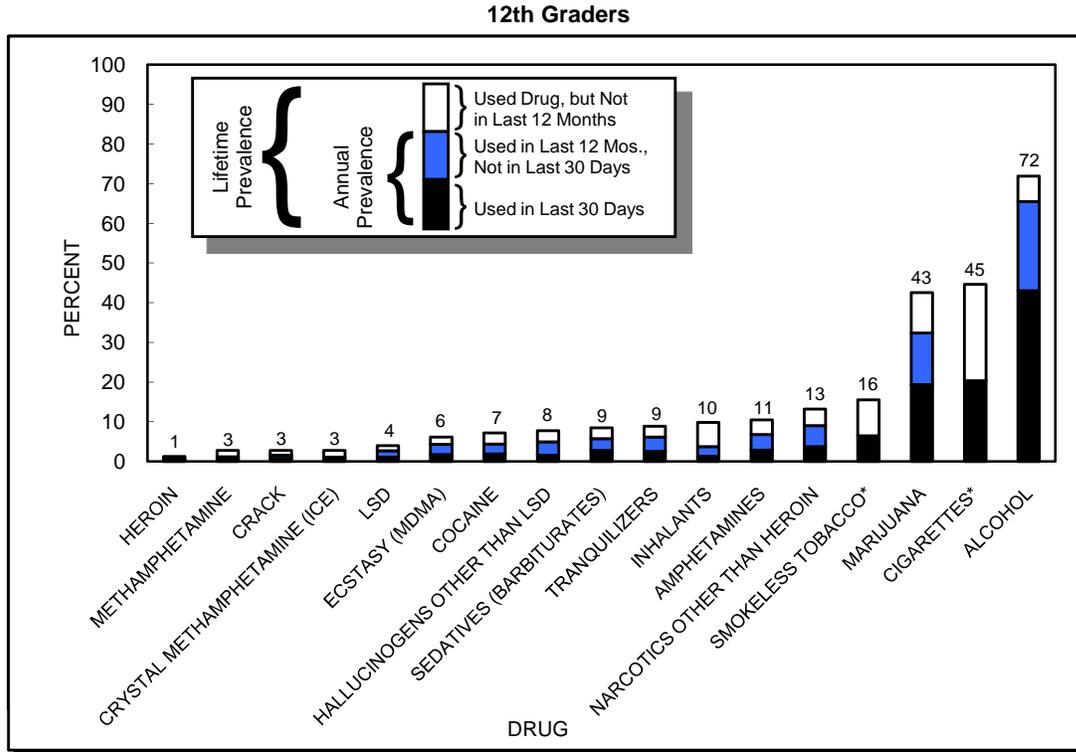


Source. The Monitoring the Future study, the University of Michigan.

\*Annual use not measured for cigarettes and smokeless tobacco.

(Figure continued on next page.)

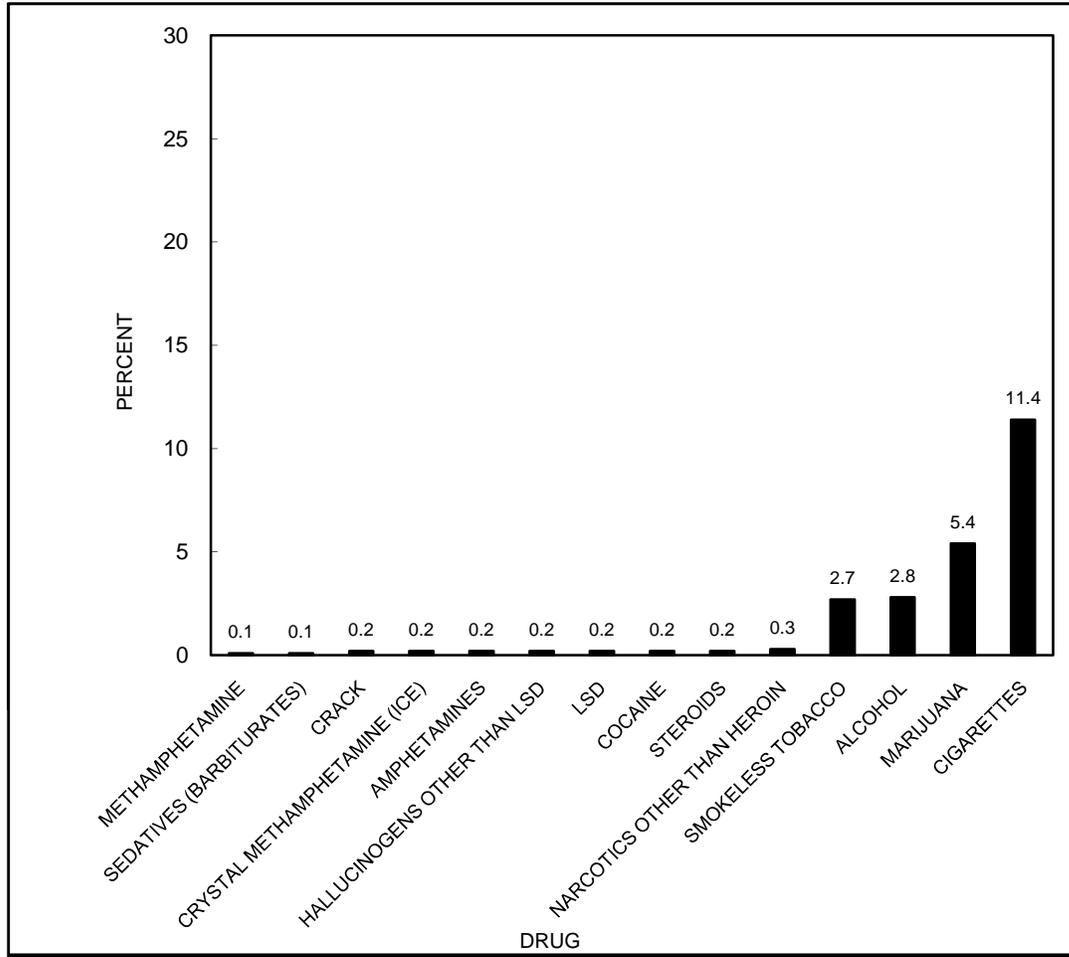
**FIGURE 4-1 (cont.)**  
**Prevalence and Recency of Use of**  
**Various Types of Drugs in Grades 8, 10, and 12**  
**2008**



Source. The Monitoring the Future study, the University of Michigan.

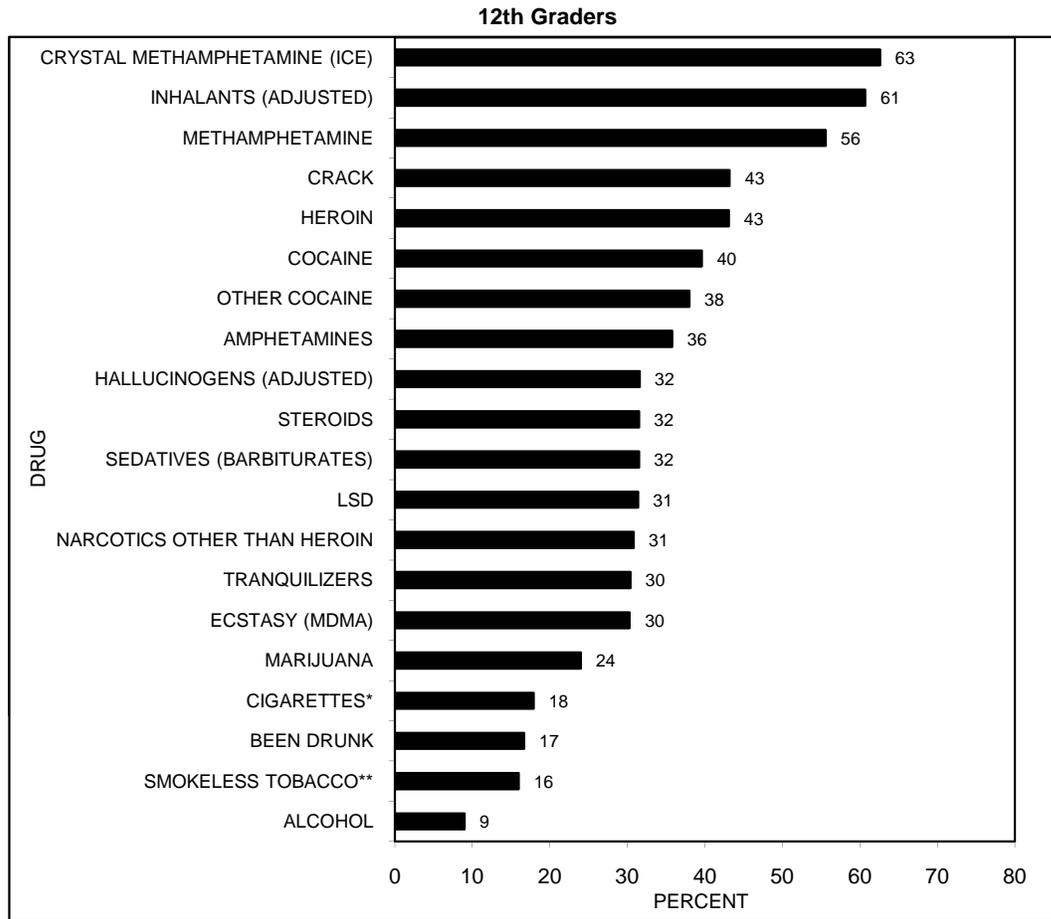
\*Annual use not measured for cigarettes and smokeless tobacco.

**FIGURE 4-2**  
**Thirty-Day Prevalence of Daily Use of**  
**Various Types of Drugs in Grade 12**  
**2008**



Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 4-3**  
**Noncontinuation Rates: Percentage of Lifetime Users**  
**Who Did Not Use in Last 12 Months**  
**in Grades 8, 10, and 12**  
**2008**



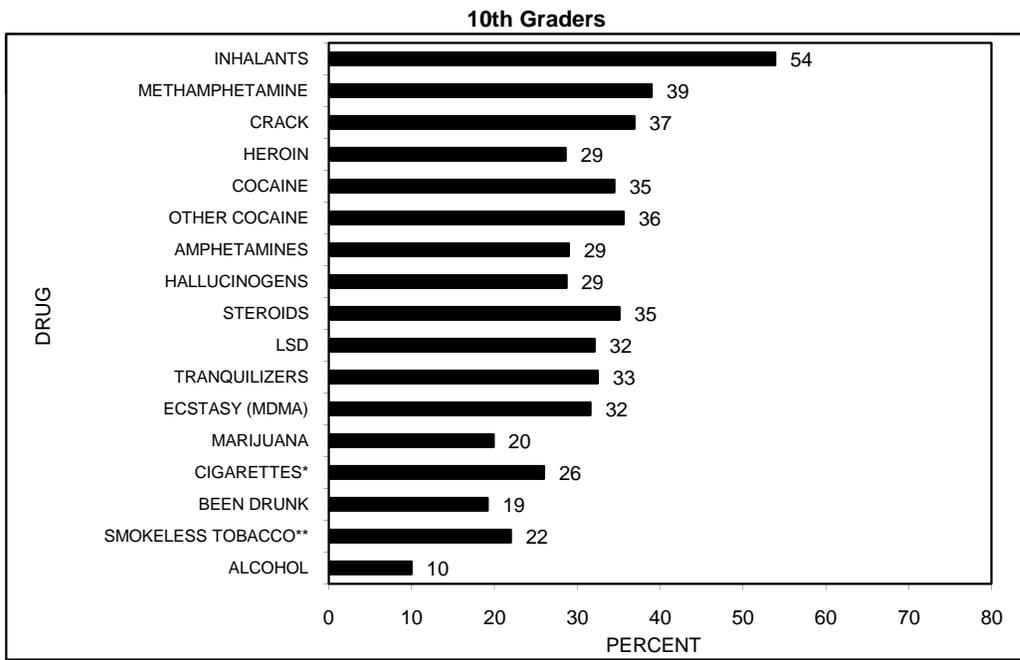
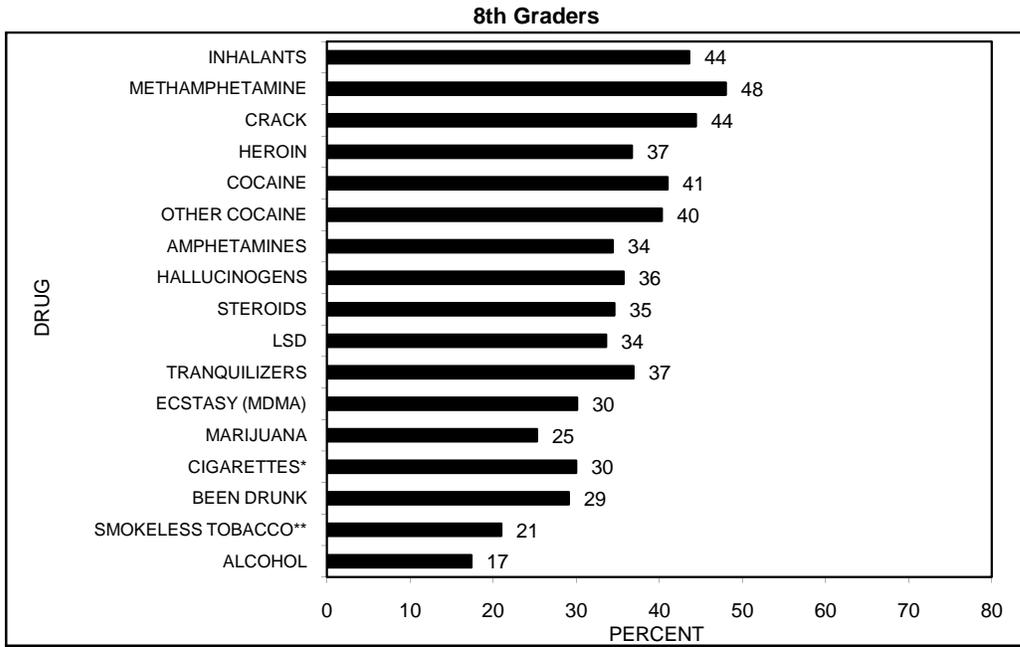
Source. The Monitoring the Future study, the University of Michigan.

\*Percent of regular smokers (ever) who did not smoke at all in the last 30 days.

\*\*Percent of regular smokeless tobacco users (ever) who did not use smokeless tobacco in the last 30 days.

(Figure continued on next page.)

**FIGURE 4-3 (cont.)**  
**Noncontinuation Rates: Percentage of Lifetime Users**  
**Who Did Not Use in Last 12 Months**  
**in Grades 8, 10, and 12**  
**2008**



Source. The Monitoring the Future study, the University of Michigan.

\*Percent of regular smokers (ever) who did not smoke at all in the last 30 days.

\*\*Percent of regular smokeless tobacco users (ever) who did not use smokeless tobacco in the last 30 days.





## Chapter 5

### TRENDS IN DRUG USE

One of the most important and useful products from a study like Monitoring the Future, with its ongoing series of surveys, is the estimation of changes taking place in the general population—changes in use of various drugs, changes in attitudes and beliefs that may help to explain changes in use, and changes within various demographic subgroups in the population. MTF is also quite useful for assessing which new drugs or substances may be gaining favor, and in which subgroups or areas. Such information has important implications for public policy—for needs assessment, agenda setting, policy formulation, and policy evaluation. More generally, it has implications for the health of the nation. In this chapter, we review the many changes that have taken place over the past 33 years and distinguish these trends for various sectors of the population.

Trend data are presented and discussed first for 12th graders (based on 34 national surveys, 1975–2008), then for 8th and 10th graders (based on 18 national surveys, 1991–2008). For a variety of substances, the use measures discussed include lifetime use, use during the past 12 months, use during the past 30 days, and daily or near-daily use during the past 30 days.<sup>48</sup> Trends in noncontinuation rates among 12th graders are also examined here, with findings that have importance for prevention strategy. Finally, we discuss the extent to which the trends in use have differed among key demographic subgroups defined on the dimensions of gender, college plans, region of the country, population density, socioeconomic status (parental education), and race/ethnicity. Appendix D, as well as a separate occasional paper,<sup>49</sup> provide greater detail on the subgroup trends observed.

#### TRENDS IN PREVALENCE OF USE, 1975–2008: TWELFTH GRADERS

Tables 5-1 through 5-4 give the long-term trends in lifetime, annual, 30-day, and current daily prevalence of use for all drugs, based on the past 34 graduating classes of 12th graders. Figures 5-1 through 5-4q provide graphic depictions of some of these trends.

- We know from other studies that in the late 1960s and early 1970s, prior to the launching of MTF, *marijuana* use rose quite sharply from relatively negligible levels in the youth

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<sup>48</sup>The definitions of these behaviors remain the same as in the previous chapter. “Lifetime prevalence” refers to use on one or more occasions ever. “Annual prevalence” refers to use on one or more occasions in the 12 months preceding the survey. “Monthly prevalence” (sometimes referred to as “current use” or “past 30-day use”) refers to use on one or more occasions in the 30-day period preceding the survey. For many drugs we also report findings on “daily use,” which refers to use on 20 or more occasions during the prior 30 days. (Daily use is defined differently for cigarettes and smokeless tobacco. See text.)

<sup>49</sup>Johnston, L. D., O’Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Occasional Paper No. 71). Ann Arbor, MI: Institute for Social Research.

population.<sup>50</sup> Based on MTF data, 1978 and 1979 marked the crest of this long and dramatic rise in marijuana use among American 12th graders (and, for that matter, among young people generally). As Tables 5-2 and 5-3 and Figure 5-4a illustrate, annual and 30-day prevalence of marijuana use leveled between 1978 and 1979, following a steady rise in the preceding years. In 1980, both statistics dropped for the first time and continued to decline every year through 1992, except for a brief pause in 1985. Following this 12-year decline, the annual prevalence of marijuana use among 12th graders rose sharply beginning in 1993 in what we have termed the “relapse phase” in the drug epidemic, nearly doubling between 1992 and 1997, from 22% to 39%. Thirty-day prevalence also rose significantly, doubling from the 1992 level of 12% to 24% in 1997. It was not until 1998 that these use rates turned around, although neither declined by a significant amount that year. By 2007, though, 30-day prevalence had declined to 19%, and annual prevalence had declined to 32%, still only modestly lower than the recent peak level, but considerably below the original peak in 1979. These rates averaged the same in 2008 despite a 0.7-percentage-point increase that year—an increase that could mark the end of the long, gradual decline in marijuana use.

Lifetime prevalence of marijuana use by 12th graders peaked in 1979 and 1980 at 60%; it first began to drop after 1980, though more gradually than annual or 30-day use.<sup>51</sup> It reached a low of 33% in 1992—in other words, only one third of the students in that class cohort had ever tried marijuana—but by 1997 lifetime prevalence had risen back to 50% among 12th graders. Lifetime use remained level between 1997 and 2001 and then began to decline, reaching 42% for the class of 2007—a modest improvement. It rose slightly to 43% in 2008.

Important changes in young people’s attitudes and beliefs about marijuana have also occurred over this period, and these changes can account for much of the long-term decline in use, as well as the increase in use during much of the 1990s. (See chapter 8 for a thorough discussion of the issue.)

- Of particular importance were the even sharper fluctuations that occurred for active *daily marijuana* use, defined as use on 20 or more occasions in the last 30 days (see Table 5-4 and Figure 5-4a). Between 1975 and 1978, daily use by 12th graders increased almost twofold, from 6.0% to 10.7%. In 1979, this rapid and troublesome increase halted, followed by a rapid reversal. By 1992 the daily usage rate had dropped to 1.9%—a drop of about 80% in prevalence from the recent peak. As discussed in chapter 8, we attribute much of this dramatic decline in daily marijuana use during the 1980s to a very substantial increase in teens’ concerns about possible adverse effects from regular use, and to a growing perception that peers disapproved of marijuana use, particularly regular use.

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<sup>50</sup>National Commission on Marihuana and Drug Abuse. (1973). *Drug use in America: Problem in perspective*. Washington DC: U.S. Government Printing Office. See also Johnston, L. D. (1973). *Drugs and American youth*. Ann Arbor, MI: Institute for Social Research.

<sup>51</sup>Lifetime use declines more gradually than annual or 30-day use because it reflects changes in initiation rates only, whereas annual and 30-day statistics reflect changes in both initiation *and* noncontinuation rates.

In 1993, for the first time in 15 years, daily marijuana use increased significantly among 12th graders, and it continued to increase significantly through 1997, reaching 5.8%—three times the rate in 1992. It then held fairly level through 2003, although annual and 30-day prevalence rates were declining. In 2004 and 2005, twelfth graders showed nonsignificant declines with no further change in 2006 or 2007; the prevalence rate is now at 5.4%. (See chapter 10 for a discussion of cumulative daily marijuana use among 12th graders. It shows that the proportion reporting having used marijuana daily for a month or more at any time in the past is considerably higher than the proportion reporting daily marijuana use in just the month immediately preceding the survey.)

- Until 1978, the proportion of 12th graders involved in *any illicit drug* use increased steadily, primarily because of the increase in marijuana use (see Figures 5-1 to 5-4a). About 54% of the classes of 1978 and 1979 reported using at least one illicit drug during the prior 12 months, up from our first observation of 45% in the class of 1975. Between 1979 and 1984, however, the proportion who reported using any illicit drug during the prior year dropped by one to three percentage points annually until 1985, when there was a brief pause in the decline. In 1986 the decline resumed, with annual prevalence dropping significantly to 27% by 1992, exactly half the peak level experienced in 1979. As with marijuana, the annual prevalence of using any illicit drug then increased substantially from 27% in 1992 to 42% in 1997, before leveling. Since then, annual prevalence has fallen modestly to 36% in 2007 and 37% in 2008. It remains to be seen whether the ongoing decline of the past seven or so years is over, or whether the slight increase in 2008 is merely a random fluctuation.
- As Table 5-1 and Figure 5-1 illustrate, between 1976 and 1981 there was a steady increase in the proportion of 12th graders using *some illicit drug other than marijuana*.<sup>52</sup> The annual prevalence (see Table 5-2 and Figure 5-2), which rose from 25% to 34% between 1976 and 1981, declined steadily thereafter to 15% by 1992—less than half of the 1981 prevalence. After 1992, however, annual prevalence of use rose again (along with the use of marijuana and a number of other drugs) to 21% by 1997, and has declined slightly since then (18% in 2008). As a whole, the increases during the 1990s in 12th graders' use of illicit drugs *other* than marijuana were not as sharp in either absolute or proportional terms as the increases in marijuana use.

Most of the earlier rise in 12th graders' use of any illicit drug other than marijuana apparently resulted from the increasing popularity of cocaine between 1976 and 1979 and, then, to the increasing use of amphetamines between 1979 and 1981. As stated earlier in this volume, we believe that the upward shift in amphetamine use at that time was exaggerated by some respondents including use of over-the-counter stimulants in

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<sup>52</sup>Included under the definition of "any illicit drug other than marijuana" is any use of LSD, other hallucinogens, crack, other cocaine, or heroin; and/or any use that is not under a doctor's orders of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers. Not included are the following: alcohol, tobacco, and inhalants. Nitrites, PCP, and crystal methamphetamine (ice) are covered only to the extent that the respondents included their use in the more general questions asking about inhalants, hallucinogens, or amphetamines, respectively. This definition has been held constant by intent, despite the arrival of new drugs onto the scene over the years. While the addition of other drugs, like ecstasy, for example, might change the estimates slightly (particularly in some years when their use is highest), the changes would be very limited because the great majority of the users of those other drugs are also users of one or more of the drugs included in this set.

their reports of amphetamine use. Figures 5-1 through 5-3 show trends that, beginning in 1982, were based on questions reworded to help respondents to exclude the inappropriate reporting of these nonprescription amphetamines. (The use of over-the-counter stimulants is covered in chapter 10.)

- Although the overall proportion of 12th graders using *illicit drugs other than marijuana* has changed gradually and steadily over the years, much greater fluctuations have occurred for specific drugs within this general class. (See Tables 5-1 through 5-3 for the long-term trends in 12th graders' lifetime, annual, and 30-day prevalence for each class of drugs. Figures 5-4a through 5-4q graph these trends, along with the trends for 8th and 10th graders.) These fluctuations for some drugs within overall use trends are important to recognize because they show that, while the proportion willing to try any illicit drug may put outer limits on the amplitude of fluctuations for any single drug, the various subclasses of drugs must have important determinants specific to them. In particular, they include variables such as perceived risk, peer normative attitudes, assumed benefits, and availability, as well as novelty. (Such variables are discussed in chapters 8 and 9.) Next we describe the trends in these specific classes of drugs.
- From 1976 to 1979, *cocaine* (Figure 5-4h) exhibited a substantial increase in popularity among 12th graders, with annual prevalence doubling in just three years from 6.0% in 1976 to 12.0% in 1979. Then from 1979 to 1984, little or no further change was observed in any of the cocaine prevalence statistics for 12th graders, at least in the overall national statistics. (Subgroup differences in trends are discussed subsequently.) In 1985, we reported statistically significant increases in annual and monthly use of cocaine, then another leveling in 1986. Between 1986 and 1992, however, both annual and monthly use dropped by three quarters or more: from 12.7% to 3.1% for annual use and from 6.2% to 1.3% for monthly use. (Reasons for this steep decline in cocaine use—in particular the role of perceived risk—are discussed in chapter 8.) Annual prevalence of cocaine then rebounded along with annual prevalence of other drugs during the relapse period of the drug epidemic; in fact, prior-year use of cocaine among 12th graders exactly doubled, jumping from 3.1% in 1992 to 6.2% in 1999, as did 30-day prevalence, from 1.3% to 2.6%. Finally, in 2000, the first significant decline in cocaine use in several years was observed; annual prevalence among 12th graders dropped to 5.0%: it stands at 4.4% in 2008 following a small (and not statistically significant) decline from 5.2% in 2007.
- Prior to 1986, indicators gathered routinely in MTF showed some indirect evidence of the rapid spread of *crack*. For example, we found that the proportion of all 12th graders reporting that they had smoked cocaine (as well as used it in the past year) more than doubled between 1983 and 1986, from 2.4% to 5.7%. In the same period, the proportion doubled (from 0.4% to 0.8%) of those who said that they had both used cocaine during the prior year, and at some time had been unable to stop using it when they tried. In addition, between 1984 and 1986, the proportion of 12th graders reporting active *daily* use of cocaine doubled (from 0.2% to 0.4%). We think it likely that the rapid advent of crack use during this period was reflected in all of these changes.

Use of crack cocaine was first measured in 1986 by a single question contained in one questionnaire form, and asked only of respondents who had reported any use of cocaine in the past 12 months. It simply asked if crack was one of the forms of cocaine they had used. It was thus an estimate of the annual prevalence of crack use.

In 1987, questions about crack use were introduced into two questionnaire forms, using our standard set of three questions that ask separately about frequency of use in lifetime, past 12 months, and past 30 days. These were subsequently added to all questionnaire forms beginning in 1990. Between 1986 and 1991, annual prevalence of crack use among 12th graders declined from 4.1% to 1.5%, or by nearly two thirds (see Figure 5-4h), after which it leveled for a couple of years. After 1993, annual prevalence of crack use rose steadily from 1.5% to 2.7% in 1999, before finally declining significantly in 2000 to 2.2%. By 2007 the rate was at 1.9%, and it fell further in 2008 to 1.6%. It seems likely that crack use is disproportionately concentrated among dropouts relative to most other drugs, but we believe that trends among dropouts probably parallel those seen among 12th graders, who represent the majority of that age group.

- Like cocaine use, *inhalant* use rose steadily, but more slowly, in the late 1970s (see Figure 5-4b). Annual prevalence (unadjusted for the omission of nitrite inhalants) rose from 3.0% in 1976 to peak at 5.4% in 1979. Starting in 1979, when separate questions were introduced to measure the rising use of nitrite inhalants, an adjustment was introduced into the overall inhalant use measure to correct for the underreporting of nitrite inhalants that we had determined existed. Between 1979 and 1983, we reported some overall decline in this adjusted version—in part due to a substantial drop in the use of amyl and butyl nitrites, for which annual prevalence declined from 6.5% in 1979 to 3.6% by 1983. Both the adjusted and unadjusted inhalant measures increased modestly between 1983 and 1986, with annual use of inhalants (adjusted) increasing from 6.2% in 1983 to 8.9% in 1986, and that of nitrites increasing less, from 3.6% to 4.7%.
- After 1986 there was a steep decline in annual *nitrite* use (from 4.7% to 0.5% by 1992), but only a modest decline in overall inhalant use (adjusted), with annual prevalence of use falling from 8.9% in 1986 to 6.4% in 1992, before rising again to 8.5% by 1996. The gradual convergence of the unadjusted and adjusted inhalant prevalence rates (seen in Figure 5-4b) suggests that the number of 12th graders who used nitrites but did not report themselves as inhalant users on the general inhalant use question diminished considerably by 1992, as would be expected in light of the overall decline in nitrite use. From 1992 to 1996, however, the annual prevalence of nitrite use rose slightly, from 0.5% to 1.6%—a large proportional change, but on a very low base. After 1996, nitrite use gradually declined to 0.6% in 2001, where it remains in 2008.

This unusual pattern of change—in which inhalant use unadjusted for nitrites rose over much of the life of the study, while the version adjusted for nitrites stayed fairly level over the same time period (Figure 5-4b)—is worthy of further consideration. Essentially, *inhalants other than nitrites* rose in use, but after 1979 the increase was largely offset, or masked in the adjusted inhalants measure, by the sharp decline in the use of nitrites. In the class of 1976, when the inhalant questions were first introduced, 10.3% indicated any

lifetime use (unadjusted), versus 17.4% nearly a decade later in 1995—a substantial increase. Annual prevalence (unadjusted) more than doubled over the same interval, from 3.0% to 8.0%. Between 1995 and 2003, annual prevalence dropped by half, from 8.0% to 3.9%. In 2004 and 2005, small increases were observed (to 5.0%) among 12th graders, but by 2008 it was down to 3.8%.

- **Amphetamine** use among 12th graders remained relatively unchanged between 1975 and 1978, began to increase in 1979, and then increased sharply between 1979 and 1981 (Figure 5-4a). From 1976 through 1981, reported annual prevalence rose by 10 percentage points (from 16% to 26%) and daily use tripled, from 0.4% to 1.2%. As stated earlier, we think these increases were somewhat exaggerated, particularly in the 1980 and 1981 surveys, by respondents who included nonamphetamine over-the-counter diet and stay-awake pills, as well as “look-alike” and “sound-alike” stimulants, in their answers. (See chapter 10 for data on the use of these nonprescription stimulants.) In 1982, we added new versions of the amphetamine use questions that were more explicit in instructing respondents not to include such nonprescription pills. (These were added to only three of the five forms of the questionnaire being used at the time; the amphetamine questions were left unchanged in the other two forms until 1984.) Between 1981 and 1982, prevalence rates dropped slightly as a result of this methodological change. In all tables and figures, data for 1975 through 1981 are based on the unchanged questions, providing comparable data across time for longer term trend estimates; data since 1982 are based on the revised questions, providing our best assessments of current prevalence and more recent trends in true amphetamine use.<sup>53</sup>

In 1982 and 1983, the two years for which both adjusted and unadjusted statistics are available, the unadjusted data showed a modest amount of overreporting (see Figure 5-4a). Both statistics suggest that a downturn in 12th graders’ use of amphetamines began in 1982 and continued for a decade. For example, between 1982 and 1992 the annual prevalence for amphetamines (revised) fell by nearly two thirds, from 20% to 7%, while 30-day use and current daily use both fell by more than two thirds. As with a number of other drugs, the trend lines veered upwards after 1992. Annual prevalence rose significantly from 7% in 1992 to 10% by 1997, was level from 1998 through 2002 (11%), and has recently declined some to 7% in 2008.

Table E-2 in appendix E gives 33-year trends for many of the *specific amphetamines*. These more detailed questions about specific drugs within a class are asked only of 12th graders. They are contained in a single questionnaire form and are asked in a branching format, wherein a respondent must first indicate that he or she used the general class of drugs (e.g., amphetamines) in the prior year before being branched to the more detailed questions about which specific drugs were used. The three most widely used amphetamine-type stimulants at the beginning of the study were **Benzedrine**, **Methedrine**, and **Dexedrine**, which had annual prevalence rates in 1976 of 3.5%, 3.4%, and 2.9%, respectively. Benzedrine use peaked in 1977 at 4.1%, Methedrine in 1981 at

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<sup>53</sup>The unadjusted estimates for the earliest years of MTF were probably little affected by the improper inclusion of nonprescription amphetamines, since sales of the latter did not burgeon until after the 1979 data collection.

5.6%, and Dexedrine in 1981 at 5.1%. (Recall that 1981 was the peak year for overall amphetamine use.) The use of all three drugs dropped to much lower rates of use by 1987 and to negligible rates by 1991, with relatively little change since. It has always been the case that a significant portion of the respondents reporting amphetamine use indicate that they do not know the names of the ones that they used, or answer “other” on the predefined list (see Table E-2).

- **Adderall** (added in 2007), **Ritalin**, **methamphetamine**, and **crystal methamphetamine (ice)** are the most widely used amphetamines by 12th graders more recently. Based on the original question that asked about Ritalin use if a respondent first said that they used an amphetamine, nonmedical use of Ritalin grew from an annual prevalence of 0.1% in 1992 to 2.8% by 1997 and 1998. It then remained at 2.2% to 2.6% for the next five years, before rising significantly in 2004 to 3.9%; it then decreased significantly to 1.5% by 2008. A newer question, added in 2001, asks about Ritalin use without using a branching question format; that new question yields somewhat higher annual prevalence rates for this drug of 5.1% in 2001, 4.0% in 2002 and 2003, and 5.1% in 2004 (see Table 5-2). It also showed some decline since, reaching 3.4% in 2008, suggesting that there may have been a real peak in 2004. While it is clear that the nonbranching question yielded a higher absolute prevalence level, which we believe is more accurate, we consider it likely that the *trend story* generated by the branching question over the years has been relatively accurate.
- In 1990, a full set of prevalence questions was added about 12th graders’ use of **crystal methamphetamine (ice)** which can be smoked, much like crack, because of growing concern about the development of an epidemic in crystal methamphetamine use (see Tables 5-1 through 5-4). Despite this concern, crystal methamphetamine did not make much of an inroad into the national population of 12th graders, quite possibly because the dangerous reputation of crack, with which it has so many similarities, “rubbed off” on it. Annual prevalence of use held at about 1.3% from 1990, the first measurement point, through 1992, and then use began to rise gradually during the incline phase in general illicit drug use, reaching 2.8% by 1996. This more than twofold increase gave crystal methamphetamine a slightly higher prevalence rate than crack had in 1996 (2.1%). From 1996 through 2002, crystal methamphetamine use changed rather little, and stood at 3.1% in 2002. In 2003, however, a significant decline to 2.0% was observed; annual prevalence fell further to 1.1% by 2008 (see Figure 5-4j). So, by including this drug in the MTF study starting in 1990, we have been able to show that the great sense of alarm has not been justified, at least not for secondary school students.
- A general measure of the use of **methamphetamine** (as opposed to crystal methamphetamine) was introduced later, in 1999, at which time an annual prevalence of 4.7% was observed. Use has declined slowly since then, reaching 3.4% in 2004, followed by a significant decline in 2005 to 2.5% (where it remained in 2006). In 2007, another significant decline brought it down to 1.7%, followed by a further drop to 1.2% in 2008 (see Figure 5-4j). In sum, methamphetamine use among 12th graders has fallen by about three fourths since its use was first measured in 1999.

- The sustained, gradual decline in *sedative* use (adjusted for methaqualone use; see Figure 5-4c) between 1975 and 1979 halted in 1980 and 1981. Annual prevalence among 12th graders, which had dropped steadily but slowly from 12% in 1975 to 10% in 1979, increased slightly to 11% by 1981. This increase probably reflects the increase then occurring in one of the classes of sedatives—methaqualone (discussed next). The longer term decline resumed again in 1982, and over the next decade annual prevalence fell by three quarters from the peak level in 1975 to 2.9% in 1992. After 1992, annual use of sedatives increased (as it did for several other drugs), doubling to 6.0% by 1998 before leveling. Use changed rather little through 2004, but there was a significant increase in 2005, bringing annual prevalence up to 7.6%, the highest rate since 1983. Declines in subsequent years have brought the rate down to 6.1%.

The overall trends for sedatives (adjusted) mask differential trends occurring for the two components of the measure (barbiturate and methaqualone use), as illustrated in Figure 5-4c. *Barbiturate* use among 12th graders declined steadily between 1975 and 1987 before leveling off. By 1992, annual prevalence of use (2.8%) was less than one third of the 1975 level (10.7%). It then rose steadily to reach 6.7% a decade later, by 2002, a little above where it stands in 2008 (5.8%). *Methaqualone* use, on the other hand, rose sharply from 1978 until 1981. In fact, it was the only drug other than amphetamines that was still rising in 1981. But in 1982 the use of methaqualone also began to decline, helping to account for the overall sedative category resuming its decline that year. Annual prevalence for methaqualone plummeted from 7.6% in 1981 to 0.2% by 1993; it then inched up a bit during a relapse phase in the 1990s to 1.1% in 1996, where it remained in 1999. In 2008 it stood at 0.5%, a tiny fraction of its peak level. In fact, because of these very low prevalence rates, methaqualone questions were dropped from five of the six questionnaire forms beginning in 1990. Therefore, since 1990 the overall sedative (adjusted) data have been based on the six-form barbiturate data adjusted by the one-form methaqualone data.<sup>54</sup>

- The use of *tranquilizers* among 12th graders peaked in 1977—near the beginning of the study (see Figure 5-4d)—following what was probably a considerable period of increase. There was then a long, steady decline for 15 years through 1992. Lifetime prevalence of use dropped by two thirds (from 18.0% in 1977 to 6.0% in 1992), annual prevalence by three fourths (from 10.8% to 2.8%), and 30-day prevalence by more than three fourths (from 4.6% to 1.0%). Following this period of substantial decline, annual use of tranquilizers began to rise after 1992, along with the use of most other illicit drugs, reaching 5.7% in 2000. In 2001 the estimates are based on a modified question, which seemed to raise the prevalence rate by about a percentage point. Based on the revised question, annual prevalence appeared to peak in 2002 (at 7.7%) and then fell back a bit (to 6.2% by 2008). The 10th-grade data show a very similar pattern.

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<sup>54</sup>As described in the previous chapter, the replacement of barbiturates by other nonbarbiturate sedatives in recent years probably makes “barbiturates” a somewhat inappropriate label for the class of drugs being reported. Therefore, we have modified the title to “sedatives (barbiturates).”

- The annual prevalence of *heroin* use among 12th graders declined rather steadily between 1975 (1.0%) and 1979 (0.5%) (Table 5-2 and Figure 5-4i), while lifetime prevalence also dropped by exactly half (from 2.2% in 1975 to 1.1% in 1979). This decline halted in 1979, and the statistics remained almost constant for a decade and a half. However, in 1995 a sharp (and statistically significant) increase occurred, with annual and 30-day prevalence rates roughly doubling, to 1.1% and 0.6%, respectively. (As discussed in chapter 2—see also Tables 5-6a through 5-6c in this chapter—we believe that the advent of new forms of heroin played a role in this increase.) However, there was no further increase in annual or 30-day prevalence-of-use rates from 1995 through 1999 (see Tables 5-2 and 5-3), nor was there any increase during this period in the use of heroin by injection or by other means (see Tables 5-6a through 5-6c). The increase in heroin use was recognized fairly quickly and gave rise to some ameliorative actions, including an antiheroin campaign by the Partnership for a Drug-Free America. This response may well explain the unusually quick leveling in use after one year of sharp increase. However, in 2000 heroin use among 12th graders increased significantly (up to 1.5% from 1.1% in 1999), probably due almost entirely to an increase in use without a needle, after which it declined significantly in 2001 (to 0.9%), and evidenced no further significant change through 2008 (0.7%).

Beginning in 1995, the questions on heroin use were elaborated to differentiate use with and without a needle. As can be seen in Tables 5-6a through 5-6c, use without a needle has accounted for much of the lifetime prevalence of heroin use among 12th graders since 1995. About one fourth of the users have used heroin both ways, but of the remainder, in general about two to five times as many have used heroin without a needle. (The ratios are different in the lower grades, as will be discussed later.) In 2008 there was a decline in use without a needle, reducing the difference between the two methods of use.

- For the first 13 years of the study, the use of *narcotics other than heroin* remained quite stable, with annual prevalence fluctuating between 5.1% and 6.4% among 12th graders (see Figure 5-4k). There was a gradual decline in annual prevalence from 1987 (5.3%) to 1992 (3.3%). After 1992, as with so many drugs, use rose gradually, but steadily, more than doubling to 7.0% by 2000—the highest level seen since MTF began. The rate remained at 7.0% in 2002. Because the question text on half of the questionnaire forms was updated in 2002 with additional examples of narcotics other than heroin (to include OxyContin, Vicodin, and Percocet), we obtained a higher reported rate of use of other narcotics that year than with the previous version (9.4% versus 7.0%). All questionnaire forms contained the new version of the question in 2003 and thereafter, and the observed rates remained essentially unchanged (9.3% in 2003 and 9.1% in 2008). Thus, after many years of steady increase, this important category of drugs finally seems to have leveled.

Table E-4 in appendix E shows the trends for many of the *specific narcotic drugs* that make up this class. It shows some of the drugs responsible for the considerable rise in the overall class during the 1990s: codeine, the annual prevalence of which rose from a low point of 1.0% in 1995 to 4.6% by 2004; opium, which rose from a low of 0.4% in 1993 to 2.3% in 2003; and morphine, which rose from a low of 0.2% in 1993 to 2.1% in 2004.

The use of methadone and Demerol also rose during the 1990s, though their annual prevalence rates generally remained lower than the other three drugs.

Some additional drugs were added to this list in the 2002 questionnaire, including OxyContin, Vicodin, Percocet, Percodan, and Dilaudid. In the questionnaire form that asks about the larger set of specific narcotics as part of a branching question, **Vicodin** had a prevalence level (4.5%) higher than codeine (4.3%) in 2005, while the 2005 rates for the other new drugs on the list were considerably lower—**OxyContin**, 3.2%; **Percocet**, 2.5%; **Percodan**, 0.6%; and **Dilaudid**, 0.1%. In 2006 there was some nonsignificant decline in the use of all of the newly listed drugs except Dilaudid; in 2007 there was some increase in all of them, except Dilaudid, which was dropped from the set to make room for Ultram (see Table E-4). Although the statistics in Table E-4 may be useful in terms of tracking trends and telling us something about the *relative* popularity of these various drugs, experience with several drugs have taught us that students' answers on the *absolute* prevalence rates are likely to be higher if the question is not embedded in a branching question structure. Because two of these drugs were also included as separate tripwire questions (i.e., asking directly about the frequency of annual use), we can use responses to these questions to make a better estimate of the absolute prevalence rates. On the tripwire questions, OxyContin use is higher in 2008 (at 4.7% annual prevalence) than it was in 2002 (4.0%), though the trend line has been somewhat erratic. Vicodin has shown little evidence of change since 2002 (9.6% annual prevalence in 2002 and 9.7% in 2008). These prevalence rates are disturbingly high given the addictive potential of these two drugs; they are also appreciably higher than the rates derived from the branching questions.

- **Hallucinogen** use among 12th graders (unadjusted for underreporting of PCP) declined some in the mid-1970s (Figure 5-4f) from an annual prevalence of 11.2% in 1975 to 9.6% in 1978. This may well have been the tail end of a longer period of decline precipitated by rising concerns about the adverse effects of hallucinogens—particularly LSD—and especially concerns about possible brain and genetic damage. The use of hallucinogens (unadjusted for PCP use) then leveled for several years before beginning another sustained decline. The first hallucinogen figures adjusted for the underreporting of PCP use were available in 1979. Between then and 1984, annual prevalence of hallucinogens (adjusted) declined steadily from 11.8% to 7.3%. The rate remained fairly level through 1986, dropped a little more through 1988, and then remained level again through 1992. In 1993 this pattern of irregular declines ended, as (adjusted) annual prevalence rose significantly from 6.2% in 1992 to 10.7% by 1996, as use of other illicit drugs also increased. Since 1996, use has declined considerably, to 6.1% in 2008 based on a revised version of the question.<sup>55</sup> Without that question change, the decline would have been even greater.

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<sup>55</sup>In 2001 the question text for “other hallucinogens” was changed in half the questionnaire forms, with the term “other hallucinogens” replacing the older term “other psychedelics” and the word “shrooms” being added to the list of examples. This had the effect of increasing reported use of this class of drugs. All forms incorporated these changes beginning in 2002. The data for “other hallucinogens” and the derivative measures of “hallucinogens” and “any illicit drug other than marijuana” were all based on the new question in the 2001 estimates and all subsequent estimates.

- **LSD**, one of the major drugs in the hallucinogen class, showed a modest decline in use among 12th graders from 1975 to 1977, followed by considerable stability through 1981 (Figure 5-4g). Between 1981 and 1985, there was a second period of gradual decline, with annual prevalence of use falling from 6.5% to 4.4%. However, after 1985, annual prevalence began to rise very gradually to 5.6% in 1992, making it one of the few drugs to show a rise in use in that period. The increase continued through 1996, with annual prevalence reaching 8.8%, double the low point in 1985. After 1996, annual prevalence declined, including sharp decreases in 2002 and 2003, reaching 1.7% in 2006, the lowest LSD prevalence rate recorded since MTF began. By 2008 the rate is up only slightly to 2.7%. We believe that the decline prior to 2002 might have resulted in part from a displacement of LSD by sharply rising ecstasy use. After 2001, when ecstasy use itself began to decline, the sharp further decline in LSD use likely resulted from a drop in availability, because attitudes generally have not moved in a way that could explain the fall in use.
- The use of the hallucinogen **PCP** showed a very sharp decline among 12th graders after 1979, when use of this drug was first measured (see Figure 5-4f). Annual prevalence dropped from 7.0% in 1979 to 2.2% in 1982. After leveling for a few years, it dropped further to 1.3% in 1987, which is about where it remained until 1993. The speed with which this drug fell from popularity strongly suggests that it achieved a reputation as a dangerous drug very quickly. From 1993 to 1996, annual use increased—as did the use of most of the other illicit drugs—but only by a bit, to 2.6% by 1996. Also, as with most other drugs, the increase halted in 1997. By 2008 the annual prevalence for 12th graders was down to 1.1%, about four tenths of the recent peak rate of 2.6% in 1996.
- Table E-1 in appendix E shows the 33-year trends for a number of specific **hallucinogenic** drugs. In the early years of MTF, mescaline, concentrated THC, peyote, and PCP were far more widely used than they are today.
- **Concentrated THC** was at a peak annual prevalence of 5.7% in 1977, but fell to about 1% by 1984 and has varied relatively little since, although there was a slight upward surge in the mid-1990s. (It is at 1.3% in 2008.)
- **Mescaline** was at a 5% peak from 1976 through 1978 (and possibly earlier), but fell below 1% by 1988 and has varied rather little since. (Annual prevalence was 0.4% in 2008.)
- **Peyote** use was at 1.8% annual prevalence at the first measurement in 1976 and by 1982 fell to 0.6%, about where it has remained since (0.4% in 2008).
- **Psilocybin**, derived from mushrooms, also showed a decline in use among 12th graders between the mid-1970s and early 1980s, followed by a long period of low levels of reported use. Use rose from 1992 to 1996, however, along with use of many other drugs, before leveling again. But it is clear from the 2001 modification of the question stem to include the popular term “shrooms” that many users no longer know the drug as psilocybin. The prevalence rate more than tripled between 2000 and 2001, jumping from

1.4% to 4.9%, even though use levels were stable immediately before and after the wording change. We believe that all of this increase was an artifact of the revision of the question, which clarified the meaning of psilocybin and led users to answer more accurately (for both the psilocybin question and the question about their use of hallucinogens other than LSD). Use was 4.6% in 2003 and 3.8% in 2008. Psilocybin (or “shrooms”) is clearly the most widely used hallucinogenic drug by teenagers today.

- **Ecstasy (MDMA)** had been in the surveys of young adults for several years before we added it in 1996 to the questionnaires given to secondary school students. We had been concerned about the possibility of stimulating an interest among secondary school students in a previously little-known drug—particularly given its alluring name. In 1996, we found that 6.1% of 12th graders had tried the drug and that 4.6% reported use in the prior 12 months. Annual prevalence fell to 3.6% in 1998, but in 1999 it increased sharply to 5.6% and then rose sharply again in 2000 to 8.2%. The rate of increase slowed some in 2001, when use reached 9.2%; use then declined sharply over the next few years, reaching 3.0% in 2005. Use has since rebounded a bit to 4.3% by 2008 (see Figure 5-4I).

Chapter 8 shows that 12 graders’ perceived risk for ecstasy jumped substantially in 2001 (from 38% in 2000 to 46%), likely helping to explain the deceleration in the rise in use that year. However, we know from other analyses that ecstasy was still diffusing to more communities in 2001, partially explaining the continued rise in use despite the increase in perceived risk. (As *Volume II* reveals, this dramatic increase in use through 2001 was not confined to teenagers.) The 2001 increases in perceived risk led us to predict the downturn in use that did in fact occur in 2002—once again demonstrating the importance of these beliefs, both in restraining drug use *and* in allowing us to predict forthcoming changes in drug use. Perceived risk increased sharply again in 2002 and 2003 as use plummeted; but after 2003 the increase in risk was more gradual, reaching 60% by 2005 (it stands at 57% in 2008, compared to 34% when it was first measured in 1997). The reported availability of ecstasy, which has risen substantially in recent years, probably played a role in its sudden resurgence. Availability dropped modestly from 2001 to 2003, then took a large drop of almost ten percentage points in 2004 followed by another large eight-percentage-point drop in 2005, before leveling (see chapter 9). Part of this decline in availability is probably due to there being so many fewer users from whom to get the drug. Availability did not begin to drop until use did, and it dropped more gradually than use. Because ecstasy was particularly popular at “raves” and dance clubs during its ascent in popularity, it is considered one of the “club drugs.” Based on mass media reports, it appears that the rave phenomenon has diminished considerably.

- **Rohypnol**, another “club drug,” was added to MTF in 1996, in part because of the extensive publicity it received as a “date rape” drug. The annual prevalence rate among 12th graders has remained low (between 0.8% and 1.6%) in the years since, no doubt in part due to the early and extensive negative publicity it received. The peak prevalence of 1.4% occurred in 1998; use was down to 0.9% by 2001. In 2002 the standard triplet question (asking about lifetime, past-year, and past-month use of Rohypnol) was replaced with a tripwire question asking only about use in the past year. As a result of this change in the structure and location of the question, the 2002 annual prevalence (1.6%) is not

necessarily comparable to the 2001 annual prevalence estimate (0.9%). Use of Rohypnol declined a bit from 1.6% in 2002 to 1.3% in 2008 (see Figure 5-4l).

- Use of *steroids*, specifically anabolic steroids, has been included in MTF since 1989. The question is preceded by an introduction that states, “Steroids, or anabolic steroids, are sometimes prescribed by doctors to promote healing from certain types of injuries. Some athletes, and others, have used them to try to increase muscle development.” The question then asks, “On how many occasions have you taken steroids on your own—that is, without a doctor telling you to take them?” Since it does not explicitly state that they must be prescription-controlled substances, we think it likely that some respondents include over-the-counter compounds like androstenedione in their answers. However, some special analyses presented in chapter 4 indicate that it has tended to be a minority of self-reported steroid users who also reported using androstenedione in the same year (38%, 40%, and 29% of steroid users in grades 8, 10, and 12 in 2008). Among 12th graders, annual prevalence of steroid use stood at 1.9% in 1989, fell to a low of 1.1% by 1992, and then rose gradually during the remainder of the 1990s to 1.8% by 1999. Use leveled in grade 12 at 1.7% in 2000, then rose significantly to 2.4% in 2001, and leveled again in 2002 at 2.5%, where it remained in 2004. However, in 2005 there was a significant drop in steroid prevalence to 1.5%, where it remains in 2008 (1.5%; see Figure 5-4a). (See chapter 10 for information on two other substances used for physical enhancement—*androstenedione* and *creatine*.)
- As these varied patterns of use show, the overall proportion of 12th graders using *any illicit drugs other than marijuana* in their lifetime has changed over the years, but the mix of drugs they use has changed even more. A number of drug classes showed dramatic declines (particularly in the 1980s), some showed substantial increases, and some remained fairly stable. Further, the periods in which they either increased or decreased varied considerably, although between 1992 and 1996 the use of many drugs increased and by 1997 the use of most had stabilized. Since then, most have declined in use to some degree, sometimes very sharply, as was seen with LSD and ecstasy.
- With respect to the licit drugs, in the last half of the 1970s there was a small upward shift in the prevalence of *alcohol* use among 12th graders (see Figure 5-4m). To illustrate, between 1975 and 1979 the annual prevalence-of-use rate rose steadily from 85% to 88%, the monthly rate from 68% to 72%, and the daily rate from 5.7% to 6.9%. As with marijuana, 1979 was the peak year for annual use of alcohol. Over the next six years, between 1979 and 1985, alcohol prevalence rates fell gradually. Annual prevalence fell from 88% to 86%, monthly from 72% to 66%, and daily from 6.9% to 5.0%. All three rates remained fairly level from about 1985 to 1987, after which they showed further decline. Thirty-day prevalence, for example, fell from 66% in 1987 to 51% in 1992, down by more than a quarter from its peak level in 1978 (72%). The prevalence of daily alcohol use fell from 4.8% to 3.4% between 1987 and 1992, followed by a sharper drop to 2.5% in 1993 (based on the original form of the question)—down by almost two thirds from its peak level in 1979 (6.9%). In 1994, utilizing a slightly revised set of alcohol

usage questions,<sup>56</sup> no further declines were seen. (If anything, use appeared to increase, though none of the changes reached statistical significance.) From 1993 through 1997, as many forms of illicit drug use rose, there was also a slight upward drift in the annual, 30-day, and daily prevalence-of-use rates for alcohol. Since 1997 there has been a steady downward drift in annual and 30-day use. **Daily drinking** among 12th graders, after reaching a recent peak of 3.9% in 1997 and 1998, declined some in the following years, to 2.8% by 2008.

Note that there is no evidence that the 13-year decline in marijuana use observed between 1979 and 1992 led to any accompanying increase in **alcohol** use, as many observers suggested would happen. In fact, through 1992 there was some parallel decline in annual, monthly, and daily alcohol use, as well as in occasional heavy drinking among 12th graders. Earlier, when marijuana use rose in the late 1970s, alcohol use moved up along with it. As marijuana use rose again in the 1990s, alcohol use again rose with it, although certainly not as sharply. In sum, there is little evidence from MTF that supports what we have termed “the displacement hypothesis,” which asserts that an increase in marijuana use will somehow lead to a decline in alcohol use, or vice versa. Instead, both substances appear to move more in harmony, perhaps both reflecting changes in a more general construct, such as the tendency to use psychoactive substances, whether licit or illicit, or the frequency with which teens “party” or not.

- A similar pattern was observed in the prevalence of **occasional heavy drinking** (Table 5-4 and Figure 5-4n). When asked whether they had had five or more drinks in a row during the prior two weeks, 37% of 12th graders in 1975 said they had. This proportion rose gradually to a peak of 41% by 1979, and remained at this peak level through 1983. In both 1984 and 1985, we observed drops of two percentage points in this troublesome statistic, bringing it down to 37%, exactly where it had been in 1975. There was no further change in 1986 or 1987, but over the next six years it dropped another 10 percentage points, from 38% in 1987 to 28% in 1993—two thirds of its peak level. After 1992, it increased gradually and modestly along with most of the illicit drugs, reaching 32% in 1998, then declined back to 28% by 2003, and was down to 25% in 2008. Obviously some important and substantial reductions in teenage binge drinking occurred in the 1980s along with some further declines after 1998. We discuss some of the likely reasons for these important changes in chapter 8.
- Beginning in 1991, respondents were asked to report how often they had **been drunk** in their lifetime, the past 12 months, and the past 30 days. Among 12th graders, 30-day prevalence of self-reported drunkenness showed declines between 1991 and 1993 (from 32% to 29%), followed by gradual increases through 1997 (34%), as would be expected given the data above (Tables 5-1 through 5-4 and Figure 5-4m). This rate now stands a bit lower, at 28% in 2008.

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<sup>56</sup>A slight revision was introduced in the question wording in three of the six forms in 1993, and in the three remaining forms beginning in 1994. It added the qualifier of “more than just a few sips” to the definition of a drink of an alcoholic beverage. Figures 5-4m and 5-5b show the extent of the correction that resulted for annual and daily use. For 12th graders, it was a relatively small correction.

- Another category of alcoholic beverage has emerged, *flavored alcoholic beverages*, sometimes called “alcopops” or “malternatives” (because their alcohol content often derives from malt). A single tripwire question, asking about the frequency of use in the past 12 months, was introduced in 2003 to determine how widespread the use of these beverages was. (The question text was: “During the last 12 months, on how many occasions [if any] have you drunk flavored alcoholic beverages, sometimes called ‘alcopops’ [like Mike’s Hard Lemonade, Skyy Blue, Smirnoff Ice, Zima]?”) In 2003 the annual prevalence was 55% among 12th graders. Because of this high level of use, we introduced more extensive measurement of the use of these beverages into the 2004 questionnaires. (The question text was revised: “On how many occasions, if any, have you had flavored alcoholic beverages like Mike’s Hard Lemonade, Skyy Blue, Smirnoff Ice, Zima, Bacardi Silver, wine coolers, etc. to drink—more than just a few sips. (Do not include regular liquor, beer, or wine.)”) The annual prevalence of use was about the same in 2004 (56%) and slightly higher than that in 2005 (at 58%), before dropping to 52% by 2008 (see Table 5-5b). Thirty-day prevalence in 2008 was 27%, while lifetime prevalence was 66%. Clearly this class of alcoholic beverage has made inroads into the youth market, with the proportions reporting any use in just the prior month at 10%, 20%, and 27% in grades 8, 10, and 12, respectively, in 2008. These numbers have not been growing in the past few years, and if anything have declined slightly; still, these are substantial proportions of underage youth drinking flavored alcoholic beverages. It should be noted that females are somewhat more likely than males to drink these beverages, though significant numbers of both genders drink them.
- Use levels of the various other specific classes of alcoholic beverages—*beer*, *wine*, *wine coolers*, and *liquor*, are reported in appendix D (see Tables D-74 through D-87). Table D-76 shows that there has been quite a substantial drop in the current prevalence of *beer* consumption among 12th graders. Thirty-day prevalence fell from 64% in 1979 to 42% by 1992, increased a bit to 47% in 1996 (when the use of most substances increased), and fell to 34% by 2008 (the lowest value ever reported). *Occasions of heavy beer drinking* (having five or more drinks in a row on at least one occasion in the prior two weeks) fell from 38% in 1983 to 25% in 1992, and rose some to 29% in 1996 before falling to 21% by 2006—again, the lowest rate seen since this variable was first measured in 1976. Since then, it has held steady (21% in 2008).
- Trends in the consumption of *hard liquor* among 12th graders follow a pattern similar to those for beer, although the fluctuations are not as large. Thirty-day prevalence declined appreciably, from 48% in 1980 to 29% by 1992, before rising briefly to 37% in 1998 and then falling again to 34% by 2003. The observed rate was down further to 32% by 2008. The proportion reporting *occasions of heavy liquor consumption* (five or more drinks in a row in the prior two weeks) has fluctuated less than occasions of heavy beer drinking, ranging from a low of 16% in 1992 to a high of 26% in 2002. While seniors in the 1970s and 1980s were much more likely to report occasions of heavy beer drinking than heavy liquor drinking, seniors in the class of 2008 report a slightly higher level of heavy liquor drinking (22%) than heavy beer drinking (21%). The 2008 rate of 21% for heavy beer drinking was the lowest recorded by MTF, while the 22% figure that year for heavy liquor drinking is one of the higher reported levels.

- The results for *wine* are less clear because in 1988 a new question about wine coolers was introduced, which had the effect of sharply reducing self-reported wine use. (No doubt, up to that point users of wine coolers reported such use under wine.) Reported 30-day prevalence of wine use fell modestly from 38% in 1982 to 34% in 1987. After the introduction of the wine cooler question, reported wine use was 23% in 1988, declining to 14% by 1994. It then rose slightly to 18% by 1996 before declining again to 13% in 2002, about where it remains in 2008. Lower proportions of 12th graders engage in *occasions of heavy wine consumption* than heavy beer or liquor consumption. The high point was in 1982 at 15%, and the low in 2006 at 4.4%. It stands at 5.0% in 2008.
- Self-reported use of *wine coolers* began at quite a high level when the question was first introduced in 1988, at 37% for 30-day prevalence. However, use began to decline immediately and fell to 19% by 1993, rose slightly to 21% by 1995 as use of a number of drugs increased, and then declined to 13% in 2007. As with wine, *heavy wine cooler consumption* is not as common as heavy consumption of beer or liquor. The high rate of 14% was observed in 1988, while the low was in 2007 at 5.8%, reflecting a decline of more than half over the past two decades.
- *Cigarette* use among 12th graders peaked in 1976 and 1977, as measured by lifetime, 30-day, and daily prevalence. (Annual prevalence of use is not asked.) Over the next four years, 30-day prevalence dropped substantially, from 38% in the class of 1977 to 29% in the class of 1981 (see Table 5-3 and Figure 5-4o). More importantly, *daily cigarette use* dropped over that same interval from 29% to 20%, and daily use of a half pack or more dropped from 19% to 14%. But by 1982 and 1983, the decline had clearly halted. The earlier decline resumed briefly in 1984; daily use fell from 21% (in 1983) to 19%, and daily use of a half pack or more dropped from 14% to 12%. Little changed in the eight years between 1984 and 1992: thirty-day prevalence fell from 29% to 28%, daily use from 19% to 17%, and daily use of a half pack or more from 12% to 10%. Despite the general decline in the use of most other drugs during this period, despite the declines in smoking rates among adults in that period, despite the increasingly restrictive legislation with regard to smoking debated and enacted at state and local levels, and despite prevention efforts made in many school systems, there was a noteworthy lack of any appreciable reduction in teen smoking rates during this eight-year period. After 1992, both the 30-day smoking rate and the current daily smoking rate actually rose significantly among 12th graders, with monthly use increasing steadily from 28% in 1992 to 37% by 1997 (an increase of one third), and daily use increasing from 17% to 25% (an increase of three tenths). Finally, by 1998, a turnaround of this upward trend began to emerge, and accelerated in 2000. Thirty-day prevalence fell significantly from 37% in 1997 to 22% by 2006, remained there in 2007, and fell again to 20% in 2008. Daily prevalence also fell very substantially from a recent peak of 25% in 1997 to 12% by 2006 and 2007, and then to 11% in 2008. We said last year that, “whether the decline in 12th grade has really halted or will continue, as would be predicted from the presence of a cohort effect, should be clarified with another year’s data.” The 2008 data would indicate that it is continuing, albeit slowly.

The intense public debate in the late 1990s over cigarette policies likely played an important role in bringing about the very significant downturn in adolescent smoking. MTF helped to give rise to that debate as it publicly reported that the rate of smoking among the nation's adolescents was rising sharply. Other developments may well have contributed as well, including (a) increases in cigarette prices, brought about in part by the tobacco industry settlement with the states and also by state-level taxing decisions; (b) substantially increased prevention activities, including antismoking ad campaigns in a number of states; (c) the removal of certain types of advertising (including billboards) as well as the Joe Camel campaign nationwide under the terms of the tobacco settlement; (d) the initiation of a national antismoking ad campaign by the American Legacy Foundation, which was created under the conditions of the tobacco Master Settlement Agreement; and (e) efforts by the Food and Drug Administration (FDA), in cooperation with the states, to reduce youth access to cigarettes. (The FDA effort was eventually brought to an end by a ruling of the Supreme Court, but it appears that the effort has continued at the state level, judging by the decline in reported availability by 8th and 10th graders.) Further, the fact that smoking has been falling sooner and faster at lower grade levels suggests that smoking among 12th graders is likely to continue dropping as a result of the cumulated cohort effects working their way up the age spectrum.

- Questions about the use of *smokeless tobacco* (Figure 5-4p), which includes chewing tobacco and snuff, were first introduced in 1986. They were omitted in 1990 and 1991 and then reintroduced in 1992. Results show a high rate of use for the 12th-grade sample overall, particularly for males, who account for nearly all use. The trends for 1986 to 1989 showed a decline in use, with 30-day prevalence for all 12th graders falling steadily from 11.5% to 8.4%. When the questions were reintroduced in 1992, the usage rate (11.4%) almost matched the 1986 level. Use rose slightly to 12.2% in 1995, but then fell back by nearly half, to 6.5% by 2002. It then rose somewhat to 7.6% in 2005 before dropping back to 6.1% in 2006, about where it stood in 2008 (6.5%). In 2008, about one sixth (16%) of all 12th graders had tried smokeless tobacco in their lifetime, and 2.7% were current daily users. In sum, the use of smokeless tobacco has fallen substantially since 1995 among 12th graders, while their use of cigarettes has been falling since 1997. The decline in the use of smokeless tobacco appears to have ended.

## TRENDS IN PREVALENCE OF USE, 1991–2008: EIGHTH AND TENTH GRADERS

To facilitate cross-grade comparisons, trend data for all three grades (8th, 10th, and 12th) are included in Tables 5-5a through 5-5d and Figures 5-4a through 5-4q. (Note that Tables 2-1 through 2-4 in chapter 2, “Key Findings: An Overview and Integration across Five Populations,” augment Tables 5-5a through 5-5d with trend data on college students and young adults.) Our discussion of trends in use at 8th and 10th grades is limited to a much shorter historical period than for 12th graders because data were first gathered from the younger students in 1991.

- The 8th-, 10th-, and 12th-grade trends for the use of *illicit* drugs have moved largely, though not completely, in parallel. From 1991 through 1996, this meant some increase in use at all grade levels for most drugs. (It is important to note, however, that 8th graders

were the first to show an increase for many drugs in 1991–1992.) By 1997, the prevalence rates for most drugs had leveled off, or begun to level off, in all grades; in 1998 most rates showed some decline in all grades. Just as the 8th graders were the first to show an increase in the early 1990s, they were also the first to show many of the decreases in the late 1990s. We believe that this pattern of younger teens first exhibiting many of the turnarounds in use indicates that they are the most sensitive to new social forces. Because they are considerably less likely to have established usage patterns and attitudes, their behavior and related attitudes may simply be more malleable. They then carry those changes in their use into later grades as they age.

- **Marijuana** use (Figure 5-4a) rose particularly sharply in the 1990s, starting with 8th graders, with annual prevalence tripling between 1991 and 1996, from 6.2% to 18.3%. In 1992, use rose significantly among 10th and 12th graders as well, and between 1992 and 1997, annual prevalence of use more than doubled among 10th graders, rising from 15% to 35%. It increased by more than two thirds, from 22% to 39%, among 12th graders. In 1997 the prevalence rates began to decline among 8th graders. (Figure 5-4a shows that the increase was decelerating in grades 10 and 12.) By 1998 the upper grades had started to decline as well. Eighth graders have shown a fairly steady decline in marijuana use since their peak in 1996 (18% annual prevalence), dropping to 12% by 2004—a decline of one third. From 2004 to 2006, use was steady at 12%, and then declined significantly in 2007 to 10%, before increasing slightly (but not significantly) to 11% in 2008. While both 10th and 12th graders have shown some decline since their peaks in 1997 (at 31% and 16%, respectively), their progress has not been as steady or as large. In 2002, however, 10th-grade use declined significantly to 30%; it has declined further to 24% by 2008. Use among 12th graders also declined from 2002 to 2006, but the decline appeared to stall in 2007; in 2008, annual prevalence increased by almost a percentage point (not significant). Clearly there has been an end to the rapid rise in marijuana use among teenagers that began in the early 1990s, but whatever downturn has occurred has been fairly modest by comparison. It is important to note that the two directional changes observed so far have occurred among 8th graders first. As mentioned above, this suggests that 8th graders may be the most immediately responsive to changing influences in the larger social environment. The lag in the decline in the later grades could also reflect some cohort effects (i.e., lingering effects of changes in use that occurred when the students were in lower grades).
- **Daily marijuana** use also went up sharply in the 1990s in all three grades (see Figure 5-4a). In fact, in proportional terms, the increases were larger than those for annual prevalence. For the period 1992–1996, daily use among 8th graders increased, from 0.2% to 1.5%, before declining significantly to 1.1% in 1997. For the period 1992–1997, daily use among 10th graders rose more, from 0.8% to 3.7%, and among 12th graders it increased from 1.9% to 5.8%. After 1997 the daily prevalence rates remained relatively level in all grades for a while, illustrating how changes in daily use tend to lag behind changes in annual prevalence; but over the past several years, daily use has declined some in all grades. The 12th graders were the last to begin this recent trend, as has often been the case. The decline did not continue past 2004 among 8th graders, past 2005 among 12th graders, or past 2006 among 10th graders. This leaves the rates of daily

prevalence in 2008 (0.9%, 2.7%, and 5.4%, respectively) well above where they were in 1992.

- Annual **hallucinogen** use (Figure 5-4f) rose in all three grade levels from 1991 to 1996, followed by some decline in all three grades from 1996 through 2000. In 2001 the question text was changed, and 10th and 12th graders showed further significant decreases between 2001 and 2003; but there was little change in 2004 and 2005 and little systematic change since then. The two components of the hallucinogens class, LSD and hallucinogens other than LSD, have generally followed the same pattern until a sharp decline in LSD use emerged after 1999.
- The increase in **LSD** use in the early 1990s (Figure 5-4g) is of particular interest because LSD was one of the first drugs to decline in use in the long-term epidemic, almost surely due to growing concerns about its dangers in the early to mid-1970s. The more recent increase in its use may reflect the effects of what we have labeled “generational forgetting”—that is, replacement cohorts know less than their predecessors about the potential dangers of LSD because they have had less exposure to the negative consequences of using the drug.<sup>57</sup> As described later, the downturn in LSD use in recent years has generally *not* been accompanied by the expected changes in perceived risk and disapproval, suggesting that the decline may be due more to a displacement by another drug, such as ecstasy, than to any increased aversion to LSD per se. In addition, the decline in reported availability of LSD since the mid-1990s may also help explain the recent declines in use.
- Annual **crack** use was at quite low levels in 1991 (Table 5-5b and Figure 5-4h). It began to rise among 8th graders after 1991, among 10th graders after 1992, and among 12th graders after 1993. From these quite low rates, the annual prevalence-of-use rate roughly tripled among 8th graders (from 0.7% in 1991 to 2.1% in 1998) and 10th graders (from 0.9% in 1992 to 2.5% in 1998), and rose by two thirds among 12th graders (from 1.5% in 1993 to 2.7% in 1999). Crack was one of the very few drug classes still showing evidence of continued increase in 1998. After 1998, use gradually declined among 8th graders, from 2.1% annual prevalence in 1998 to 1.3% by 2004, where it remains in 2008 (1.1%). Among 10th graders, annual prevalence of crack use fell from 2.5% in 1998 to 1.6% in 2003, when it leveled (1.7% in 2005) before again decreasing significantly (to 1.3% in 2006 through 2008). Twelfth graders’ crack use reached a peak in 1999 and has declined since then (from 2.7% in 1999 to 1.6% by 2008).
- The use of **other cocaine** also rose some during the 1990s at all three grade levels, though it clearly did not attain the levels observed in the mid-1980s. Among 8th graders, annual prevalence of use rose from 1.0% in 1991 to 2.5% in 1996 before leveling. Increases began after 1992 in the upper grades, paused in 1998, and then continued into 1999. Between 1992 and 1999, the increases were from 1.7% to 4.4% among 10th graders and

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<sup>57</sup>See Johnston, L. D. (1991). Toward a theory of drug epidemics. In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–132). Hillsdale, NJ: Lawrence Erlbaum Associates. Available online at <http://monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf>.

from 2.6% to 5.8% among 12th graders. Use declined from the peak level in 1998 in 8th grade (2.4%) down to 1.6% in 2004 before leveling, from the peak level in 1999 for 10th grade (4.4%) down to 2.9% in 2006 before leveling (2.6% in 2008), and from the peak level in 1999 for 12th grade (5.8%) down to 4.5% in 2005 (it is 4.0% in 2008). Thus, both powder and crack cocaine use increased considerably in proportional terms during the 1990s; but because each started from a very low base, the absolute increases were relatively small, and neither class of drugs reached the levels they had attained in the mid-1980s. Since the late 1990s use has declined some.

- The use of *amphetamines* (Figure 5-4b) also increased at all three grade levels during the 1990s, reaching annual prevalence rates by 1996 of 9.1% for 8th graders (versus 6.2% in 1991), 12.4% for 10th graders (versus 8.2% in 1992), and 9.5% for 12th graders (versus 7.1% in 1992). Like several other drugs, the rise in amphetamine use appears to have begun a year earlier (in 1992) among 8th graders than among 10th and 12th graders. These trends diverged a little in 1997, as use fell significantly in 8th grade, leveled in 10th grade, and continued to increase in 12th grade. By 1998, and continuing into 1999, use among both 8th and 10th graders was declining, and use among 12th graders had leveled. Thus, we once again see a staggered inflection point in the trends, quite likely reflecting a cohort effect. In the lower two grades, use leveled in 2000. Since 2002, use has declined in all three grades, but particularly among 10th and 12th graders.
- Between 1991 and 1995, *inhalant* use (Figure 5-4c) rose by more than a third among 8th and 10th graders, with annual prevalence of use reaching 12.8% and 9.6%, respectively. (Recall that inhalant use tends to be higher in the lower grades.) Among 12th graders, use rose from 6.2% to 8.0% between 1992 and 1995. Between 1995 and 2002, however, inhalant use declined gradually at all grade levels, and the total decline was appreciable. The 2002 figures were the lowest recorded by MTF for 8th and 10th graders. Unfortunately, there was a significant increase among 8th graders in 2003, from 7.7% to 8.7%—one that continued into 2004 (9.6%) before leveling and then declining a bit to 8.9% by 2008. Use among 10th and 12th graders continued to decline in 2003, but both grades have shown modest increases since then (8.9% and 5.9%, respectively).

As Figure 5-4c illustrates, inhalant use, unadjusted for the use of nitrite inhalants, had been on the rise among 12th graders for a long time. The same was likely true among 8th and 10th graders, although our data on them cover only 1991 forward. The anti-inhalant campaign launched by the Partnership for a Drug-Free America in 1995 (partly in response to MTF results) may have played an important role in reversing this troublesome long-term trend. (The perceived risk of inhalant use increased sharply between the 1995 and 1996 surveys, as discussed in chapter 8.) The gradual declines in inhalant use continued into 2002 in all grades. However, in 2002, eighth graders' perceived risk of trying inhalants decreased significantly, which was followed by a significant increase in their use the next year; 10th graders' perceived risk of regular use also decreased significantly. Both grades have generally continued to show a decline in perceived risk since then, clearly illustrating that generational forgetting of the dangers of inhalant use has been occurring and may continue if the issue is not addressed.

- **Tranquilizer** use is not nearly as prevalent today as it was 33 years ago, but it showed a very gradual increase at all three grade levels in the early 1990s (see Table 5-5b and Figure 5-4d). From 1991 to 1996, annual prevalence increased at the 8th-grade level, from 1.8% to 3.3%, before starting a decline (reaching 2.5% in 1999). The increase at 10th and 12th grades started later and continued through 1999, before leveling: from 3.3% in 1994 to 5.4% in 1999 among 10th graders, and from 2.8% in 1992 to 5.8% in 1999 among 12th graders. This divergence over those three years between the downward trend for 8th graders and the continuing increase among 10th and 12th graders is quite unusual. However, it is consistent with the finding that 8th graders show greater and earlier declines in general. Tranquilizer use has changed rather little at 8th and 12th grades since the new questions were introduced in 2000, but 10th graders have declined by about one third, from 7.3% in 2000 to 4.6% by 2008.
- There was a large proportional increase in **heroin** use between 1991 and 1996 at all three grade levels. Use peaked in 1996 among 8th graders and a year later in the upper two grades, doubling or tripling at each grade level (see Figure 5-4i). Usage rates then remained quite stable through 1999 before showing a divergence, with use declining significantly among 8th graders in 2000 and rising significantly among 12th graders. In 2001 significant declines were finally observed in the upper two grades as well. There have been only modest further declines since, but heroin use is now lower in all three grades than it was in the peak years of 1996 for 8th graders, 1997–2001 for 10th graders, and 2001 for 12th graders.

As mentioned earlier, we believe that the availability of very pure heroin, which can be taken by means other than injection, contributed in an important way to the sharp rise in heroin use in the early 1990s. The importance by 1995 of this new form is documented in Tables 5-6a through 5-6c, which show for each grade the proportion of students (based on several prevalence periods) who used heroin either *with or without a needle*, or both. For 8th graders, the tables show a rough equivalence between the two methods of administration from 1995 to 1999. Among 10th graders over the same time interval, somewhat more used heroin without than with a needle, with the difference being even greater for 12th graders. But in 2001 all three grade levels showed significant declines in the proportion of students using heroin without a needle. Use has changed little since 2002.

- As noted above, **ecstasy (MDMA)** use fell in all grades from 1996 (when it was first measured) through 1998 (see Table 5-5a and Figure 5-4l). But in 1999, use increased significantly in the upper two grades—one of the more important increases to occur in 1999. The 8th graders did not show this resurgence, however, until a year later, in 2000. A different dynamic seems to be at work for ecstasy than for most other drugs during this historical period, because it appears that the increase in use rippled *down* the age scale rather than the reverse. Annual prevalence of ecstasy use rose some in all three grades in 2001, but by lesser amounts, suggesting a clear deceleration in the rise. In 2002, annual use finally reversed direction and fell in all three grades, though only the 10th-grade decline was statistically significant. In 2003 a sharper drop occurred that was significant in all three grades; in 2004 the declines in all three grades were quite modest and

nonsignificant, and in 2005 only 12th graders showed any further decline, and that fell short of statistical significance. Since 2005, when use had reached a very low point in all three grades, there has been some modest rebound in the upper grades. Clearly the very substantial decline in ecstasy use appears to be over.

We predicted the important turnaround in ecstasy use in 2002, given the sharp increase in perceived risk observed for ecstasy in 2001—an increase that continued into 2004. We believe that one reason ecstasy use did not decline in 2001, given the sharp change in perceived risk, was that it was still in the process of diffusing to a larger proportion of communities in the country. While the diffusion process continued into 2002—based on the proportions of schools having at least some lifetime use of ecstasy reported by the student sample—the changes in beliefs about harmfulness more than compensated for the diffusion. It is worth noting that ecstasy, in contrast to many of the other drugs, was not showing a pattern of change in either the increase or decline phases that typifies cohort effects. For the most part, the shifts were parallel across grades, or slightly lagged for 8th graders, which is more consistent with secular trends.

- At all three grade levels, the annual prevalence of *Rohypnol* use remained fairly stable from 1996, when it was first measured, to 1998 (Figure 5-41). Decline then followed in all three grades through 2000, resulting in annual prevalence rates that were quite low: 0.5% in 8th grade and 0.8% in both 10th and 12th grades. Since 2000 there has been little systematic change in Rohypnol use. (Note that in 2002, for 12th graders only, the question was relocated to a different questionnaire form, so change must be calculated separately for the periods prior and subsequent to that change.)
- In 2000, tripwire questions about *Ketamine* and *GHB*, both “club drugs,” were added to the questionnaires. Both showed little change in their relatively low usage levels through 2003. In 2004 both drugs showed significant declines among 10th graders, and in 2005 GHB showed a significant decline among 12th graders. The annual prevalence of use of GHB in 2008 is 1.1%, 0.5%, and 1.2% in grades 8, 10, and 12, respectively; for Ketamine the corresponding rates are 1.2%, 1.0%, and 1.5%.
- The use of *steroids* among 8th and 10th graders fluctuated rather little between 1991 and 1998, but both grades showed a sharp and statistically significant rise in annual use in 1999 (Table 5-5b). As described in the later section in this chapter, “Trend Differences by Gender,” this increase occurred almost entirely among boys. (Twelfth grade is the only grade level at which perceived risk for steroids was measured, and even though use by 12th graders did not jump in 1999, their perceived risk fell sharply that year and the next. It seems likely that perceived risk fell among 8th and 10th graders, as well, in which case it may well have contributed to the sudden increase in use.) In 2000, only 10th graders showed a further increase (significant) in use, and in 2001 only 12th graders did so, possibly reflecting a cohort effect. Annual prevalence has declined steadily among 8th graders since 2000, falling from 1.7% in 2000 to 0.9% in 2008, and it also declined by more than half among 10th graders from 2.2% in 2002 to 0.9% in 2008. No decline occurred among 12th graders until 2005, when their annual prevalence rate fell (significantly) to 1.5%, where it remains in 2008. This was a decline that we predicted the

previous year based on the assumption that a cohort effect would reach 12th grade in 2005.

- **Androstenedione** and **creatine**—two other substances used for enhancing athletic performance and appearance—are discussed at greater length in chapter 10 (see Tables 10-7a through 10-8c). They were first measured in 2001. By 2008 the use of androstenedione in all three grades is below recent peak levels. The annual prevalence for using **steroids** and/or **androstenedione** is also below peak levels, though the decline has been least so far at 12th grade. Among 12th-grade boys, the proportion using either substance in the prior year reached impressively high levels (8.0% in 2001), after which it fell steadily to 3.0% in 2007, about where it remains in 2008. Creatine use turned out to be even more widespread, with annual prevalence reaching 22% of 12th-grade boys in 2001, but falling by about one third to 15% by 2007, about where it remained in 2008 (16%).
- From 1991 to 1993, the lifetime, annual, and 30-day prevalence measures for **alcohol** (Figure 5-4m) showed small declines in all three grades (except for 30-day use among 8th graders). Annual and 30-day rates then drifted upward between 1993 and 1996 among 8th and 10th graders, and between 1993 and 1997 among 12th graders. (This corresponds to the period in which the use of a number of illicit drugs, including cigarettes, was rising.) Between 1996 and 2001, there was some decline in drinking among 8th graders (e.g., 30-day prevalence dropped from 26% in 1996 to 22% in 2001), but not much change in the upper grades. In 2002, alcohol use for 8th and 10th graders decreased significantly for all prevalence periods (lifetime, annual, and 30-day). Twelfth graders' use of alcohol also decreased, though the changes were not statistically significant that year. Since 2002 there has been a modest further decline in 30-day drinking in all three grades, with the exception that in 2008 there was a sharp drop among 10th graders specifically. However, we think it likely that this was due to an unusual change in sample composition, thus we do not give it much attention at this point.
- **Occasional heavy drinking** (Figure 5-4n)—defined as having five or more drinks in a row at least once in the prior two weeks—had been rising gradually among 8th graders after 1991, among 10th graders after 1992, and among 12th graders after 1993, again reflecting a cohort effect underway. After rising three to four percentage points at each grade level, it began to decline in 8th grade after 1996, in 10th grade after 1997, and in 12th grade after 1998; but it changed rather little during the next several years. Among 8th graders, heavy drinking has now decreased from 13% in 1999 to 8% in 2008; among 10th graders it decreased from 24% in 2000 to 16% in 2008; and among 12th graders it decreased from 32% in 1998 to 25% in 2008.
- Students' reports of **having been drunk** in the past 30 days show a roughly similar pattern.
- Information on trends in use of the various classes of alcoholic beverages—**beer**, **wine**, **wine coolers**, **flavored alcoholic beverages**, and **liquor**—may be found in appendix D,

Tables D-74 through D-88. (Note that 8th- and 10th-grade questionnaires did not contain separate questions about use of wine or liquor.)

- **Cigarette** smoking is generally not expected to move synchronously across the three grade levels, because changes have usually been the result of cohort effects rather than secular trends (see chapter 6 for a further discussion of this point). However, the prevalence of current smoking began to rise among 8th and 10th graders after 1991 and among 12th graders after 1992, and until 1996 it had been moving steadily upward in all three grades (see Figure 5-4o). In 1996, current smoking peaked in grades 8 and 10, and peaked a year later among 12th graders. The proportional increases in smoking rates were considerable during this period—about a 50% increase in the two lower grades and a 31% increase in 12th grade.

Because of this general parallel movement, which is more characteristic of a secular trend, we are inclined to look for some contemporaneous historical correlates to explain the changes in this period. One possible explanation is that use rose because cigarette prices dropped on average due to increased price competition among brands. Another is that cigarette advertising and promotion had grown and/or become more effective at reaching youth. Still a third possibility is that the portrayal of smoking had increased appreciably in the entertainment media, particularly in movies. Some evidence points to all three of these changes in the social environment as possible influences; but whatever the specific causes, they seemed to have reached young people across the spectrum. Therefore, we infer that the changes observed in cigarette use were part of a secular trend. It is interesting that cigarettes, which normally reflect cohort differences, began to exhibit a secular trend in the same historical period that illicit drugs, which normally exhibit secular trends, began to show cohort effects.

In 1997 the 30-day smoking rate declined among 8th graders, leveled among 10th graders, and increased among 12th graders; but by 1998 there was evidence of a decline in all three grades, one that continued into 2003. In 2004 the decline continued in the lower grades, but at a much decelerated rate. As mentioned earlier, we think that the extensive adverse publicity generated by the state attorneys general, the President, and Congress in the debate over a possible legal settlement with the tobacco companies contributed importantly to this turnaround by influencing youth attitudes toward cigarette companies and their products. Substantial price increases, the removal of some forms of advertising (such as billboard advertising and the Joe Camel campaign), the implementation of vigorous antismoking advertising (particularly that launched by the American Legacy Foundation and some of the states), and strong prevention programs in some states all may have contributed. Despite the substantial recent declines, however, current (30-day) smoking rates remain high today at 7% of 8th graders, 12% of 10th graders, and 20% of 12th graders. In recent years the decline in smoking decelerated considerably in all three grades. The decline appeared to end among 8th and 10th graders by 2006 and among 12th graders by 2007; but then another drop appeared in 8th- and 10th-grade smoking in 2007 (the former being significant), and in 2008 all three grades showed some evidence of further decline (significant at 10th grade). It will be important to see if this encouraging new decline continues into the future.

- While there may have been some increase in the use of *smokeless tobacco* in the early 1990s (Figure 5-4p), there was evidence of a fair decline in recent years at all three grades through 2002. The results since 2003 suggest that this decline has ended in grades 8 and 12, and quite possibly in grade 10 as well.

## TRENDS IN NONCONTINUATION RATES: TWELFTH GRADERS

Table 5-7a shows how the noncontinuation rates observed for the various classes of drugs have changed over time among 12th graders. “Noncontinuation” refers to not using a drug in the prior 12 months after having used it at some earlier time in one’s life. In other words, the noncontinuation rate is the percent of lifetime users who did not report using the drug in the past 12 months.

- **Marijuana** has the lowest rate of noncontinuation of any of the illicit drugs (Table 5-7a). It had some increase in noncontinuation rates between 1979 (16%) and 1984 (27%). This increase contributed to the greater drop in annual compared to lifetime prevalence of use, because the latter is influenced only by changes in the initiation rate, whereas the former is influenced by both the initiation *and* noncontinuation rates. Between 1984 and 1987, noncontinuation rates leveled among 12th graders, followed by another rise to 35% in 1991, and then a sharp fall to 17% by 1995—a decrease reflected in the dramatic turnaround in annual and 30-day prevalence-of-use rates during the 1990s. By 1998 the noncontinuation rate among 12th graders had climbed some to 24%, where it has remained (24% in 2008).
- The noncontinuation rate for **cocaine** use among 12th graders decreased from 38% in 1976 to 22% in 1979, corresponding to, as well as contributing to, a period of increase in the annual prevalence of use. It then remained fairly stable through 1986, corresponding to a period of stability in prevalence of use. After 1986 the noncontinuation rate rose very substantially—from 25% in 1986 to 55% in 1991—as annual use fell dramatically. This pattern strongly suggests that the sharp increase in perceived risk, which began in 1986, influenced both the initiation rate *and* the noncontinuation rate. After 1991, during the relapse phase in the epidemic, the noncontinuation rate began declining fairly rapidly once again, reaching 31% by 1996. (The use of cocaine overall was increasing during that period.) After 1996, the noncontinuation rate rose again—corresponding to a period of leveling in overall use—reaching 42% by 2000, where it remained in 2001, before declining to 33% by 2007. It stands at 40% in 2008. In sum, changes in the noncontinuation rate have contributed appreciably to the overall changes, both increases and decreases, in the prevalence of cocaine use over the past three decades.
- **Crack cocaine** also showed a dramatic rise in noncontinuation, from 28% in 1987 to 52% in 1991, as prevalence-of-use rates declined among 12th graders. The noncontinuation rate fell back to 30% by 1995 as usage rates rose, and then began to increase once again, reaching 43% by 1998, when overall use leveled. It remains at 43% in 2008.

- Noncontinuation of *amphetamine* use has also fluctuated widely over the years among 12th graders. It rose between 1982 (27%) and 1992 (49%) as use declined. (Earlier data, based on the unrevised amphetamine questions, suggest that the change probably began after 1981.) Between 1992 and 1996, when overall use was rising, noncontinuation fell from 49% to 38%, then remained fairly level, corresponding to a period of leveling in use, before declining further to 36% by 2008.
- Much of the decline in *sedative* use during the 1980s was also accounted for by increasing rates of noncontinuation for the specific substances in this class. For example, in the case of *barbiturates*, the noncontinuation rate rose from 36% in 1979 to 52% in 1988. It then declined in the 1990s to 37% by 1995, after which it leveled for several years, and then declined further to 30% in 2002. It stands at 32% in 2008. The figure for *methaqualone* was 29% in 1979, rising dramatically to 61% by 1988 and falling off thereafter. Since 1990, use rates have been very low among 12th graders, and because the questions about methaqualone are on only one form, noncontinuation rates tend to be much more variable than for other drugs; the rate stayed in the range of 40% for some years, but in recent years has been closer to 30%.
- As overall use of *tranquilizers* was declining during the 1970s and into the 1980s, 12th-grade lifetime users also showed a steady, gradual increase in their noncontinuation rates between 1975 and 1982, from 38% to 50%. This rate changed little for a decade until, in the period of rising overall use in the 1990s, noncontinuation of tranquilizers declined from 53% in 1992 to 36% in 1996. The rate has remained fairly level since then (35% in 2007 and 30% in 2008), reflecting a period of relatively high use.
- Between 1982 and 1991, the *LSD* noncontinuation rate fluctuated within a rather narrow range (between 37% and 41%), without a clear trend developing. Between 1991 and 1996, though, the noncontinuation rate dropped from 41% to 30%, accounting for some of the increase in overall LSD use during that period. Since 1996 the noncontinuation rate more than doubled, climbing to 68% by 2003, as overall use declined dramatically. Since 2003 use has held fairly stable at very low levels, and the noncontinuation rate declined (among the dropping numbers of lifetime users) to 31% in 2008.
- Due to a combination of low prevalence rates, and being assessed on only two questionnaire forms, noncontinuation rates for *steroid* users are quite volatile. No systematic trends are evident.
- Although *alcohol* has always had an extremely low rate of noncontinuation, that rate increased gradually from about 1988 to 1993, perhaps reflecting the changed norms regarding its use (see chapter 8). These norms, in turn, may have reflected both the influence of a number of states changing the legal drinking age, and a greater emphasis being placed on the dangers of drunk driving. There has been little further change since 1993, however.

Table 5-7b provides noncontinuation rates for 12th graders who were more established users, here defined as those who reported having used a drug 10 or more times during their lifetime. It

shows that *noncontinuation is far less likely among heavier users than among other users of a given drug*. To illustrate, in 2008, noncontinuation rates for all drugs fell below 18% (with the single exception of that for inhalants, which was at 19%). Further, while the trends in noncontinuation rates among all users have been similar to trends observed in the same drugs for experienced users, the degree of fluctuation in noncontinuation has tended to be considerably smaller among heavier users.

The number of cases in each cell in Table 5-7b is considerably smaller than in most other tables, particularly when overall usage rates are low to start with; therefore, the trend data are somewhat uneven. Here are some examples of trends we have seen for noncontinuation rates of experienced users.

- The noncontinuation rate for experienced *marijuana* users has been very low throughout the past 33 years, ranging from a low of 4.0% in 1975 to a high of 12.3% in 1990.
- Noncontinuation rates for more experienced users of *inhalants*, who reported using 10 or more times, actually dropped in the late 1970s, perhaps as a result of the advent of nitrites, which are used at older ages than most of the other inhalants. However, when the use of nitrites declined among 12th graders during the 1980s, and again in the late 1990s, the noncontinuation rates for experienced users failed to increase. The noncontinuation rate for inhalants was 19% in 2008.
- The noncontinuation rates for *cocaine* and *crack* rose in the late 1980s, even among more experienced users, peaking in 1991 before falling back as the use of these drugs became more popular. After about 1996, the noncontinuation rates rose modestly, but have changed rather little in the past couple of years.

## IMPLICATIONS FOR PREVENTION

Whenever prevention programs are designed—whether for schools, families, communities, or the media—questions arise as to what *should* be prevented and what *can* be prevented. While it is axiomatic that the initiation of use should and can be prevented, there has been considerably less consensus as to whether the discontinuation of use is a realistic goal. We believe the results just presented here help to inform that debate.

The findings show that whatever social forces brought about the large declines in drug use during the 1980s and the substantial increases during the 1990s operated through effects on *both* initiation and noncontinuation rates. Put another way, the decreases and subsequent increases in annual and 30-day prevalence-of-use rates were considerably larger than could be explained by fluctuations in initiation rates alone. *These findings show that noncontinuation can and does change appreciably and, therefore, that any comprehensive prevention strategy should include increasing cessation as one of its objectives—particularly cessation from early stage use, as we discuss next.*

The findings also show the importance of distinguishing among users at different levels of involvement. A comparison of the rates in Table 5-7a, based on all previous users, and Table 5-7b, based on only experienced users (those using a given drug 10 or more times), is highly instructive. Clearly, 12th graders in the early stages of use were appreciably more likely to discontinue their use than their counterparts who had greater involvement with the drug (even as few as 10 occasions of use). This makes early intervention not only a viable goal for prevention, but also a particularly important one.

## TREND COMPARISONS AMONG SUBGROUPS

This section provides trend comparisons for key population subgroups defined on the following six dimensions: gender, college plans, region of the country, population density, socioeconomic status, and race/ethnicity. In general, we will focus on the results from 12th graders, given the considerably shorter trend interval available for 8th and 10th graders. Appendix D contains tables providing trends for these various subgroups for all three grades and on nearly all drugs. The tables are organized by drug, and within drug, by grade level. We also produce a matching set of figures showing, for all three grade levels, each drug's usage trends by subgroup. However, given the sheer number of these figures and the cost of reproducing them in color, we have not included them in the present volume, but instead make them available on the Monitoring the Future Web site at [www.monitoringthefuture.org](http://www.monitoringthefuture.org). (Click on "Publications" and then, under "Occasional Papers," locate Occasional Paper No. 71.<sup>58</sup>) We recommend using the graphic versions to anyone who plans to spend much time examining subgroup differences.

### Trend Differences by Gender

- Trends in the proportion of males and females who used *any illicit drug* in the prior year have differed some. Annual prevalence rose among 12th-grade males between 1975 and 1978, from 49% to 59%, and then declined steadily to 29% by 1992 (see Figure 5-7). Use among females peaked later, increasing from 41% in 1975 to 51% in 1981 and then dropping to 25% by 1992. (If amphetamine use is not included in the statistics, use by females peaked earlier—in 1979—and then declined as well.) Both male and female rates were up considerably by 1997, to 44% and 40%, respectively. Both have declined some since then, to 39% and 34% in 2008. Use by 12th-grade males has been consistently higher than for 12th-grade females, with the absolute differences larger in periods of higher use. Use in 10th grade has also been higher for males, though differences have been smaller than among 12th graders and have narrowed as the overall prevalence rate declined in recent years. The differences have been very small at 8th grade, with no difference since 2002.
- Females have generally had a slightly *higher* prevalence of use of *any illicit drug other than marijuana* in the lower grades, and trends have been fairly parallel, although this gender difference has increased since 2002 as use among males has declined more in 8th grade. In 12th grade, it is the males who generally have had higher rates, and the

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<sup>58</sup>Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Monitoring the Future Occasional Paper No. 71). Ann Arbor, MI: Institute for Social Research, 425 pp. Available: [www.monitoringthefuture.org/pubs.html#papers](http://www.monitoringthefuture.org/pubs.html#papers).

difference expanded some during the 1990s but has been closing in recent years as use among males declined more than among females (see Tables D-4 through D-6).

- Most of the gender differences mentioned in chapter 4 for individual classes of drugs have remained relatively unchanged over the past 33 years—that is, any trends in overall use have been fairly parallel for males and females. There are, however, some exceptions (see appendix D for the detailed tables or Occasional Paper No. 71 for the figures).
- The absolute differences between genders in *marijuana* use narrowed somewhat among 12th graders between the late 1970s and mid-1980s—a period of substantial decline. Their use rates then declined in parallel from 1986 to 1992. At all three grade levels, both genders also showed a several-year increase in marijuana use after 1992, during which the gender difference expanded somewhat. During the more recent period of decline in use, the gender differences have narrowed in all three grades, but then widened as use rose in the past two years. This pattern, in which a difference between subgroups tends to enlarge in periods of increasing use and to diminish during declines in use, can be seen for a number of other subgroup variables in addition to gender (e.g., see Figure 5-10b).
- This pattern was also seen for *inhalants*, though the nature of the gender difference varies across grades. In 8th grade, females have had higher rates of use than males; the difference was largest in the peak years of use, the mid-1990s, but diminished substantially as use then declined. During the recent rise in use since 2002, the gender difference emerged again; in fact, nearly all of the increase occurred among females; and this pattern has continued in the years since. In 10th and 12th grades, males have tended to have higher usage rates; the differences were again greatest in the mid-1990s. Among 10th graders (but not 12th graders) there has been a reversal since 2001, as female inhalant use rose but use by males did not. The gender difference among 12th graders diminished after 1995. In sum, for reasons that we cannot explain at this point, inhalant use was on the rise for three or four years among 8th- and 10th-grade girls, ending in about 2005. There was also a smaller increase among 12th-grade girls. But these increases have all ended and begun to turn around.
- Between 1975 and 1977, there was a small gender difference in *tranquilizer* use for 12th graders (females used them more frequently than males). This difference had virtually disappeared by 1978, and there was no gender difference for some 14 years thereafter (through 1992); but use among males rose more after 1992, surpassing females' use, and that remains true even though use has been declining gradually in recent years. Among 8th graders, tranquilizer use has been consistently higher for females since 1991, and among 10th graders, it has tended to be about the same or higher for females. In general, both genders have moved in parallel over time.
- Among 12th graders, gender differences in *cocaine* use were greatest in the peak years of use (1979 through 1986), when male use was higher. The differences diminished considerably during the ensuing decline phase, although male use remained higher. After 1992, the gender difference widened some as use increased more among males; this difference remained in recent years. No appreciable gender differences have been

observed in cocaine use in 8th or 10th grade since 1991, when data first became available.

- The gender differences in **crack** use are very similar to those for cocaine use overall among 12th graders, with higher rates of use among males since 1986, when data were first available. Use grew a bit more among 12th-grade males after 1992, but declined more among males than females since the turnaround after 1998. Little gender difference has been observed among 8th and 10th graders in the levels or trends.
- A slight gender difference in **amphetamine** use among 12th graders emerged in 1980 and 1981, based on the original version of the question; but the revised question introduced in 1982 (further clarifying that nonprescription stimulants should be omitted) showed no gender difference. This strongly suggests that over-the-counter diet pills, which are used much more by females, accounted for the higher reported use among females in those two years. Since 1982, the rates for both genders have remained very close. In both 8th and 10th grades, females have consistently reported higher use than males. Females had a sharper increase in use from 1992 to 1996, when use was rising, and a sharper decrease in use during declines.
- The use of **crystal methamphetamine** (data available only for 12th graders), or **ice**, which had been consistently higher among males, was higher among females in 2006 for the first time; however, there was little difference in 2007. In 2008 a significant decline was observed among females (annual prevalence now at 0.7%) but not among males (1.4%).
- **Methamphetamine** use has generally been slightly higher for males at 12th grade, but slightly lower at 8th grade, with no consistent gender difference at 10th grade. In 2008 a significant decline among females opened a difference in 12th grade, with annual prevalence at 0.7% among females and 1.8% among males.
- At 12th grade, the use of **Ritalin** without medical direction has generally been higher among males for the years on which we have data (i.e., since 2001); a sharp decline in reported use among males from 2005 to 2007 temporarily eliminated that difference, but it reappeared in 2008. In 8th and 10th grades, use rates across genders have been very similar in recent years.
- Among 10th and 12th graders, **heroin** use (including use with and without a needle) has been consistently higher among males. The same was true among 8th graders until 1999, after which males and females had similar rates. At 10th grade there has been some narrowing of the gender difference, however, since the late 1990s.
- From 1975 to 2005, the use of **sedatives (barbiturates)** was consistently slightly higher among males in 12th grade (the only grade reported), with the difference narrowing when use was declining (1975 to 1992) and enlarging when use was increasing (1992 to 2002). That long-term difference seems to have disappeared in the last two years.

- Trends for the two genders in the use of *narcotics other than heroin* (reported only for 12th graders) converged during a long period of decline in use from 1979 to 1992. (Previously, males had shown higher rates of use than females.) However, males showed a much sharper increase in use after 1992, again opening a substantial gap; it happened again after 2002. *Vicodin* and *OxyContin* use are both higher among males at 12th grade, without much consistent gender difference at the lower grades.
- Among 12th graders, the gender differences in *alcohol* use narrowed some between 1975 and 1987. For example, the 30-day prevalence rates for males and females differed by 13 percentage points in 1975 (75% versus 62%, respectively), but that difference was halved (to 7 percentage points) by 1987. (In 2008 the difference was five percentage points, having gradually narrowed in recent years.) In 8th grade, the genders have had very similar levels of use, but with a crossover in 2001 when females, who had previously had slightly lower rates of use, began to have a slightly higher rate. Similarly, at 10th grade, a previous difference in which males had higher rates of use was eliminated by 2002; there has been little gender difference in rates since then.

Although substantial gender differences in *daily alcohol use* and *occasions of heavy drinking* remain today among 12th graders, by 1993 differences had narrowed during the long period of decline (Figures 5-5b and 5-6a). For example, between 1975 and 1993 the proportion of 12th-grade males who reported having had five or more drinks in a row during the prior two weeks showed a net decrease of 14 percentage points (49% to 35%), whereas such use among females decreased by only 5 percentage points, from 26% to 21%.<sup>59</sup> By 1998, rates for both genders had risen some, to 39% and 24%, respectively, opening the gap a little. Since 1998 the gender differences have narrowed further. In the two lower grades, males have shown greater declines in heavy drinking in recent years, narrowing the gender differences there as well. Indeed, there has been no significant gender difference in 8th grade since 2002.

- Self-reports of *being drunk* may be a better indicator of heavy drinking than a fixed number of drinks. Even with this measure, males are substantially higher than females in 30-day prevalence among 12th graders (though the gap closed some in the early 1990s and even more in the last three years), only very slightly higher among 10th graders (14.6% for males and 14.3% for females in 2008), and about equal to females among 8th graders.
- Overall, then, we are seeing a convergence in *drinking rates* between males and females as use among males has declined more, narrowing or eliminating previous differences.
- On one of the six questionnaire forms administered to 12th graders, respondents are asked separately about their use of *beer*, *wine*, *hard liquor*, and *wine coolers*. (Tabular data are presented for these beverages in Tables D-74 through D-87.) The answers to

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<sup>59</sup>The same number of drinks produces a substantially greater impact on the blood alcohol level of the average female than the average male because of gender differences in the metabolism of alcohol and in body weight. Thus, gender differences in the frequency of actually getting drunk may not be as great as the heavy drinking statistics would indicate, since they are based on a fixed number of drinks.

these questions reveal that differences in *beer* consumption account for much of the large gender difference in occasions of heavy drinking: 28% of 2008 twelfth-grade males (versus 15% of females) reported having had five or more beers in a row during the prior two weeks (although the gender difference has narrowed over the years). Males were also slightly more likely than females to report having had five or more drinks of *hard liquor* (24% for males vs. 20% for females in 2008), but there has been little or no difference in having consumed *wine* that heavily (4.8% for males and 5.1% for females in 2008). This pattern—a large gender difference in the heavy use of beer, a smaller difference in the heavy use of hard liquor, and a much smaller difference in the heavy use of wine—has been present throughout the study, with only modest change over time. In 1988, questions on *wine coolers* were added, and here the gender difference was reversed, with females reporting slightly higher rates of heavy drinking of wine coolers (9.6% for females versus 4.5% for males in 2008). In 2003, a single question on annual use of *flavored alcoholic beverages* (“alcopops”) was added, and then in 2004 the full set of three questions (lifetime, annual, and 30-day) was added; here too females have shown a higher rate of use (e.g., 30-day prevalence of 29% for female 12th graders versus 26% for males in 2008); but even here the gender gap has narrowed recently.

- In the lower grades, male and female *alcohol* consumption rates are more equivalent, and have remained so since first measured in 1991. Unlike 12th graders, there is little or no gender difference in annual or 30-day prevalence of any use of alcohol or in the annual prevalence of *having been drunk*. These gender differences seem to emerge with age, as is the case for many illicit drugs. The pattern of emerging gender differences with age also holds true for *binge drinking* in the prior two weeks. The data have consistently shown only a small gender difference in 8th grade, a modest one in 10th grade, and a large one in 12th grade, with males higher than females. The same pattern has been observed for self-reported drunkenness (see Tables D-68 through D-70). As previously stated, during the past few years the gender differences have diminished somewhat, particularly in the upper grades, as use among males has declined more than use among females.
- In 1976 we observed that, among 12th graders, females had caught up to males in daily *cigarette* smoking, and by 1977 had exceeded them (see Figure 5-5c). Between 1977 and 1981, both genders showed a decline in the prevalence of daily smoking, but use among males dropped slightly more, resulting in females maintaining higher rates of daily smoking through 1990. However, the gender difference declined in the latter half of the 1980s, as male use began to rise gradually and female use declined a bit. The increase in daily smoking among males was greater in the 1990s—possibly due to the success of the Joe Camel ads that were aimed at boys—and female use did not begin to rise until after 1992. The net result was another crossover in prevalence of daily use in 1991, followed by a roughly parallel increase from 1992 to 1997. Both genders have declined sharply and similarly since 1997. In recent years, there has been little or no gender difference in daily smoking rates in any of the three grades. On the other hand, males in 12th grade have had somewhat higher rates of 30-day smoking in recent years because rates for females have declined more.

- Extremely large gender differences in the use of *smokeless tobacco* have been observed consistently at all grade levels, with much higher rates among males. Since 1994 there has been a substantial decline in overall use of smokeless tobacco among 8th-grade males (their 30-day prevalence dropped from 12.8% in 1994 to 4.7% by 2007), a considerable drop among 10th-grade males (from 19% to 9% in 2004), and, since 1995, a similar decline at 12th grade (from 24% in 1995 to 11% in 2006). In 2008, there has been a further significant decline in smokeless tobacco use, though not in 12th grade. Because use by females is so low and fluctuates so little, the gender differences rise and fall with the changes in males' use.
- Like smokeless tobacco, *steroid* use is much higher among males. But unlike smokeless tobacco, there have been some changes in rates of use among females, and the trends have differed somewhat for males and females. From 1991 to 1995 for 8th graders and from 1991 to 1996 for 10th graders, females showed a gradual increase in their steroid use, while use among males declined some or held steady. Then, from 1996 through 1999 for 8th graders and from 1996 to 2000 for 10th graders, males showed a much greater increase in steroid use than did females; this had the effect of widening the gender gap. Females exhibited a fairly steady increase in their use of steroids from the early 1990s through 2002 (and 2004 at 12th grade), despite their low levels relative to males. This increase halted in the lower grades in 2003 (and in 2004 at 12th grade), followed by a considerable decline. In 2008 the annual prevalence rates for females were 0.5%, 0.5%, and 0.4% at grades 8, 10, and 12, respectively, whereas for males they were 1.2%, 1.4%, and 2.5%, following a period of sustained decline for both genders.

Among males, there was a sharp increase in steroid use from 1996 to 1999 at 8th grade, from 1998 to 2000 at 10th grade, and from 1997 to 2001 at 12th grade—reflecting a cohort effect. After these periods of increasing use, there followed in each case a fairly sharp decline.

### Trend Differences by College Plans

In this section we compare college-bound students (those who say they “definitely will” or “probably will” graduate from a four-year college) with non-college-bound students (i.e., all others). It is important to realize that the proportion of young people expecting to attend college has risen dramatically over the 33 years of MTF.<sup>60</sup> In the mid-1970s, only about half of 12th graders expected to complete college, compared to 82% of 2008 seniors. This means that the two groups compared here (college-bound and non-college-bound) are changing proportions of the total population and, therefore, do not represent exactly comparable segments of the population across time.

Rather little such upward drift in college plans was seen during the 1990s at lower grade levels, but generally 78–90% of each class expected to attend college. Whether or not these expectations

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<sup>60</sup>For a description of changes in the demographic makeup of the MTF samples and a discussion of their implications for substance use, see Johnston, L. D. (2001). Changing demographic patterns of adolescent smoking over the past 23 years: National trends from the Monitoring the Future study. In National Cancer Institute, *Changing adolescent smoking prevalence: Where it is and why* (Smoking and Tobacco Control Monograph No. 14, NIH Pub. No. 02-5086, pp. 9–33). Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

are realistic, the reader is reminded that at these lower grades the non-college-bound constitute a much smaller proportion of the whole class than the college-bound (yielding smaller sample sizes for estimates), and thus their trend lines are much less smooth.

- Both college-bound and non-college-bound students have shown fairly parallel trends in overall *illicit drug use* over the years (see Figure 5-8 for 12th-grade data), with the non-college-bound consistently having the higher rate of use, particularly in 8th grade.
- Changes in the use of the other drug classes have also been generally parallel for the two groups since 1976, with only minor exceptions (see appendix D or Occasional Paper No. 71 on the MTF Web site for comparisons on the various drugs).
- Changes in *marijuana* use have been fairly parallel for the two groups at all three grade levels, maintaining large differences between them, particularly in the lower grades.
- *Cocaine* use has been higher among the non-college-bound throughout the period studied, and particularly so in the two lower grades. The differences tend to enlarge in periods of increasing use and diminish in periods of decreasing use, as is true for a number of drugs. For *crack* cocaine, the differences have been even more pronounced. The already large differences in crack use grew considerably during the increases of the early to mid-1990s, and then diminished somewhat during the decline phase since 1998.
- As the overall prevalence of use of many drugs fell through 1992 among 12th graders, there was some convergence of usage rates between the college-bound and non-college-bound due to a greater drop in use among the non-college-bound. This has just been illustrated for cocaine and crack, and it was also true for *tranquilizers*, *sedatives* (adjusted), *barbiturates*, *methaqualone*, *amphetamines*, *nitrite inhalants*, *LSD*, *hallucinogens other than LSD*, and *narcotics other than heroin*. But, as the use of several of these drugs increased after 1992, the differences grew larger for many of them at all grade levels (e.g., LSD, hallucinogens other than LSD, amphetamines, and tranquilizers). The increases were sharper, and in some cases started earlier, among the non-college-bound. In more recent years, use of a number of these drugs has declined, and with that decline has come a narrowing of the differences once again. This has been particularly true for LSD, for example.
- For many years there was only a modest absolute difference in the low annual *heroin* prevalence rates observed in 12th grade between the college- and non-college-bound students (the college-bound were lower). In the 1990s, however, among 12th graders the non-college-bound grew to about twice as high a prevalence of past-year heroin use, and this ratio has risen to three times as likely in the past couple of years (see Table D-36).

At the lower grade levels there has been a larger proportional and absolute difference in heroin use between these two groups, and in both grades the non-college-bound group showed a sharper rise in heroin use in the 1990s (see Tables D-34 and D-35). That increase was particularly sharp among the non-college-bound 8th graders (who now comprise only about 9% of the 8th-grade sample). The non-college-bound have generally

had considerably higher rates of heroin use, including use with and without a needle (see Tables D-37 through D-42).

- **Vicodin** and **OxyContin** have both shown large differences in usage rates between the college-bound and non-college-bound, with the latter having considerably higher rates of use. These two drugs have moved pretty much in parallel since they were first measured in 2002.
- The use of **ecstasy (MDMA)** among 12th graders started out higher among the non-college-bound in 1996, the year it was first measured, but from then until 2000 the rates of use were not very different, though they are still slightly higher among the non-college-bound. In the lower grades, the differences have been considerably larger and more consistent, again with the non-college-bound having the higher rates. Both groups showed an increase in 2000 and 2001 at all grade levels, but the increases were much sharper among the non-college-bound in the lower grades. (As Tables D-22 through D-24 show, these figures are based on relatively low case counts, making one-year subgroup differences in trends potentially unreliable.) After 2001, as use declined, the differences narrowed in the lower grades. Since 2005 some modest turnaround has been occurring—more sharply among the non-college-bound.
- **Ritalin** use outside of medical supervision has been much higher among non-college-bound 8th and 10th graders, but only modestly higher among non-college-bound 12th graders. (Use was first measured in 2001.) Again, the small numbers of cases have led to considerable variability in the estimates for the non-college-bound strata.
- **Methamphetamine** use has been much higher among the non-college-bound in all grades since use was first measured in 1999, with use trends for the two groups initially tending to move in parallel. However, the decline since 2005 has been sharpest among the non-college-bound, narrowing the differences.
- **Sedative (barbiturate)** and **tranquilizer** use have both been higher among the non-college-bound, with the differences generally expanding during periods of rising use and shrinking during periods of declining use.
- For 30-day **alcohol** prevalence, the non-college-bound have been consistently higher than the college-bound, though the differences have generally been much smaller at 12th grade than in the lower grades. After 1996, the gap in 12th grade widened a bit due to a greater drop in drinking among the college-bound. The proportional differential in all of the alcohol measures is greatest at 8th grade, smaller but still substantial at 10th grade, and least at 12th grade.

Among 12th graders, the **binge drinking** rates of the two groups converged modestly from 1981 to about 1990 (see Table D-73) as the overall prevalence rate declined, though the rate for the college-bound still remained considerably lower. Both groups showed small increases after 1993, but as use has declined some in more recent years, that decline occurred more among the college-bound, which increased the difference again. In both

8th and 10th grades, there were very large and growing differences in binge drinking rates between the college-bound and the non-college-bound during much of the 1990s because the non-college-bound exhibited a larger increase in binge drinking. Both groups showed evidence of decline in recent years (see Tables D-71 and D-72).

- At all three grade levels there have been very large differences in the current prevalence of *cigarette* smoking between the non-college-bound (who have much higher rates of use) and the college-bound. (For example, in 2008 the daily smoking rate was nearly five times as high among the non-college-bound 8th graders, at 10.8%, compared with the college-bound, at 2.3%.) In general, the broad contours of change have been fairly similar for the two groups at the 12th-grade level, but there was some convergence that occurred roughly from 1980 through 1993, as current smoking very gradually declined among the non-college-bound, but gradually increased among the college-bound. In 1980 there was a 17-percentage-point differential in current smoking (40% vs. 22%), which declined to a 10-percentage-point differential by 1993 (37% vs. 27%).

Current smoking rates among 8th and 10th graders diverged during the early to mid-1990s, with both groups increasing, and the non-college-bound increasing more. Then, at all three grade levels, the college-bound were the first to show a turnaround in current smoking in the mid- to late 1990s, leading their non-college-bound peers by a year or two. Trends for the two groups have been very parallel in recent years. (See Tables D-89 through D-97 for subgroup trends in cigarette smoking.)

- The use of *smokeless tobacco* has also been consistently much higher among the non-college-bound at all grade levels, and the proportional differences have been very large in 8th and 10th grades (see Tables D-98 through D-103). Again, the downturn in use in the mid-1990s began first among the college-bound, followed by their peers a year later at each grade. Both groups have shown a considerable drop in use in all three grades since the early 1990s. In 2008 there was a nonsignificant increase among the non-college-bound in all three grades, which may be an early warning of things to come.
- A large and rather consistent difference in the rates of *steroid* use (Tables D-104 through D-106) has been seen for the two groups at all three grade levels, with the non-college-bound considerably more likely to use steroids. During the phase of increasing steroid use in the late 1990s, both groups showed an increase; but the increases were greatest among the non-college-bound, enlarging the differences between the groups at all three grade levels. The more recent decline in steroid use began a year or two earlier among the non-college-bound than among their college-bound peers.
- In sum, the small proportions of students in 8th and 10th grades who do not expect to complete four years of college have consistently been a high-risk group for drug involvement with the licit drugs (alcohol and tobacco), nearly all of the illicit drugs, and even steroids.

### Trend Differences by Region of the Country

Data on subgroup trends for the four regions of the country may be found in tabular form in appendix D in this volume, and in graphic form in Occasional Paper No. 71 on the MTF Web site.

- In all four regions of the country, the proportions of 12th graders using *any illicit drug* during the prior 12 months reached their peaks in 1978 or 1979 (see Figure 5-10a and Table D-3). In the late 1970s and early 1980s, the Northeast region was consistently highest, the South lowest, and the Midwest and West in between. Through the 1980s and continuing through 1992, use declined overall. The South maintained its position as having the lowest rate of use, with the other regions having rates of use similar to one another. From 1992 to 1997, the annual use of any illicit drug increased in all four regions by roughly equivalent amounts, with use in the South remaining lowest. Since then there has been some decline in annual prevalence in all four regions, with 2008 annual prevalence rates ranging from a low of 36% in the Midwest, 36% in the South, 37% for the West (which has shown the greatest decline since about 2000), and 40% in the Northeast. The regional differences diminished during the period of declining use (and were least in 1992), but they widened after the increase in the 1990s. Now they are diminishing again, though there has been little decline in the Northeast.

Among 8th and 10th graders, the regional differences have generally been minor. All regions showed increases in illicit drug use from 1991 to 1996 (see Tables D-1 and D-2), and as with 12th graders, leveling or declines have occurred among 8th and 10th graders in recent years. The Northeast, however, showed a statistically significant increase in 2008 among 8th graders.

- As noted earlier, a major factor in the early rise of illicit drug use other than marijuana (Figure 5-10a) was an increase in reported *amphetamine* use. The rise in amphetamine use among 12th graders appeared in all four regions; however, the rise in lifetime prevalence of use from 1978 to 1981 was only 6 percentage points in the South, whereas in the other regions the percentages rose between 9 and 12 points. In essence, the South was least affected by both the rise and the fall in reported amphetamine use—a pattern later repeated with cocaine. Since 1995, there has been little systematic difference among the regions in levels of amphetamine use among 12th graders as their use has decreased. At 8th and 10th grades, the Midwest and the South have had higher rates than the Northeast and West in recent years.
- The long-term *marijuana* use trends for 12th graders have generally been quite parallel in all four regions since 1975, with the Northeast usually having the highest level and the South having the lowest level. Marijuana use rose substantially in all four regions after 1991 for 8th graders and after 1992 for 10th and 12th graders. Peak rates were highest in the Northeast in the upper grades. Between 1996 and 2005, all regions showed a leveling or turnaround at all grade levels. From 1999 to 2005, marijuana use was lowest in the South among 12th graders, but not among 8th or 10th graders. Since the late 1990s the Northeast has not shown as sharp a decline in marijuana use in 12th grade as did the other three regions, leaving it with a considerably higher rate of use by 2008.

- **Cocaine** use has shown very different trends in the four regions of the country, leading to the emergence of one of the largest regional differences observed for any of the drugs. (See Figure 5-10b for differences among 12th graders in lifetime prevalence-of-use trends.) In the mid-1970s, there was relatively little regional variation in cocaine use, but as the nation's cocaine epidemic grew, large regional differences emerged. By 1981, annual use had roughly tripled in the West and Northeast and nearly doubled in the Midwest, while it increased by only 26% in the South. This pattern of large regional differences held for about six years, until a sharper decline in the Northeast and West substantially reduced the differences. At all three grade levels, use increased modestly in all regions from the early 1990s through 1996 or 1997, followed by a leveling or turnaround in nearly all cases. For most of the years of the study, the West had the highest level of cocaine use at all three grade levels, but in recent years the differences have not been very large or even entirely consistent.
- When **crack** use was first measured among 12th graders in 1986, there were large regional differences, with the West and Northeast having far higher rates than the Midwest and South (as was true for powder cocaine also). Crack use dropped appreciably in all four regions over the next several years (though rates did not peak in the Midwest until 1987 or in the South until 1989, perhaps due to continued diffusion of the drug to areas that previously did not have access). Because the declines were large and very sharp in the West and Northeast, little regional difference remained by 1991, although the West still had the highest rate of use. After 1991 or 1992, during the relapse phase of the drug epidemic, there were increases in all regions, but particularly in the West. Again, the West showed the largest increases and the highest levels of use at all three grades, while the other three regions were fairly similar in their rates of use. In general, all regions showed evidence of a leveling or decline in crack use at all three grade levels in recent years, along with a diminution of regional differences.
- The use of **crystal methamphetamine (ice)**, measured in 12th grade only, has fairly consistently had the highest rate of use in the West. In 2008 the South and Midwest showed significant declines, placing them well below the other two regions.
- **Methamphetamine**, which was added in 1999 for all grades, has also generally shown high rates in the West in the upper grades, although regional differences have been narrowing as use has declined in recent years. The Northeast has generally had the lowest prevalence of use for this drug, perhaps because use is more concentrated in rural areas, as is discussed below.
- Between 1975 and 1981, sizable regional differences in **hallucinogen** use emerged for 12th graders, as use in the South dropped appreciably. In 1981, both the Midwest and the West had annual prevalence rates of use that were about two-and-a-half times higher than the South (10.3%, 10.4%, and 4.1%, respectively), while use in the Northeast was three times as high (12.9%). After 1981, through the remainder of the decade, hallucinogen use dropped appreciably in all regions except the South (which continued to have the lowest rate), considerably reducing these regional differences. In the early 1990s, use was still consistently lower than average in the South, but the differences among the other three

regions were small. A considerable increase in use in the South between 1991 and 1995 brought its annual rate close to the level of the other regions. Since the mid-1990s there has been a decline in all regions, and the differences among the regions are now quite modest.

Hallucinogen use by 8th and 10th graders has shown only small differences between the regions.

- Among 12th graders, the use of *LSD* was consistently lowest in the South from 1975 through 1994. Between 1988 and 1993, LSD use did not vary much among the other three regions for the 12th graders, although in earlier years the trend story was quite similar to that described for hallucinogens as a group. Between 1991 and 1994, LSD use rose more in the South, eliminating a long-standing difference between it and the other regions. Between 1993 and 1996, LSD use went up quite sharply in the Northeast region, once again creating regional differences. A decline after 1996 in the Northeast, followed by more modest declines in all regions, greatly diminished regional differences by 2003, which have remained very small since.

Regional differences in LSD use among 8th and 10th graders have generally been quite small, although the West had the highest rates of use among 8th graders from 1991 to 1998 and among 10th graders from 1991 to 1994. After 1997 the West experienced a sharp decline in LSD use among 8th graders, which reduced regional differences again. At 10th grade the other regions rose in their use, catching up with the West and eliminating regional differences by 1995. Since then all regions have shown considerable declines in LSD use, and there are now negligible differences among them.

- Use of *ecstasy (MDMA)* fell some at all grade levels in all regions between 1996 (when it was first measured) and 1998. (The one exception was the West in 12th grade, where it remained stable.) In 1999, when ecstasy use increased significantly in grades 10 and 12, the largest increase by far in both grades occurred in the Northeast, although all regions showed some increase in one or both of those grades. Then, in 2000, use rose some in the other three regions at all grade levels, including 8th grade, but not in the Northeast; the rise was particularly sharp in the West among 12th graders. In 2001 the Midwest region showed a sharp rise in 12th-grade use, followed by an even sharper drop in 2002. The South, the only region showing further increase in 2002, had only a fairly small increase among 12th graders. All regions then showed a sharp decline in ecstasy use through 2005 at all three grade levels, with some rebound thereafter occurring in all regions in both 10th and 12th grades. Regional differences are modest at present, with the West having a somewhat higher prevalence (2.2%) than the other three regions.
- Between 1979 and 1982, *PCP* use dropped precipitously in all regions for 12th graders. The drop was greatest in the Northeast, which in 1979 had a usage rate roughly double that of all the other regions. In general, PCP use was low and relatively stable from 1982 through 1995. Annual prevalence of PCP use increased in the Northeast beginning in 1996, and from 1996 to 1999, PCP use was again highest in the Northeast region. Since

then, PCP has been very low in all regions, though usually highest in the Northeast, based on the limited number of cases available for this drug.

- Some classes of drugs have shown little systematic difference by region over the years in which their use has been measured. These include *inhalants*, *heroin*, *heroin with a needle*, and *heroin without a needle*.
- The use of *narcotics other than heroin* has not varied much by region among 12th graders (the only ones for whom use is reported), with the exception that the South has fairly consistently had a lower rate than the other three regions, especially prior to 1988.
- *Vicodin* use has tended to be highest in the West and Midwest at all three grade levels, with no clear evidence for differential trends by region. Regional differences are difficult to distinguish for *OxyContin*, except that the West has tended to have the lowest use rate of the four regions.
- From the mid-1970s through the early 1980s, twelfth graders in the Northeast and Midwest had appreciably higher 30-day prevalence of *alcohol* use and heavy drinking rates than did those in the South and West. From the early 1980s to the early 1990s, all four regions exhibited substantial declines in 30-day alcohol prevalence and *occasions of heavy drinking*, with the Northeast and Midwest declining most. As a result, the regional differences for 12th graders on these measures diminished somewhat; however, the relative positions of the four regions have remained essentially unchanged. During the past several years, there has been some decline in alcohol use in all regions at all grade levels. Among 12th graders, the South and West still have had the lowest rates and the Northeast and Midwest the highest, at least until 2008 when a large drop was observed in the Midwest. (We doubt that this unusual change will hold up next year.)
- At the lower grades there has been rather little regional difference for 30-day prevalence and *heavy drinking* since 1991, when data were first collected on these measures, and the trends have generally been quite similar across regions.
- These trends in regional differences for 30-day prevalence of alcohol use also apply to the two measures of heavy drinking—self-reported occasions of *drunkenness* and *binge drinking* in the prior two weeks.
- Among 12th graders, the West had a considerably lower 30-day prevalence of *cigarette* smoking from the mid-1970s through the mid-1980s, though sharper declines in the South brought its smoking rate close to the rate in the West by 1984. It is noteworthy that from 1992 to 1994—a period of overall increase in cigarette smoking—the West was the only region that did not show an increase in daily smoking in 12th grade (although by 1995, use had begun to increase in the West as well). This lack of increase in the West may well be due to the fact that California conducted a major antismoking campaign in those years. There was also a similar lag and a lower increase in the West at 10th grade compared to other regions; the 8th graders in the West showed the least increase and also remained the lowest of the four regions. Despite regional differences being more

pronounced during the 1990s due to this divergence by the West, all regions at all grade levels showed important declines in smoking rates from the mid- or late 1990s through the early 2000s, diminishing regional differences somewhat. In the interval 2003–2006 all regions showed some evidence of leveling use among 8th graders after a preceding period of decelerating decline; that led us to conclude that their decline in smoking was over. But in 2007 three regions showed a further one-year decline, with the declines in the South and Northeast being statistically significant. In the upper grades, only the South showed a continuation of decline in 2007. In 2008 all three grades showed further decline on average, suggesting that the decline has resumed, though not all regions showed declines in all three grades.

- The use of *smokeless tobacco* has generally been highest in the South for 8th and 10th graders, followed closely by the Midwest. This has generally been true among 12th graders as well; however, use in the Midwest rose sharply after 1989, giving that region the highest rates until about 2000, with the South usually ranking second. During the late 1990s, use of smokeless tobacco fell in all regions in all three grades. The decline in the Midwest was particularly steep in all grades, especially in 12th grade, resulting in the South again having the highest prevalence of smokeless tobacco use in all grades by 2002. Among 12th graders, the rates in the South and Midwest had been quite similar and generally higher than in the other two regions, until 2008 when the Northeast moved to the top. The regional estimates are somewhat unstable for this drug, so it remains to be seen whether this realignment holds next year.
- In general, the regions have shown fairly parallel movement in *steroid* use at all three grade levels. In particular, the sharp increase in steroid use that occurred at grades 8 and 10 between 1998 and 1999 was observed in all regions, suggesting that a culture-wide influence was at work—quite possibly the well-publicized use of steroids or steroid precursors by professional athletes. (Note that, because of the smaller samples on which this question is based in 12th grade compared to other drugs, the trend curves for that grade are more uneven.)

### Trend Differences by Population Density

Appendix D contains tabular trend data on all drugs for the three levels of community size distinguished here: (a) large MSAs, which contain most of the largest Metropolitan Statistical Areas from the most recent Census data; (b) other MSAs, which are the remaining ones; and (c) non-MSAs (see appendix B for more detailed definitions).

Selected figures are presented in this chapter, and a complete set of figures that are far easier to read than tables may be found in Occasional Paper No. 71 on the MTF Web site.

- Proportions of 12th graders using *any illicit drug* in all three levels of community size peaked in 1979, at which time there were appreciable differences in usage rates, with the large cities having the highest rate and the nonurban areas the lowest (see Figure 5-11a). Usage rates declined from 1979 to 1992, when the annual prevalence in all three areas converged at 27%, virtually eliminating the prior differences. (Most of the narrowing was due to changing overall levels of marijuana use.) After 1992 there were increases in use

of any illicit drug among all three levels of community size, but the increases were smallest among the nonmetropolitan segment, leaving that segment with somewhat lower rates than the other two strata. The increases halted after 1995 in the large MSAs and after 1997 in the other MSAs and non-MSAs. (There was also a lag in the beginning of the decline that began in the late 1970s, with the non-MSAs declining last.) In 2007 the non-MSAs continued to have the lowest rate of use; but an increase in their use in 2008 placed them above those in the other MSA category.

In the lower grades there has not been much difference between the three community-size strata, which have moved in parallel for the most part. The one exception was that, during the period of ascending use in the first half of the 1990s, use rose most quickly in the other MSA stratum; but the other regions caught up by 1996 at 8th grade and by 1999 at 10th grade. No such divergence occurred in 12th grade during that period.

- The overall proportion of 12th-grade students involved in the use of *any illicit drug other than marijuana* peaked in communities of all sizes in 1981 and then fell until 1991 or 1992 (Figure 5-11a). Since 1989 the large MSAs have generally shown slightly lower rates than the other two strata—a reversal of earlier differences. After 1991 or 1992, the rates for all three strata started to increase gradually, though the increase halted in 1996 for the large MSAs, after 1997 for the other MSAs, and after 1999 in the non-MSAs. The large metropolitan stratum has shown a substantial drop in this index since 2001 in both 8th and 10th grades, with the result that the large cities still have the lowest prevalence rate in all grades in 2008.
- During the years in which the use of various drugs generally increased, significant differences emerged across the three community types in the use of several specific classes of drugs. Figures 5-11b and 5-11c show the trends for the annual prevalence of use of *alcohol*, *marijuana*, and *cocaine*. The differences among the three population density strata were greatest (with large cities at the top) in the peak years of use for each drug, but as use declined during the 1980s, the three strata tended to converge.
- For example, the increase in *cocaine* use between 1976 and 1979, although dramatic at all levels of population density, was clearly greatest in the large cities. Between 1980 and 1984, use was fairly stable in all groups, but in 1985 it showed a rise in each. In 1986, use stabilized again in all groups, and in 1987 it began a long-term decline. Just as the earlier rise had been greatest in the large cities, so was the decline (see Figure 5-11c). By 1991 there were only small differences by population density in cocaine use among 12th graders, and this remained the case through 1998. Then use started declining in the large MSAs a year before it did in the other two strata, resulting in some differences in usage levels. Since 1996 the large cities generally have had the lowest annual prevalence for cocaine use at 12th grade, instead of the highest—a reversal of the differences in all of the years prior to 1989. The only exceptions since then occurred in 2005 and 2006, when use rose briefly in the largest cities, and in 2008 when use in other MSAs dropped below that of the large MSAs. There have been very small community-size differences in cocaine use at the 8th- and 10th-grade levels since 1991, when data were first available, and even at 12th grade there have not been large differences since then.

- In the late 1980s, the use of *crack* among 12th graders declined more in the large cities (where it had been at a considerably higher level) than in the smaller areas. Between 1986 (when it was first measured among 12th graders) and the low point in 1991, annual use decreased by 4.7 percentage points (from 5.9% to 1.2%) in the large cities, by 1.8 percentage points (to 1.7%) in the other cities, and by 2.3 percentage points (to 1.2%) in the non-MSAs. In other words, the previous differences virtually disappeared. The increases in use after 1991 or 1992 in all three grades opened gaps by community size, and the non-MSAs became highest in use for a few years, until the three levels of community size began to come together as overall use declined after about 1998.
- In the early years of MTF, *marijuana* use varied consistently with community size among 12th graders (larger communities had higher use); the greatest differences occurred in 1978, one of the peak years of usage (see Figure 5-11b). After that, both the absolute and proportional differences diminished as use declined quite steadily through 1992. Between 1991 or 1992, communities in all size categories showed a turnaround in marijuana use (in fact, the turnaround began a year earlier in the non-MSAs) through 1997. As use increased the differences began to re-emerge, though this time they were mostly between the two metropolitan strata versus the nonmetropolitan stratum (which has the lowest prevalence). As use decreased in the early 2000s, the differences linked to community size also decreased some. At the lower grades the differences among strata have been small, and have tended to trend in parallel. The other MSAs have tended to have the highest, or near the highest usage level, in most years.
- In general, *heroin* use has been fairly equivalent across the three types of communities—a fact that may surprise many—and has exhibited quite parallel time trends. In the lower grades the non-MSAs most often have had the highest rate of use.
- In the late 1970s, the use of *narcotics other than heroin* among 12th graders was consistently highest in the large MSAs and lowest in the non-MSAs. All groups declined in use throughout the 1980s and into the early 1990s, then increased again; however, the differences among groups were diminishing, and by 1995 the annual prevalence for all three groups converged at 5%. Since then the association between community size and prevalence rates for narcotics other than heroin has been generally inconsistent, though since 2003 the usage rate has been lowest in the large MSAs, and for the past three years the non-MSAs have been highest. (This class of drugs is not measured in 8th and 10th grades.)
- *OxyContin* use was first included in MTF in 2002. Because of the low numbers of cases, the trend lines are uneven, but they generally show the highest levels of use in the non-MSAs and the lowest in the large MSAs.
- *Vicodin* use, which was also first included in 2002, has shown a less clear association with population density.
- *Amphetamine* use has generally been lowest in the large MSAs and highest in the non-MSAs in recent years at all three grade levels, although differences are modest.

- **Methamphetamine** use has tended to be lowest in the large cities at all three grade levels, at least since the question was introduced in 1999. All strata have shown substantial decreases in use and more convergence since then.
- The use of **crystal methamphetamine (ice)** was added to the questionnaires for 12th graders in 1990. While use in all community types rose for some years, it rose most in the large cities, where it peaked in 1996 at a rate well above the less urban strata. Thereafter, however, use in the large cities declined rapidly, and since 1998 there has been little difference in use of crystal methamphetamine across the three strata. Use is not reported for 8th or 10th grade.
- **Sedative (barbiturate)** use is reported only for 12th graders. The rates among the three population density strata were very close and declined very much in parallel from 1975 through 1988. Then the large MSAs declined further and achieved the lowest rate of use. All three strata had an increase in use in the 1990s, but the large MSAs have continued to have the lowest rate of sedative use.
- **Tranquilizer** use has moved pretty much in parallel for the three strata, with large MSAs tending to have somewhat lower rates.
- Among 12th graders, there was a greater decline in 30-day **alcohol** prevalence in the large cities from 1980 to 1983, which virtually eliminated the previous differences among the three strata (see Table D-67). From 1983 to 1992 or 1993, parallel (and substantial) declines occurred in all three strata, followed by a leveling in the early 1990s and then a decline at all three grades. At the lower grades the trend lines have been fairly parallel and about equivalent for all three strata.
- For occasions of **heavy drinking**, the trends for the three grades are fairly similar to those for 30-day prevalence, except that the non-MSAs tended to have the highest rates of this behavior in the 1990s at all grade levels, particularly in the lower grades (see Tables D-71 through D-73). This high rate of use emerged at 8th grade due to a greater increase in heavy drinking in the non-MSAs than in the other strata during the 1990s. It already existed in 10th grade at the time of the first measurement in 1991. The pattern is less clear at 12th grade, but the prevalence of heavy drinking has tended to be slightly lower in large cities than in the other two strata, at least until about 2005. Since 2005 the differences among strata have been small at all three grades, in large part due to the declines in use that have taken place.
- In the early to mid-1990s, there were increases in **cigarette** smoking in all three strata for all three grade levels (see Figure 5-11d and Tables D-89 through D-91). The increases in all three grades were particularly sharp and lasted longer in the non-MSAs, thus creating a divergence across community types, with use highest in the non-MSAs and lowest in the large cities. In 1997, use began declining in the 8th and 10th grades in the large and smaller cities, while it continued to increase in non-MSAs. This pattern continued among 8th graders in 1998 and 1999, creating quite a large difference in smoking rates by stratum. Among 10th graders a similar difference emerged, but smoking finally began to

decline in 1999 in the non-MSAs as well. In 12th grade, all three strata have shown substantial declines since 1998, but the non-MSAs clearly still have the highest smoking rate in all three grades, and the large cities have had the lowest. In sum, a rather strong negative relationship between community size and smoking emerged during the life of the study, and remains today.

- **Smokeless tobacco** use is strongly related to community size at all three grade levels, with by far the highest rates of use in non-MSAs and the lowest rates in the large cities. This has been a consistent finding except for a couple of years at 12th grade, where reported use spiked in large cities. The trends, however, have been quite parallel across communities of different size, with all strata showing a long-term decline in use through about 2002, and some leveling in use since then.
- **Steroids** show little difference in usage rates as a function of population density or systematic variation in trends related to population density.

### Trend Differences by Socioeconomic Status

The measure of socioeconomic status (SES) used in MTF—namely, the average educational attainment level of the respondent’s parents—is described in the previous chapter and in appendix B. Five different strata are distinguished, and students are sorted into those strata each year. It should be noted that, because the average educational level of parents has risen over the years, each of the five categories contains a slowly changing proportion of the sample. Figures 5-12a through 5-12f show trends for six selected measures of drug use by average level of parents’ education. Trend data by subgroup for all drugs may be found in tabular form in appendix D and in graphic form in Occasional Paper No. 71 on the MTF Web site.

In general, there has been little change over time in the relationship between family SES, as measured by parents’ education, and prevalence-of-use rates for most of the drugs.

- **Marijuana** use at 12th grade, for example, has had little association with SES since MTF began, with the single exception that the lowest SES stratum has generally had a somewhat lower prevalence-of-use rate than all the others. Marijuana use declined similarly across all SES levels from the late 1970s through 1992 (Figure 5-12a), and then rose comparably in all three grades after 1992 before leveling and/or declining a bit in the late 1990s and early 2000s. At the 8th-grade level, there tends to be more of an ordinal negative correlation between marijuana and parental education level, and it grew much stronger after 1996, with a considerable difference in marijuana use emerging among the strata. There was a similar trend toward a stronger negative association in 10th grade, as well, but the differences are not as large. By 12th grade, however, no such association is evident. At the two lower grade levels, the decline occurring in recent years has been steeper for students from more highly educated families.
- **Cocaine** use has shown the largest and most interesting change in its association with SES (Figure 5-12b). During the incline phase of the cocaine epidemic—from 1975 through 1981—a strong *positive* association evolved among 12th graders between cocaine use and SES, with the greatest increase in use occurring in the highest SES group

and the least in the lowest SES group. From 1981 or 1982 to 1985, use in the top SES levels declined some, while use in the lowest SES group increased substantially—an increase that likely reflected the introduction of the less expensive form of cocaine, *crack*. The net effect of these changes was the elimination of SES group differences in cocaine use after 1985. The strong positive SES–cocaine use association that had existed for roughly eight years disappeared. Use across all SES levels showed a substantial decrease between 1986 and 1991, with little differential change. Then, in the upturn between about 1991 and 1997, some reversal in the relationship emerged, with the lowest SES group tending to show the highest level of use and the highest SES group tending to show the lowest level, though the differences are not large.

In the 8th and 10th grades since 1991, when data were first available, the use of both *crack* and other cocaine has been similar for most strata (though there is a negative association between use and SES), with one important exception: crack use is considerably higher in the lowest SES stratum than in any of the other strata. A similar pattern has been evident among 12th graders for crack use (only) since about 1992.

- *LSD* use and SES were positively correlated among 12th graders until about 1999, at which time use in all strata plunged, eliminating any such differences by 2003 (see Figure 5-12c). However, among 8th graders, those in the lowest SES stratum consistently exhibited the *highest* usage, with hardly any differences among the other strata; among 10th graders, the differences have been negligible.
- Little difference is observed across the five SES categories in reported use of *inhalants* (see Tables D-10 through D-12).
- Overall, among 12th graders, little difference has existed among the SES groups in their trends in *amphetamine* use (see Figure 5-12d). In earlier years (1976 through 1990), there was usually a slight curvilinear relationship, with the two highest and the lowest SES groups tending to be low in amphetamine use. From 1991 through 1995, the two or three highest SES groups had the lowest rates of amphetamine use. After 1992, increases in use occurred in all strata. In 8th and 10th grades, amphetamine use has generally been slightly negatively correlated with SES; while the increases in use through 1995 or 1996 occurred in all groups, they were sharpest in the lower two strata. More recently, 8th and 10th graders in all strata have shown some decline in use, but the differences among them remain.
- *Methamphetamine* use has tended to be highest in the lowest SES stratum at all three grades since it was first included in 1999, and lowest in the two top SES strata. In recent years, use of *crystal methamphetamine (ice)* has followed the same pattern, and the differences among strata have enlarged as use fell more in the upper SES strata. In 2008 a spike in the reported use for both drugs in the upper SES stratum led to more equivalent rates, but this could be due to sampling error.
- Since 1991, when the surveys of the lower grades began, *heroin* use, including use with and without a needle, has been highest in the lowest SES group for 8th and 10th graders.

Otherwise there has been little systematic difference across the various strata. A similar pattern emerged among 12th graders—though not until after 1994—and it still exists.

- By way of contrast, the use of *narcotics other than heroin* among 12th graders (the only grade for which this behavior is reported) has generally been lowest in the lowest SES stratum, with relatively little difference among the other strata, since MTF began.
- The use of *OxyContin* tended to be negatively associated with SES in all three grades when first measured in 2002, but usage rates have been converging among the five strata since then. The same was largely true for *Vicodin*, as well.
- The use of *sedatives (barbiturates)* has shown no systematic relationship to SES since the beginning of the study. (Only data for 12th grade are reported.)
- *Tranquilizer* use at 12th grade has shown little systematic association with SES. The various SES strata generally moved in parallel, though they have become somewhat more differentiated in recent years. In the lower grades, particularly 8th grade, the lowest SES stratum has tended to have the highest prevalence while the two top SES strata have had the lowest rates of use. The differences have widened since 2002 as the upper SES strata have shown steeper declines in use than the others.
- The picture for *alcohol* use among 12th graders is similar to the one described earlier for marijuana use: that is, little difference in 30-day prevalence rates across the SES strata, except that the lowest stratum has fairly consistently had a lower prevalence than all the others, and all strata have moved approximately in parallel. The story for 12th-grade *binge drinking* is similar (Figure 5-12e).

At the lower grade levels, however, the story is quite different. Binge drinking has generally been inversely correlated with SES, and the association has been strongest in 8th grade, where the differences are substantial. Trends for the various strata have generally been parallel, nonetheless.

- Prior to 1981, daily use of *cigarettes* among 12th graders was generally inversely related to SES, with each successively higher SES group smoking less (Figure 5-12f). Between 1981 and 1991, this ordinal relationship diminished substantially because (a) the two highest SES groups showed some gradual increase in use; (b) the next two strata remained unchanged; and (c) the lowest SES group showed a decline in use, which brought it from the highest smoking stratum to the lowest (probably due to its racial composition, as will be discussed in the next section). The net result of this and other trends was a near elimination of the SES differences among 12th-grade students in daily cigarette smoking. From 1992 to 1997, all strata showed an increase in daily smoking. From 1997 to 2003, there were sharp declines in smoking in the two highest SES strata—with later and slower downturns in the other strata—once again opening up some differences by SES, though not as large as the differences that existed in the 1970s and 1980s. This time the lowest SES stratum is not at the top but rather down near the bottom of the rankings—again, likely because of its racial composition.

It is possible that the introduction of the Joe Camel advertising campaign in 1988 helped account for the closing of the socioeconomic gap in the late 1980s, and that its termination in 1997 helped account for the re-emergence of that gap. We know that between 1986 and 1997, the rise in smoking was sharper among 12th-grade boys than 12th-grade girls, and the Camel brand was particularly popular among boys and those whose parents had higher than average education.<sup>61</sup> So, the Joe Camel ad campaign may have been particularly effective with boys from more educated strata, raising the smoking rate of their SES strata and nearly eliminating the relationship between SES and smoking that existed before and after the years of the campaign for that brand.

In 8th and 10th grades, 30-day smoking rates increased in all SES strata from 1991 to 1996, after which there was a period of downturn. The lowest SES stratum was the last to show a downturn, increasing the SES differences. In 8th grade, smoking has been consistently negatively correlated with SES, with quite large proportional differences among the strata.

### Racial/Ethnic Differences in Trends

While the three major racial/ethnic groups examined here—Whites, African Americans, and Hispanics—have tended to be quite different in their level of usage for some drugs, they have exhibited similar trends in almost all cross-time changes in drug use.<sup>62</sup> (Cigarette use is an exception, as discussed later.) Data have been examined here for these three groups using two-year moving averages of prevalence to provide smoother and more reliable trend lines.<sup>63</sup> Even with the two-year averages, the trend lines tend to be a bit irregular for Hispanics, who are the most clustered by school, and, therefore, for whom we have the most variability in estimates. See appendix D for the racial/ethnic trend data on all classes of drugs; see Occasional Paper No. 71 on the MTF Web site for a graphic presentation of these trends.

- Figure 5-13a, which shows the changes in annual *marijuana* use among 12th graders for the three groups, illustrates the great similarity in these trends—particularly during the long decline phase that began at the end of the 1970s. Generally, among 12th graders, Whites have had the highest level of use and African Americans the lowest, with Hispanics in between. Use fell more in the first decline phase (roughly 1979–1992) among African Americans than it did in the other two groups, expanding the differences among them. But then use rose more among African-American 12th graders in the relapse phase of the epidemic (roughly 1992–1997), narrowing the gap. Marijuana use among African Americans also leveled earlier (in 1997) than it did among Whites (in

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<sup>61</sup>Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (1999). *Cigarette brand preferences among adolescents* (Monitoring the Future Occasional Paper No. 45). Ann Arbor, MI: Institute for Social Research.

<sup>62</sup>We have published articles examining a wider array of ethnic groups, using groupings of respondents from adjacent five-year intervals in order to obtain more reliable estimates of trends. See Bachman, J. G., Wallace, J. M., Jr., O'Malley, P. M., Johnston, L. D., Kurth, C. L., & Neighbors, H. W. (1991). Racial/ethnic differences in smoking, drinking, and illicit drug use among American high school seniors, 1976–1989. *American Journal of Public Health, 81*, 372–377. See also Wallace, J. M., Jr., Bachman, J. G., O'Malley, P. M., Johnston, L. D., Schulenberg, J. E., & Cooper, S. M. (2002). Tobacco, alcohol and illicit drug use: Racial and ethnic differences among U.S. high school seniors, 1976–2000. *Public Health Reports, 117*(Supplement 1), S67–S75; and Delva, J., Wallace, J. M., Jr., O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American eighth-grade students in the United States: 1991–2002. *American Journal of Public Health, 95*, 696–702.

<sup>63</sup>A given year's value in a two-year moving average is based on the mean of the observed values for that year and the previous year.

1999). (Recall that we are using two-year averages, which slightly moves some of the inflection points from what we have been discussing previously.) All three groups showed a rise in marijuana use in all three grade levels in the mid-1990s, followed by a leveling and then decline in the late 1990s and early 2000s (see Tables D-7 through D-9). Hispanic 12th graders showed a particularly sharp decline from 2000 to 2004, narrowing the difference between them and African-American students.

While the trends for Whites and Hispanics have generally been fairly parallel to each other, their relative positions have been different at the different grade levels. In 8th grade, Hispanics have consistently shown the highest rate of use, while Whites and African Americans have been similar at considerably lower rates. By 10th grade, Whites have shown rates of use similar to Hispanics, whereas African Americans have had the lowest rates. By 12th grade, with few exceptions, Whites have had the highest rates, Hispanics slightly lower ones, and African Americans the lowest. We believe that differential dropout rates may account for much or all of these shifts in relative position across the three grade levels (Hispanics have the highest rate of dropping out, and African Americans the next highest). During the recent period of decline in marijuana use, Hispanics have shown a sharper drop than Whites or African Americans in all three grade levels, narrowing the differences between these two groups. African Americans have also shown smaller declines than the other two groups in all grades, bringing all three racial/ethnic groups closer together. At 12th grade, however, there remains a wide gap between Whites and the other two groups in the prevalence of marijuana use, with Whites remaining appreciably higher.

- Figure 5-13a shows the long-term trends for annual *cocaine* use among 12th graders. It clearly shows that the rise in cocaine use (in 1976–1979) occurred more sharply among Whites and Hispanics than among African Americans. The decline among African Americans appears to have begun earlier, but perhaps of greatest importance, all three groups participated in the sustained decline in cocaine use after 1986. Between 1984 and 2001 Hispanics had somewhat higher cocaine use rates than Whites, but a rise in use among Whites eliminated the difference by 2002. Cocaine use by African-American 12th graders fell to very low levels by the early 1990s and stabilized there. In the lower grades, there are large differences among these three racial/ethnic groups in cocaine use, with African Americans consistently reporting very low (and unchanging) rates of use since 1992 (the first year of measurement), Hispanics consistently reporting relatively high rates, and Whites falling in the middle. Only Whites and Hispanics showed a rise in cocaine use in the early 1990s, and both groups have shown a decrease since.
- The three racial/ethnic groups have generally shown large disparities in their use of both *cocaine powder* and *crack cocaine*. At all three grades, African Americans have consistently had the lowest prevalence by far of use of cocaine powder. At 12th-grade, use of cocaine powder among Whites fell very sharply from the first measurement point in 1988 through 1992, dropping below use by Hispanics until 2002, when a sharper drop in use by Hispanic 12th graders led to another crossover. In 2006 and 2007 the two groups had similar rates of use, but by 2008 Whites had exceeded Hispanics in their use of cocaine powder.

For crack, however, Hispanics have had the highest rates of use in all three grades since the first measurements in 1987 (for 12th graders) and 1992 (for 8th and 10th graders), and African-American students have consistently had the lowest rates. African Americans are the only ones to show some increase in crack use in recent years—an increase among 12th graders that continued from 1998 through 2004 before decreasing slightly in 2005 and 2006. Despite the increase, African Americans still have much lower rates of crack use at all grades than Whites or Hispanics.

In 8th and 10th grades, use of cocaine powder rose the most among Hispanics from 1992 through 1996 or 1997, whereas over the same interval, use rose moderately among Whites and very little among African Americans. Since then, Hispanics have had considerably higher rates of cocaine powder use than the other two groups at both grade levels. They also report considerably higher use of crack. Indeed, at the lower two grade levels, the trends for crack and cocaine powder are very similar.

- It is clear that inhalants have not been popular with African-American teens: at all grade levels they have shown dramatically lower rates of *inhalant* use than either Whites or Hispanics, and their use has fluctuated much less. At 10th and 12th grades, Whites have generally had the highest rates of inhalant use, with Hispanics not far below (although in recent years the difference lessened as use by White students declined sharply). At 8th grade, usage rates for both Whites and Hispanics have generally been quite similar and have moved in parallel. At the 12th-grade level, the rise in reported inhalant use (unadjusted for the underreporting of nitrites) occurred about equally among Whites and Hispanics from 1976 through 1995, whereas African Americans showed practically no increase in their already low levels of use. African-Americans now have an annual prevalence that is approximately a third (or less) of the prevalence of use of Whites. A similar picture emerged in 8th and 10th grades, except that the increase in the early and mid-1990s among Hispanics and Whites was even steeper than the increase in 12th grade. Since 1998, eighth-grade Hispanics have generally had slightly higher usage rates than Whites because their use did not decline as much; however, in 2006 and 2007 their usage levels have been very similar, as is true at 10th grade as well. There have been important decreases among both White and Hispanic students in all three grades over approximately 10 years (and modest decreases among African-American students), but all three groups showed some increase after 2002 at 8th grade and after 2004 at 10th and 12th grades.
- *LSD* and *hallucinogens* in general have also been relatively unpopular with African Americans, who consistently have had far lower rates of use than Whites or Hispanics in all grades. Since MTF began, Whites have had the highest rate of hallucinogen use in 10th and 12th grades, and Hispanics have had the highest use in most (but not all) years in 8th grade. (African Americans have had negligible rates of use in 8th grade.)

African Americans have shown rather little change in their rates of LSD use. By way of contrast, both Whites and Hispanics showed sharp increases in LSD use among 12th graders (after 1989) and 10th graders (after 1992 and quite possibly beginning earlier). Among 8th graders, both groups showed an increase (after 1992), which was sharpest for Whites until their use began to decline in 1998, while use among Hispanics continued

rising briefly. Both Whites and Hispanics have shown a very sharp decrease in LSD use in recent years at all three grade levels, whereas little change occurred in the very low rates of use among African Americans. Thus the differences among the three groups have narrowed, with Whites and Hispanics now at nearly the same rates of use and not far above the negligible rates of use among African-American students.

- **Ecstasy (MDMA)**, another drug used for its hallucinogenic effects, has also remained relatively unpopular among African-American students at all grade levels. While use rose sharply among both Whites and Hispanics in the late 1990s, the increase among African Americans has been far smaller and started from a much lower level. All groups at all grade levels showed an appreciable decline in use between 2001 and 2004, with the exception that use was rising among 8th-grade African-American students, though at a quite low prevalence level. Because use in general is so low at 8th grade, the groups differ from one another very little at this point. All three groups show some evidence of a rebound in use in the upper grades in the last year or so.
- While the rates of **heroin** use have tended to be relatively low in all three groups, some systematic differences can be discerned. At 8th grade, Hispanics have consistently had the highest reported levels of use, followed by Whites, with African Americans coming in lowest (and showing less fluctuation over time). At 10th grade, Whites and Hispanics have shown practically identical usage rates and trends in those rates. African Americans again have shown lower rates with limited variation over time. At 12th grade, for which there is a longer interval available for analysis, Hispanics showed the highest rate from 1977 (the first measurement point) through 1979, but after that Hispanics and Whites have had fairly similar levels and trends in use. Annual prevalence among African-American 12th graders started low (close to the rates among Whites) and remained there through the late 1990s, even as use rose among Whites and Hispanics during the late 1990s. Heroin use among African-American 12th graders rose some from 2001 to 2005, while it dropped among White and Hispanic 12th graders, which brought the rates for the three racial/ethnic groups quite close to one another. Use among African Americans has since dropped through 2008, once again opening a difference among the groups.
- Use of **narcotics other than heroin** among 12th graders (the only grade for which data are reported) has consistently been highest among White students, considerably lower among Hispanic students, and lowest among African-American students. The differences have enlarged in recent years due to greater-than-average increases among White students since about 1993. In fact, use continued to rise among White students after 2003, while it leveled among African Americans and started to decline among Hispanics. Use of **OxyContin**, a drug within this class, is also highest among Whites in the 10th and 12th grades, but Hispanics have generally had a similar level of use at 8th grade; in 10th grade, Hispanics and African Americans have had very similar rates of use. **Vicodin**, another synthetic narcotic drug, has relatively low rates of use among African Americans in all three grades; Whites have the highest rate of use in 10th and 12th grades, with Hispanics falling in between. White and Hispanic usage rates have been fairly equivalent at 8th grade.

- Whites have consistently had the highest use of *amphetamines* in all three grades. The large decline in use, which began among 12th graders in 1982 and ran through 1992, narrowed the substantial differences among the three racial/ethnic groups somewhat, although all three groups showed some decline. The decline was greatest among Whites, who started (and ended) with the highest rates, and least among African Americans, who started (and ended) with the lowest. Hispanics have been about midway between the other two groups. For 12th graders, amphetamine use increased some among Whites between 1992 and 2002, and among Hispanics between 1992 and 2000, but little among African Americans in this period. In the lower grades, the three groups generally have the same rank order in their levels of amphetamine use; African-American students showed little change in their low levels of use since 1991, even though the other two groups showed first an increase and then (after about 1996 or 1997) a decrease in use. While differences have narrowed somewhat, the differences among the three groups remain clear, particularly at 10th and 12th grades.
- African Americans have consistently had the lowest rates of *Ritalin* use in all three grades, not surprising given that Ritalin is one of the major amphetamine drugs in use in recent years. But by 2008 African-American students reported levels of use equivalent to the other two groups in 8th grade and equivalent to Hispanics in the upper grades, where Whites still maintain the highest usage rate.
- It is also noteworthy that, at least for the years for which data are available, African Americans at all three grade levels have reported extremely low rates of use of *methamphetamine* and *crystal methamphetamine (ice)*, while White and Hispanic students have maintained fairly similar rates at all grades for which data are available. (Crystal methamphetamine is reported only for 12th graders.) The differences have narrowed, however, as use among Whites and Hispanics has declined.
- Among 12th graders, the substantial racial/ethnic differences in the use of *sedatives (barbiturates)* and *tranquilizers*—with Whites highest and African Americans lowest—converged somewhat during the long period of declining use, until the rise in use beginning in the early 1990s. In general, Whites consistently had the highest usage rates for each drug at 12th grade, and also the largest declines; African Americans had the lowest rates and, therefore, the smallest absolute declines. Then, during the increase in the use of illicit drugs in the 1990s, Whites showed the greatest increase and African Americans showed little or no increase in their use of sedatives (barbiturates) or tranquilizers—substantially enlarging the difference among the three groups. The rise in the prevalence of use of these two classes of drugs appears to have ended (and in most cases begun to reverse) in these three racial/ethnic groups.
- The 30-day prevalence of *alcohol* use has shown relatively consistent racial/ethnic differences over time at each grade level. Among 12th graders, Whites have had the highest rates, African Americans considerably lower ones, and rates for Hispanics between the two (though closer to Whites than African Americans). Their cross-time trends have generally been parallel, although Whites showed the greatest decline in drinking between 1988 and 1993, narrowing the difference between them and Hispanics.

At 10th grade, Whites and Hispanics have had quite similar rates, though the differences have narrowed since the mid-1990s, and were virtually identical by 2007. African Americans have had rates that are substantially lower, but that moved mostly in parallel with the other two groups in grades 10 and 12. At 8th grade, Hispanics have consistently had somewhat higher drinking rates than Whites, while African Americans have had considerably lower and more stable rates, although they have trended down somewhat. As drinking has declined in 8th grade, the differences have narrowed.

- The trends for *occasional heavy drinking* have been very similar to those just discussed for current drinking, though the absolute rates are lower, of course. African Americans have consistently had appreciably lower rates than the other two groups at all three grade levels, though at 8th grade the differences had been narrowing for some years as rates have declined. The rates of binge drinking among Hispanic and African-American 8th graders have been falling since the mid-1990s, while such drinking among Whites has been falling only since around 2000 (see Figure 5-13b and Tables D-71 through D-73). Subgroup differences for the *different classes of alcoholic beverages* may be seen in appendix D and in Occasional Paper No. 71, available on the MTF Web site.
- *Cigarette* smoking showed quite dramatic differential trends during the 1980s. Among 12th graders, the three racial/ethnic groups had similar daily smoking rates in the mid-1970s (see Figure 5-13b). All three groups showed declines between 1977 and 1981, with the declines somewhat stronger for African Americans and Hispanics, clearly leaving Whites with the highest smoking rates by 1981. After that, African Americans exhibited a consistent and continuing decline through 1993, while rates among Whites increased gradually and rates among Hispanics stayed fairly level. By 1991, African Americans had a rate of daily smoking that was only one fourth that of Whites. After 1992, current (30-day) smoking rates rose among all three racial/ethnic groups, though the increase was clearly the greatest among Whites. In more recent years, as smoking rates declined, the differences among the groups have diminished, but are still substantial.

In 8th and 10th grades, all three racial/ethnic groups showed a sharp rise in daily smoking during the early 1990s, followed by some signs of leveling and then a decrease by the mid- to late 1990s. At 10th grade, the increase was sharpest among Whites (similar to 12th-grade), whose daily use of cigarettes was substantially higher than that of Hispanics, whose use in turn was substantially higher than that of African Americans. At 8th grade, the smoking rates for Whites and Hispanics have been quite close and much higher than among African-American 8th graders. At 8th and 10th grades, the downturn of the late 1990s began a year or two later among African Americans than it did among the other two groups. All three groups have shown appreciable reductions in smoking at all three grade levels since then, resulting in a considerable reduction of the differences among the three groups, particularly among 8th graders.

- Whites have consistently had the highest rates of *smokeless tobacco* use in all three grades, with the upper grades being much lower among Hispanics and lower still among African-American students. The decline in use in recent years has occurred predominately among Whites and has thus had the effect of narrowing differences.

- The use of *anabolic steroids* has tended to be lowest among African Americans, particularly since the sharp increase in use in the late 1990s among Whites and Hispanics. (African Americans exhibited that increase at 10th grade only, but their use declined earlier and more sharply than among White and Hispanic 10th graders.) Whites and Hispanics have had quite parallel trends at 8th and 10th grades, with about equivalent rates of use. At 12th grade the trend lines for African Americans and Hispanics are quite irregular due to the smaller number of respondents at this grade for steroids, making trend comparisons more difficult. It appears that the prevalence rates for African-American students have been rising since about 1999, which in combination with a recent decline in use among Whites has eliminated the difference between them. Combined with a significant decline among Hispanics since 2004, this has led to Hispanics having the lowest rates at 12th grade. Declines in the lower grades among all three groups have just about erased the subgroup differences there as well.

*African-American students* have the lowest rates of use of virtually all licit and illicit drugs at all three grade levels being examined here; and they have consistently shown exceptionally low rates of use for certain drugs, including in particular *inhalants*, *hallucinogens* taken as a class, *LSD*, *other hallucinogens*, *ecstasy (MDMA)*, *methamphetamine*, and *crystal methamphetamine (ice)*. Further, for the past decade, their *cigarette* smoking rates have also been exceptionally low.

In 8th grade, *Hispanic students* have tended to have the highest rates of use of a number of drugs, including *marijuana*, *crack*, *cocaine powder*, *heroin*, *ecstasy (MDMA)*, *methamphetamine*, *Rohypnol*, *tranquilizers*, and *heavy drinking*. By 12th grade the differences between Hispanic and White students narrow considerably or are reversed. In 2008, however, Hispanic 12th graders still had the highest use rates for *crack*, *heroin*, *heroin with a needle*, and *crystal methamphetamine (ice)*. As we have said earlier, we believe that Hispanics' considerably higher rate of school dropout may do much to explain why White high school students assume the highest use rates for some drugs (e.g., marijuana, tranquilizers, and alcohol) by 12th grade.

By 12th grade, *White students* have tended to have the highest rates of use of *any illicit drug*, *marijuana*, *any illicit drug other than marijuana*, *hallucinogens*, *LSD*, *other hallucinogens*, *ecstasy (MDMA)*, *narcotics other than heroin*, *OxyContin*, *Vicodin*, *amphetamines*, *Ritalin*, *sedatives (barbiturates)*, *tranquilizers*, *alcohol*, *binge drinking*, *cigarette smoking* (by a large margin), and *smokeless tobacco*.

**TABLE 5-1**  
**Long-Term Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12**

	Percentage who ever used																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	9,400	15,400	17,700	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Approximate weighted N =	55.2	58.3	61.6	64.1	65.1	65.4	65.6	64.4	62.9	61.6	60.6	57.6	56.6	53.9	50.9	47.9	44.1
Any Illicit Drug <sup>ab</sup>	36.2	35.4	35.8	36.5	37.4	38.7	42.8	41.1	40.4	40.3	39.7	37.7	35.8	32.5	31.4	29.4	26.9
Any Illicit Drug other than Marijuana <sup>a,b,c</sup>	47.3	52.8	56.4	59.2	60.4	60.3	59.5	58.7	57.0	54.9	54.2	50.9	50.2	47.2	43.7	40.7	36.7
Marijuana/Hashish	—	10.3	11.1	12.0	12.7	11.9	12.3	12.8	13.6	14.4	15.4	15.9	17.0	16.7	17.6	18.0	17.6
Inhalants <sup>d</sup>	—	—	—	—	18.2	17.3	17.2	17.7	18.2	18.0	18.1	20.1	18.6	17.5	18.6	18.5	18.0
Inhalants, Adjusted <sup>d,e</sup>	—	—	—	—	11.1	11.1	10.1	9.8	8.4	8.1	7.9	8.6	4.7	3.2	3.3	2.1	1.6
Amyl/Butyl Nitrites <sup>f,g</sup>	16.3	15.1	13.9	14.3	14.1	13.3	13.3	12.5	11.9	10.7	10.3	9.7	10.3	8.9	9.4	9.4	9.6
Hallucinogens <sup>c</sup>	—	—	—	—	17.7	15.6	15.3	14.3	13.6	12.3	12.1	11.9	10.6	9.2	9.9	9.7	10.0
Hallucinogens, Adjusted <sup>ch</sup>	11.3	11.0	9.8	9.7	9.5	9.3	9.8	9.6	8.9	8.0	7.5	7.2	8.4	7.7	8.3	8.7	8.8
LSD	14.1	12.1	11.2	11.6	10.7	9.8	9.1	8.0	7.3	6.6	6.5	5.7	5.4	4.1	4.3	4.1	3.7
Hallucinogens other than LSD <sup>c</sup>	—	—	—	—	12.8	9.6	7.8	6.0	5.6	5.0	4.9	4.8	3.0	2.9	3.9	2.8	2.9
PCP <sup>g</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecstasy (MDMA) <sup>f</sup>	9.0	9.7	10.8	12.9	15.4	15.7	16.5	16.0	16.2	16.1	17.3	16.9	15.2	12.1	10.3	9.4	7.8
Cocaine	—	—	—	—	—	—	—	—	—	—	—	—	5.4	4.8	4.7	3.5	3.1
Crack <sup>f</sup>	—	—	—	—	—	—	—	—	—	—	—	—	14.0	12.1	8.5	8.6	7.0
Other Cocaine <sup>f</sup>	2.2	1.8	1.8	1.6	1.1	1.1	1.1	1.2	1.2	1.3	1.2	1.1	1.2	1.1	1.3	1.3	0.9
Heroin <sup>k</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
With a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin <sup>m,n</sup>	9.0	9.6	10.3	9.9	10.1	9.8	10.1	9.6	9.4	9.7	10.2	9.0	9.2	8.6	8.3	8.3	6.6
Amphetamines <sup>b,m</sup>	22.3	22.6	23.0	22.9	24.2	26.4	32.2†	27.9	26.9	27.9	26.2	23.4	21.6	19.8	19.1	17.5	15.4
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.7	3.3
Sedatives (Barbiturates) <sup>m</sup>	16.9	16.2	15.6	13.7	11.8	11.0	11.3	10.3	9.9	9.9	9.2	8.4	7.4	6.7	6.5	6.8	6.2
Sedatives, Adjusted <sup>m,p</sup>	18.2	17.7	17.4	16.0	14.6	14.9	16.0	15.2	14.4	13.3	11.8	10.4	8.7	7.8	7.4	7.5	6.7
Methaqualone <sup>m,q</sup>	8.1	7.8	8.5	7.9	8.3	9.5	10.6	10.7	10.1	8.3	6.7	5.2	4.0	3.3	2.7	2.3	1.3
Tranquilizers <sup>c,m</sup>	17.0	16.8	18.0	17.0	16.3	15.2	14.7	14.0	13.3	12.4	11.9	10.9	10.9	9.4	7.6	7.2	7.2
Rohypnol <sup>f</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol <sup>f</sup>	90.4	91.9	92.5	93.1	93.0	93.2	92.6	92.8	92.6	92.6	92.2	91.3	92.2	92.0	90.7	89.5	88.0
Been Drunk <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	65.4
Cigarettes	73.6	75.4	75.7	75.3	74.0	71.0	71.0	70.1	70.6	69.7	68.8	67.6	67.2	66.4	65.7	64.4	63.1
Smokeless Tobacco <sup>l,s</sup>	—	—	—	—	—	—	—	—	—	—	—	31.4	32.2	30.4	29.2	—	—
Steroids <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.0	2.9	2.1

Cont.

(Table continued on next page.)

**TABLE 5-1 (cont.)**  
**Long-Term Trends in Lifetime Prevalence of Use of Various Drugs in Grade 12**

	Percentage who ever used																2007–	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
	Approximate weighted N =																	
Any Illicit Drug <sup>ab</sup>	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2	46.8	47.4	+0.6
Any Illicit Drug other than Marijuana <sup>a,b,c</sup>	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0†	30.7	29.5	27.7	28.7	27.4	26.9	25.5	24.9	-0.6
Marijuana/Hashish	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3	41.8	42.6	+0.8
Inhalants <sup>d</sup>	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1	10.5	9.9	-0.6
Inhalants, Adjusted <sup>d,e</sup>	17.0	17.7	18.3	17.8	17.5	16.9	16.5	16.0	14.6	13.8	12.4	12.2	11.4	11.9	11.5	11.0	10.1	-0.9
Amyl/Butyl Nitrites <sup>f,g</sup>	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2	1.2	0.6	-0.7
Hallucinogens <sup>e</sup>	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0†	14.7	12.0	10.6	9.7	8.8	8.3	8.4	8.7	+0.4
Hallucinogens, Adjusted <sup>e,h</sup>	9.4	11.3	11.7	13.1	14.5	15.4	14.4	14.2	13.6†	15.3	12.8	10.9	9.9	9.3	8.8	8.9	9.0	+0.1
LSD	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3	3.4	4.0	+0.5
Hallucinogens other than LSD <sup>e</sup>	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9†	10.4	9.2	9.0	8.7	8.1	7.8	7.7	7.8	+0.1
PCP <sup>f,g</sup>	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2	2.1	1.8	-0.3
Ecstasy (MDMA) <sup>f</sup>	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5	6.5	6.2	-0.3
Cocaine	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5	7.8	7.2	-0.6
Crack <sup>f</sup>	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5	3.2	2.8	-0.5
Other Cocaine <sup>f</sup>	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9	6.8	6.5	-0.4
Heroin <sup>k</sup>	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	-0.3
With a needle <sup>l</sup>	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.7	0.9	0.8	0.7	0.0
Without a needle <sup>l</sup>	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1	1.4	1.1	-0.3
Narcotics other than Heroin <sup>m,n</sup>	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9†	13.5	13.2	13.5	12.8	13.4	13.1	13.2	+0.1
Amphetamines <sup>o,m</sup>	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4	11.4	10.5	-0.9
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	8.2	7.9	6.7	6.2	4.5	4.4	3.0	2.8	-0.3
Crystal Methamphetamine (Ice) <sup>o</sup>	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4	3.4	2.8	-0.6
Sedatives (Barbiturates) <sup>m</sup>	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8	9.9	10.5	10.2	9.3	8.5	-0.9
Sedatives, Adjusted <sup>m,p</sup>	6.1	6.4	7.3	7.6	8.2	8.7	9.2	9.5	9.3	8.9	10.2	9.1	10.1	11.0	10.6	9.6	8.9	-0.6
Methaqualone <sup>m,q</sup>	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2	1.0	0.8	-0.2
Tranquilizers <sup>s,m</sup>	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9†	10.3	11.4	10.2	10.6	9.9	10.3	9.5	8.9	-0.6
Rohypnol <sup>f</sup>	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—	—	—	—
Alcohol <sup>f</sup>	87.5†	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7	72.2	71.9	-0.2
Been Drunk <sup>o</sup>	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4	55.1	54.7	-0.4
Cigarettes	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1	46.2	44.7	-1.5
Smokeless Tobacco <sup>l,s</sup>	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2	15.1	15.6	+0.5
Steroids <sup>f</sup>	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7	2.2	2.2	0.0

Source: The Monitoring the Future study, the University of Michigan.

### Footnotes for Tables 5-1 through 5-4

- Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .
- "—" indicates data not available.
- "\*\*" indicates less than 0.05% but greater than 0%.
- "‡" indicates some change in the question. See relevant footnote for that drug. See relevant figure to assess the impact of the wording changes. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. Daily use is defined as use on 20 or more occasions in the past 30 days except for 5+ drinks, cigarettes, and smokeless tobacco, for which actual daily use is measured.
- <sup>a</sup>Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers not under a doctor's orders.
- <sup>b</sup>Beginning in 1992, the question about amphetamine use was revised to get respondents to exclude the inappropriate reporting of nonprescription amphetamines. The prevalence-of-use rate dropped slightly as a result of this methodological change.
- <sup>c</sup>In 2001 the question text was changed in half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens" and "shrooms" was added to the list of examples. For the tranquilizer list of examples, Milltown was replaced with Xanax. The 2001 data presented here are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed to the new wording. Data based on all forms beginning in 2002. Data for any illicit drug other than marijuana and for hallucinogens are also affected by these changes and have been handled in a parallel manner.
- <sup>d</sup>Data based on four of five forms in 1976–1988;  $N$  is four fifths of  $N$  indicated. Data based on five of six forms in 1989–1998;  $N$  is five sixths of  $N$  indicated. Beginning in 1999, data based on three of six forms;  $N$  is three sixths of  $N$  indicated.
- <sup>e</sup>Adjusted for underreporting of amyl and butyl nitrites. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of inhalant use and fairly stable rates of nitrite use.
- <sup>f</sup>Data based on one form;  $N$  is one fifth of  $N$  indicated in 1979–1988 and one sixth of  $N$  indicated beginning in 1989. Data for ecstasy (MDMA) and Rohypnol based on two of six forms beginning in 2002;  $N$  is two sixths of  $N$  indicated. Data for Rohypnol for 2001 and 2002 are not comparable due to changes in the questionnaire forms.
- <sup>g</sup>Question text changed slightly in 1987.
- <sup>h</sup>Adjusted for underreporting of PCP. See text for details. Data for the daily prevalence of use are no longer presented due to low rates of hallucinogen use and fairly stable rates of PCP use.
- <sup>i</sup>Data based on one of five forms in 1986;  $N$  is one fifth of  $N$  indicated. Data based on two forms in 1987–1989;  $N$  is two fifths of  $N$  indicated in 1987–1988 and two sixths of  $N$  indicated in 1989. Data based on six forms beginning in 1990.
- <sup>j</sup>Data based on one form in 1987–1989;  $N$  is one fifth of  $N$  indicated in 1987–1988 and one sixth of  $N$  indicated in 1989. Data based on four of six forms beginning in 1990;  $N$  is four sixths of  $N$  indicated.
- <sup>k</sup>In 1995 the heroin question was changed in half of the questionnaire forms. Separate questions were asked for use with and without injection. Data presented here represent the combined data from all forms.
- <sup>l</sup>Data based on three of six forms;  $N$  is three sixths of  $N$  indicated.
- <sup>m</sup>Only drug use not under a doctor's orders is included here.
- <sup>n</sup>In 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2003, the remaining forms were changed to the new wording. Data based on all forms beginning in 2003.
- <sup>o</sup>Data based on two of six forms;  $N$  is two sixths of  $N$  indicated.
- <sup>p</sup>Data based on five forms in 1975–1988, six forms in 1989, one form in 1990 ( $N$  is one sixth of  $N$  indicated in 1990), and six forms adjusted by one-form data beginning in 1991.
- <sup>q</sup>Data based on five forms in 1975–1988, six forms in 1989, and one of six forms beginning in 1990;  $N$  is one sixth of  $N$  indicated beginning in 1990.
- <sup>r</sup>Data based on five forms in 1975–1988 and on six forms in 1989–1992. In 1993, the question text was changed slightly in three of six forms to indicate that a "drink" meant "more than a few sips." The 1993 data are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 1994 the remaining forms were changed to the new wording. Data based on all forms beginning in 1994.
- <sup>s</sup>In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.
- <sup>t</sup>The prevalence of smokeless tobacco use was not asked of 12th graders in 1990 and 1991. Prior to 1990, the prevalence-of-use question on smokeless tobacco was located near the end of one 12th-grade questionnaire form, whereas after 1991 the question was placed earlier and in a different form. This shift could explain the discontinuities between the corresponding data.
- <sup>u</sup>Data based on one of six forms in 1989–1990;  $N$  is one sixth of  $N$  indicated. Data based on two of six forms in 1991–2005;  $N$  is two sixths of  $N$  indicated. Data based on three of six forms beginning in 2006;  $N$  is three sixths of  $N$  indicated. In 2006, the question text was changed slightly in one of the forms. An examination of the data did not show any effect from the wording change. In 2008, the question text was changed slightly. An examination of the data did not show any effect from the wording change.
- <sup>v</sup>Data based on two of six forms in 1991–2005;  $N$  is two sixths of  $N$  indicated. Data based on three of six forms beginning in 2006;  $N$  is three sixths of  $N$  indicated.
- <sup>w</sup>Data based on two of six forms in 2000;  $N$  is two sixths of  $N$  indicated. Data based on three of six forms in 2001;  $N$  is three sixths of  $N$  indicated. Data based on one form beginning in 2002;  $N$  is one sixth of  $N$  indicated.
- <sup>x</sup>Data based on two of six forms in 2000;  $N$  is two sixths of  $N$  indicated. Data based on three of six forms beginning in 2001;  $N$  is three sixths of  $N$  indicated.
- <sup>y</sup>Due to a coding error, previously released versions of this table contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here.

**TABLE 5-2**  
**Long-Term Trends in Annual Prevalence of Use of Various Drugs in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Percentage who used in last 12 months																
	↑ Cont.																
	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Approximate weighted N =	45.0	48.1	51.1	53.8	54.2	53.1	52.1	49.4	47.4	45.8	46.3	44.3	41.7	38.5	35.4	32.5	29.4
Any Illicit Drug <sup>a,b</sup>	26.2	25.4	26.0	27.1	28.2	30.4	34.0	30.1	28.4	28.0	27.4	25.9	24.1	21.1	20.0	17.9	16.2
Any Illicit Drug other than Marijuana <sup>a,b,c</sup>	40.0	44.5	47.6	50.2	50.8	48.8	46.1	44.3	42.3	40.0	40.6	38.8	36.3	33.1	29.6	27.0	23.9
Marijuana/Hashish	—	3.0	3.7	4.1	5.4	4.6	4.1	4.5	4.3	5.1	5.7	6.1	6.9	6.5	5.9	6.9	6.6
Inhalants <sup>d</sup>	—	—	—	—	8.9	7.9	6.1	6.6	6.2	7.2	7.5	8.9	8.1	7.1	6.9	7.5	6.9
Inhalants, Adjusted <sup>d,e</sup>	—	—	—	—	6.5	5.7	3.7	3.6	3.6	4.0	4.0	4.7	2.6	1.7	1.7	1.4	0.9
Amyl/Butyl Nitrites <sup>f,g</sup>	11.2	9.4	8.8	9.6	9.9	9.3	9.0	8.1	7.3	6.5	6.3	6.0	6.4	5.5	5.6	5.9	5.8
Hallucinogens <sup>c</sup>	—	—	—	—	11.8	10.4	10.1	9.0	8.3	7.3	7.6	7.6	6.7	5.8	6.2	6.0	6.1
Hallucinogens, Adjusted <sup>c,h</sup>	7.2	6.4	5.5	6.3	6.6	6.5	6.5	6.1	5.4	4.7	4.4	4.5	5.2	4.8	4.9	5.4	5.2
LSD	9.4	7.0	6.9	7.3	6.8	6.2	5.6	4.7	4.1	3.8	3.6	3.0	3.2	2.1	2.2	2.1	2.0
Hallucinogens other than LSD <sup>c</sup>	—	—	—	—	7.0	4.4	3.2	2.2	2.6	2.3	2.9	2.4	1.3	1.2	2.4	1.2	1.4
PCP <sup>f,g</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecstasy (MDMA) <sup>f</sup>	5.6	6.0	7.2	9.0	12.0	12.3	12.4	11.5	11.4	11.6	13.1	12.7	10.3	7.9	6.5	5.3	3.5
Cocaine	—	—	—	—	—	—	—	—	—	—	—	4.1	3.9	3.1	3.1	1.9	1.5
Crack <sup>i</sup>	—	—	—	—	—	—	—	—	—	—	—	—	9.8	7.4	5.2	4.6	3.2
Other Cocaine <sup>j</sup>	1.0	0.8	0.8	0.8	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.4
Heroin <sup>k</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
With a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin <sup>m,n</sup>	5.7	5.7	6.4	6.0	6.2	6.3	5.9	5.3	5.1	5.2	5.9	5.2	5.3	4.6	4.4	4.5	3.5
OxyContin <sup>u</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vicodin <sup>u</sup>	16.2	15.8	16.3	17.1	18.3	20.8	26.0†	20.3	17.9	17.7	15.8	13.4	12.2	10.9	10.8	9.1	8.2
Amphetamines <sup>b,m</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ritalin <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	1.4
Sedatives (Barbiturates) <sup>m</sup>	10.7	9.6	9.3	8.1	7.5	6.8	6.6	5.5	5.2	4.9	4.6	4.2	3.6	3.2	3.3	3.4	3.4
Sedatives, Adjusted <sup>m,p</sup>	11.7	10.7	10.8	9.9	9.9	10.3	10.5	9.1	7.9	6.6	5.8	5.2	4.1	3.7	3.7	3.6	3.6
Methaqualone <sup>m,q</sup>	5.1	4.7	5.2	4.9	5.9	7.2	7.6	6.8	5.4	3.8	2.8	2.1	1.5	1.3	1.3	0.7	0.5
Tranquilizers <sup>c,r,m</sup>	10.6	10.3	10.8	9.9	9.6	8.7	8.0	7.0	6.9	6.1	6.1	5.8	5.5	4.8	3.8	3.5	3.6
OTC Cough/Cold Medicines <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rohypnol <sup>f</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Table continued on next page.)

**TABLE 5-2 (cont.)**  
**Long-Term Trends in Annual Prevalence of Use of Various Drugs for Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate weighted N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
GHB <sup>v</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketamine <sup>w</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol <sup>f</sup>	84.8	85.7	87.0	87.7	88.1	87.9	87.0	86.8	87.3	86.0	85.6	84.5	85.7	85.3	82.7	80.6	77.7
Been Drunk <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52.7
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bidis <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Kreteks <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Smokeless Tobacco <sup>f,s</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	1.7	1.4

Source. The Monitoring the Future study, the University of Michigan.

(Table continued on next page.)



**TABLE 5-2 (cont.)  
Long-Term Trends in Annual Prevalence of Use of Various Drugs in Grade 12**

	Percentage who used in last 12 months													2007-				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Any Illicit Drug <sup>a,b</sup>	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	+0.6
Any Illicit Drug other than Marijuana <sup>a,b,c</sup>	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4†	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	-0.3
Marijuana/Hashish	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	+0.7
Inhalants <sup>d</sup>	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	+0.1
Inhalants, Adjusted <sup>d,e</sup>	6.4	7.4	8.2	8.4	8.5	7.3	7.1	6.0	6.2	4.9	4.9	4.5	4.6	5.4	4.7	4.1	4.0	-0.1
Amyl/Butyl Nitrites <sup>f,g</sup>	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5	0.8	0.6	-0.2
Hallucinogens <sup>c</sup>	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1†	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	+0.5
Hallucinogens, Adjusted <sup>c,h</sup>	6.2	7.8	7.8	9.7	10.7	10.0	9.2	9.8	8.7†	9.7	7.2	6.5	6.4	5.9	5.3	5.8	6.1	+0.3
LSD	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	+0.6
Hallucinogens other than LSD <sup>c</sup>	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4†	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0	+0.2
PCP <sup>f,g</sup>	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7	0.9	1.1	+0.2
Ecstasy (MDMA) <sup>f</sup>	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	-0.2
Cocaine	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	-0.8
Crack <sup>i</sup>	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6	-0.4 s
Other Cocaine <sup>i</sup>	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	-0.5
Heroin <sup>k</sup>	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	-0.2
With a needle <sup>l</sup>	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.0
Without a needle <sup>l</sup>	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	-0.5 ss
Narcotics other than Heroin <sup>m,n</sup>	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7†	9.4	9.3	9.5	9.0	9.0	9.2	9.1	0.0
OxyContin <sup>u</sup>	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3	5.2	4.7	-0.5
Vicodin <sup>u</sup>	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	+0.1
Amphetamines <sup>b,m</sup>	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	-0.7
Ritalin <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	4.0	4.0	5.1	4.4	4.4	3.8	3.4	-0.4
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	3.6	3.2	3.4	2.5	2.5	1.7	1.2	-0.5
Crystal Methamphetamine (Ice) <sup>o</sup>	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9	1.6	1.1	-0.6 s
Sedatives (Barbiturates) <sup>m</sup>	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6	6.2	5.8	-0.4
Sedatives, Adjusted <sup>m,p</sup>	2.9	3.4	4.2	4.9	5.3	5.4	6.0	6.3	6.3	5.9	7.0	6.2	6.6	7.6	6.8	6.4	6.1	-0.2
Methaqualone <sup>m,q</sup>	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8	0.5	0.5	0.0
Tranquilizers <sup>c,m</sup>	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7†	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	0.0
OTC Cough/Cold Medicines <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-0.3
Rohypnol <sup>l</sup>	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9†	1.6	1.3	1.6	1.2	1.1	1.0	1.3	+0.3

(Table continued on next page.)

**TABLE 5-2 (cont.)  
Long-Term Trends in Annual Prevalence of Use of Various Drugs in Grade 12**

	Percentage who used in last 12 months																2007- 2008 change	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		2008
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
	Approximate weighted N =																	
GHB <sup>v</sup>	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1	0.9	1.2	+0.3
Ketamine <sup>w</sup>	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4	1.3	1.5	+0.2
Alcohol <sup>f</sup>	76.8†	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5	66.4	65.5	-0.9
Been Drunk <sup>o</sup>	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9	46.1	45.6	-0.5
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bids <sup>o</sup>	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3	1.7	1.9	+0.2
Kreteks <sup>o</sup>	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2	6.8	6.8	0.0
Smokeless Tobacco <sup>f,s</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids <sup>t</sup>	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	+0.1

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 5-1.

**TABLE 5-3**  
**Long-Term Trends in 30-Day Prevalence of Use of Various Drugs in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
	Percentage who used in last 30 days																	
	↑ Cont.																	
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000	
Approximate weighted N =	30.7	34.2	37.6	38.9	38.9	37.2	36.9	32.5	30.5	29.2	29.7	27.1	24.7	21.3	19.7	17.2	16.4	
Any Illicit Drug <sup>ab</sup>	15.4	13.9	15.2	15.1	16.8	18.4	21.7	17.0	15.4	15.1	14.9	13.2	11.6	10.0	9.1	8.0	7.1	
Any Illicit Drug other than Marijuana <sup>ab,c</sup>	27.1	32.2	35.4	37.1	36.5	33.7	31.6	28.5	27.0	25.2	25.7	23.4	21.0	18.0	16.7	14.0	13.8	
Marijuana/Hashish	—	0.9	1.3	1.5	1.7	1.4	1.5	1.5	1.7	1.9	2.2	2.5	2.8	2.6	2.3	2.7	2.4	
Inhalants <sup>d</sup>	—	—	—	—	3.2	2.7	2.5	2.5	2.5	2.6	3.0	3.2	3.5	3.0	2.7	2.9	2.6	
Inhalants, Adjusted <sup>d,e</sup>	—	—	—	—	2.4	1.8	1.4	1.1	1.4	1.4	1.6	1.3	1.3	0.6	0.6	0.6	0.4	
Amyl/Butyl Nitrites <sup>f,g</sup>	4.7	3.4	4.1	3.9	4.0	3.7	3.7	3.4	2.8	2.6	2.5	2.5	2.5	2.2	2.2	2.2	2.2	
Hallucinogens <sup>c</sup>	—	—	—	—	5.3	4.4	4.5	4.1	3.5	3.2	3.8	3.5	2.8	2.3	2.9	2.3	2.4	
Hallucinogens, Adjusted <sup>c,h</sup>	2.3	1.9	2.1	2.1	2.4	2.3	2.5	2.4	1.9	1.5	1.6	1.7	1.8	1.8	1.8	1.9	1.9	
LSD	3.7	2.3	3.0	2.7	2.4	2.3	2.1	1.7	1.5	1.6	1.3	1.3	1.1	0.7	0.8	0.8	0.7	
Hallucinogens other than LSD <sup>c</sup>	—	—	—	—	2.4	1.4	1.4	1.0	1.3	1.0	1.6	1.3	0.6	0.3	1.4	0.4	0.5	
PCP <sup>f,g</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Ecstasy (MDMA) <sup>f</sup>	1.9	2.0	2.9	3.9	5.7	5.2	5.8	5.0	4.9	5.8	6.7	6.2	4.3	3.4	2.8	1.9	1.4	
Cocaine	—	—	—	—	—	—	—	—	—	—	—	—	1.3	1.6	1.4	0.7	0.7	
Crack <sup>i</sup>	—	—	—	—	—	—	—	—	—	—	—	—	4.1	3.2	1.9	1.7	1.2	
Other Cocaine <sup>j</sup>	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	
Heroin <sup>k</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
With a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Without a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Narcotics other than Heroin <sup>m,n</sup>	2.1	2.0	2.8	2.1	2.4	2.4	2.1	1.8	1.8	1.8	2.3	2.0	1.8	1.6	1.6	1.5	1.1	
Amphetamines <sup>b,m</sup>	8.5	7.7	8.8	8.7	9.9	12.1	15.8†	10.7	8.9	8.3	6.8	5.5	5.2	4.6	4.2	3.7	3.2	
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Crystal Methamphetamine (Ice) <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.6	0.6	
Sedatives (Barbiturates) <sup>m</sup>	4.7	3.9	4.3	3.2	3.2	2.9	2.6	2.0	2.1	1.7	2.0	1.8	1.4	1.2	1.4	1.3	1.4	
Sedatives, Adjusted <sup>m,p</sup>	5.4	4.5	5.1	4.2	4.4	4.8	4.6	3.4	3.0	2.3	2.4	2.2	1.7	1.4	1.6	1.4	1.5	
Methaqualone <sup>m,q</sup>	2.1	1.6	2.3	1.9	2.3	3.3	3.1	2.4	1.8	1.1	1.0	0.8	0.6	0.5	0.6	0.2	0.2	
Tranquilizers <sup>c,m</sup>	4.1	4.0	4.6	3.4	3.7	3.1	2.7	2.4	2.5	2.1	2.1	2.1	2.0	1.5	1.3	1.2	1.4	
Rohypnol <sup>r</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Alcohol <sup>s</sup>	68.2	68.3	71.2	72.1	71.8	72.0	70.7	69.7	69.4	67.2	65.9	65.3	66.4	63.9	60.0	57.1	54.0	
Been Drunk <sup>k</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31.6	
Cigarettes	36.7	38.8	38.4	36.7	34.4	30.5	29.4	30.0	30.3	29.3	30.1	29.6	29.4	28.7	28.6	29.4	28.3	
Smokeless Tobacco <sup>t,s</sup>	—	—	—	—	—	—	—	—	—	—	—	11.5	11.3	10.3	8.4	—	—	
Steroids <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	1.0	0.8	

Source: The Monitoring the Future study, the University of Michigan.

(Table continued on next page.)

**TABLE 5-3 (cont.)  
Long-Term Trends in 30-Day Prevalence of Use of Various Drugs for Grade 12**

	Percentage who used in last 30 days																	2007–
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
	Approximate weighted N =																	
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Any Illicit Drug <sup>a,b</sup>	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5	21.9	22.3	+0.5
Any Illicit Drug other than Marijuana <sup>a,b,c</sup>	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4†	11.0	11.3	10.4	10.8	10.3	9.8	9.5	9.3	-0.2
Marijuana/Hashish	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3	18.8	19.4	+0.7
Inhalants <sup>d</sup>	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5	1.2	1.4	+0.2
Inhalants, Adjusted <sup>d,e</sup>	2.5	2.8	2.9	3.5	2.9	2.9	3.1	2.4	2.4	2.1	1.8	2.3	1.9	2.3	1.7	1.6	1.5	0.0
Amyl/Butyl Nitrites <sup>f,g</sup>	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	-0.2
Hallucinogens <sup>c</sup>	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6†	3.3	2.3	1.8	1.9	1.9	1.5	1.7	2.2	+0.5 s
Hallucinogens, Adjusted <sup>c,h</sup>	2.3	3.3	3.2	4.6	3.8	4.1	4.1	3.9	3.0†	3.5	2.7	2.7	2.2	2.5	1.8	2.1	2.6	+0.4
LSD	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6	0.6	1.1	+0.5 ss
Hallucinogens other than LSD <sup>c</sup>	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7†	1.9	2.0	1.5	1.7	1.6	1.3	1.4	1.6	+0.3
PCP <sup>f,g</sup>	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4	0.5	0.6	+0.1
Ecstasy (MDMA) <sup>f</sup>	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3	1.6	1.8	+0.2
Cocaine	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5	2.0	1.9	-0.1
Crack <sup>i</sup>	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9	0.9	0.8	-0.1
Other Cocaine <sup>j</sup>	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4	1.7	1.7	0.0
Heroin <sup>k</sup>	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.0
With a needle <sup>l</sup>	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.0
Without a needle <sup>l</sup>	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3	0.4	0.2	-0.2
Narcotics other than Heroin <sup>m,n</sup>	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0†	4.0	4.1	4.3	3.9	3.8	3.8	3.8	0.0
Amphetamines <sup>b,m</sup>	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7	3.7	2.9	-0.8 ss
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9	0.6	0.6	-0.1
Crystal Methamphetamine (Ice) <sup>o</sup>	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7	0.6	0.6	0.0
Sedatives (Barbiturates) <sup>m</sup>	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9	2.9	3.3	3.0	2.7	2.8	+0.1
Sedatives, Adjusted <sup>m,p</sup>	1.2	1.3	1.8	2.3	2.3	2.1	2.8	2.8	3.1	3.0	3.4	3.0	2.9	3.5	3.1	2.8	2.9	+0.1
Methaqualone <sup>m,q</sup>	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.2	-0.1
Tranquilizers <sup>c,m</sup>	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6†	2.9	3.3	2.8	3.1	2.9	2.7	2.6	2.6	0.0
Rohypnol <sup>r</sup>	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—	—	—	—
Alcohol <sup>s</sup>	51.3†	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	-1.3
Been Drunk <sup>c</sup>	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	-1.1
Cigarettes	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	-1.2
Smokeless Tobacco <sup>t,s</sup>	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	-0.1
Steroids <sup>l</sup>	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1	1.0	1.0	0.0

Source: The Monitoring the Future study, the University of Michigan.

Note: See relevant footnotes at the end of Table 5-1.

**TABLE 5-4**  
**Long-Term Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12**

	Percentage who used daily in last 30 days																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Approximate weighted N = 9,400 15,400 17,100 17,800 15,500 15,900 17,500 17,700 16,300 15,900 16,000 15,200 16,300 16,300 16,700 15,200 15,000																
Marijuana/Hashish	6.0	8.2	9.1	10.7	10.3	9.1	7.0	6.3	5.5	5.0	4.9	4.0	3.3	2.7	2.9	2.2	2.0
Inhalants <sup>d</sup>	—	*	*	0.1	*	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2
Inhalants, Adjusted <sup>d,e</sup>	—	—	—	—	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.5
Amyl/Butyl Nitrites <sup>f,g</sup>	—	—	—	—	*	0.1	0.1	0.0	0.2	0.1	0.3	0.5	0.3	0.1	0.3	0.1	0.2
Hallucinogens <sup>c</sup>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1
Hallucinogens, Adjusted <sup>c,h</sup>	—	—	—	—	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.2	*	0.3	0.3	0.1
LSD	*	*	*	*	*	*	0.1	*	0.1	0.1	0.1	*	0.1	*	*	0.1	0.1
Hallucinogens other than LSD <sup>c</sup>	—	0.1	0.1	*	*	*	0.1	*	*	0.1	*	*	*	*	*	*	*
PCP <sup>g</sup>	—	—	—	—	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.1	0.2	0.1	0.1
Ecstasy (MDMA) <sup>f</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.1	0.1
Crack <sup>i</sup>	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.2	0.1	0.1
Other Cocaine <sup>i</sup>	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.2	0.1	0.1	0.1
Heroin <sup>k</sup>	0.1	*	*	*	*	*	*	*	0.1	*	*	*	*	*	0.1	*	*
With a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin <sup>m,n</sup>	0.1	0.1	0.2	0.1	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Amphetamines <sup>b,m</sup>	0.5	0.4	0.5	0.5	0.6	0.7	1.2 <sup>†</sup>	0.7	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.2
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) <sup>o</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sedatives (Barbiturates) <sup>m</sup>	0.1	0.1	0.2	0.1	*	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	*	0.1	0.1	0.1
Sedatives, Adjusted <sup>m,p</sup>	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Methaqualone <sup>m,q</sup>	*	*	*	*	*	0.1	0.1	0.1	*	*	*	*	*	*	*	*	*
Tranquilizers <sup>c,m</sup>	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	*	0.1	*	0.1	0.1	0.1
Rohypnol <sup>r</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol <sup>r</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily <sup>r</sup>	5.7	5.6	6.1	5.7	6.9	6.0	6.0	5.7	5.5	4.8	5.0	4.8	4.8	4.2	4.2	3.7	3.6
Been drunk daily <sup>p</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5+ drinks in a row in last 2 weeks <sup>x</sup>	36.8	37.1	39.4	40.3	41.2	41.2	41.4	40.5	40.8	38.7	36.7	36.8	37.5	34.7	33.0	32.2	29.8
Cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily	26.9	28.8	28.8	27.5	25.4	21.3	20.3	21.1	21.2	18.7	19.5	18.7	18.7	18.1	18.9	19.1	18.5
Half pack or more per day	17.9	19.2	19.4	18.8	16.5	14.3	13.5	14.2	13.8	12.3	12.5	11.4	11.4	10.6	11.2	11.3	10.7
Smokeless Tobacco <sup>l,s</sup>	—	—	—	—	—	—	—	—	—	—	—	4.7	5.1	4.3	3.3	—	—
Steroids <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.2	0.1

Source: The Monitoring the Future study, the University of Michigan.

(Table continued on next page.)

Cont.

**TABLE 5-4 (cont.)  
Long-Term Trends in 30-Day Prevalence of Daily Use of Various Drugs in Grade 12**

	Percentage who used daily in last 30 days														2007–	2008		
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
	Approximate N =																	
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,800	14,600	14,600	14,700	14,200	14,500	14,000	
Marijuana/Hashish	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0	5.1	5.4	+0.4
Inhalants <sup>d</sup>	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0
Inhalants, Adjusted <sup>d,e</sup>	0.2	0.2	—	—	0.4	0.2	0.9	0.3	0.3	0.1	0.3	0.4	0.4	0.3	—	—	—	—
Amyl/Butyl Nitrites <sup>g</sup>	0.1	0.1	0.2	0.2	0.4	0.1	0.3	0.2	*	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.1	-0.1
Hallucinogens <sup>c</sup>	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.2†	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.3	+0.2 ss
Hallucinogens, Adjusted <sup>c,h</sup>	0.1	0.1	—	—	0.4	0.4	0.8	0.2	0.2†	0.2	0.4	0.5	0.4	0.3	—	—	—	—
LSD	0.1	0.1	0.1	0.1	*	0.2	0.1	0.1	0.1	0.2	0.1	*	0.2	0.1	0.1	0.1	0.2	+0.1 s
Hallucinogens other than LSD <sup>c</sup>	*	*	*	0.1	0.1	0.1	0.1	*	0.1†	0.1	*	0.1	0.1	*	0.1	0.1	0.2	+0.1 s
PCP <sup>g</sup>	0.1	0.1	0.3	0.3	0.3	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.3	+0.1
Ecstasy (MDMA) <sup>l</sup>	—	—	—	—	0.0	0.1	0.2	0.1	*	0.2	*	0.1	0.1	0.1	*	0.1	0.1	0.0
Cocaine	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0
Crack <sup>k</sup>	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0
Other Cocaine <sup>l</sup>	*	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Heroin <sup>k</sup>	*	*	*	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	*	0.1	0.1	0.0
With a needle <sup>l</sup>	—	—	—	0.1	0.2	0.1	*	*	*	*	0.1	0.1	*	0.1	*	0.1	*	0.0
Without a needle <sup>l</sup>	—	—	—	*	0.1	0.1	0.0	0.0	*	*	0.1	0.1	*	0.1	*	*	*	0.0
Narcotics other than Heroin <sup>m,n</sup>	*	*	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2†	0.3	0.2	0.3	0.2	0.2	0.2	0.3	+0.1 s
Amphetamines <sup>b,m</sup>	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.7	0.5	0.3	0.4	0.3	0.3	0.2	-0.1
Methamphetamine <sup>o</sup>	—	—	—	—	—	—	—	—	0.1	0.1	0.1	0.3	0.2	0.2	*	*	0.1	+0.1
Crystal Methamphetamine (Ice) <sup>o</sup>	0.1	0.1	*	0.1	0.1	0.1	*	*	0.1	0.2	0.2	0.1	0.1	0.1	*	0.1	0.2	0.0
Sedatives (Barbiturates) <sup>m</sup>	*	0.1	*	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.0
Sedatives, Adjusted <sup>m,p</sup>	0.1	0.1	*	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.0
Methaqualone <sup>m,q</sup>	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	*	*	*	0.0
Tranquilizers <sup>c,m</sup>	*	*	0.1	*	0.2	0.1	0.1	0.1	0.1†	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0
Rohypnol <sup>l</sup>	—	—	—	—	0.1	0.0	0.1	0.1	0.1	*	—	—	—	—	—	—	—	—
Alcohol <sup>l</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily <sup>f</sup>	3.4†	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0	3.1	2.8	-0.3
Been drunk daily <sup>o</sup>	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6	1.3	1.4	+0.1
5+ drinks in a row in last 2 weeks <sup>x</sup>	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	-1.3
Cigarettes																		
Daily	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	-0.9
Half pack or more per day	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4	-0.2
Smokeless Tobacco <sup>l,s</sup>	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	-0.1
Steroids <sup>l</sup>	0.1	0.1	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.2	0.4	0.2	0.2	+0.1

Source: The Monitoring the Future study, the University of Michigan.

Note: See relevant footnotes at the end of Table 5-1.

**TABLE 5-5a**  
**Trends in Lifetime Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Any Illicit Drug<sup>a</sup></b>																			
8th Grade	18.7	20.6	22.5	25.7	28.5	31.2	29.4	29.0	28.3	26.8	26.8	24.5	22.8	21.5	21.4	20.9	19.0	19.6	+0.6
10th Grade	30.6	29.8	32.8	37.4	40.9	45.4	47.3	44.9	46.2	45.6	45.6	44.6	41.4	39.8	38.2	36.1	35.6	34.1	-1.6
12th Grade	44.1	40.7	42.9	45.6	48.4	50.8	54.3	54.1	54.7	54.0	53.9	53.0	51.1	51.1	50.4	48.2	46.8	47.4	+0.6
<b>Any Illicit Drug other than Marijuana<sup>a,b</sup></b>																			
8th Grade	14.3	15.6	16.8	17.5	18.8	19.2	17.7	16.9	16.3	15.8†	17.0	13.7	13.6	12.2	12.1	12.2	11.1	11.2	+0.1
10th Grade	19.1	19.2	20.9	21.7	24.3	25.5	25.0	23.6	24.0	23.1†	23.6	22.1	19.7	18.8	18.0	17.5	18.2	15.9	-2.2 s
12th Grade	26.9	25.1	26.7	27.6	28.1	28.5	30.0	29.4	29.4	29.0†	30.7	29.5	27.7	28.7	27.4	26.9	25.5	24.9	-0.6
<b>Any Illicit Drug including Inhalants<sup>a,c</sup></b>																			
8th Grade	28.5	29.6	32.3	35.1	38.1	39.4	38.1	37.8	37.2	35.1	34.5	31.6	30.3	30.2	30.0	29.2	27.7	28.3	+0.6
10th Grade	36.1	36.2	38.7	42.7	45.9	49.8	50.9	49.3	49.9	49.3	48.8	47.7	44.9	43.1	42.1	40.1	39.8	38.7	-1.2
12th Grade	47.6	44.4	46.6	49.1	51.5	53.5	56.3	56.1	56.3	57.0	56.0	54.6	52.8	53.0	53.5	51.2	49.1	49.3	+0.3
<b>Marijuana/Hashish</b>																			
8th Grade	10.2	11.2	12.6	16.7	19.9	23.1	22.6	22.2	22.0	20.3	20.4	19.2	17.5	16.3	16.5	15.7	14.2	14.6	+0.4
10th Grade	23.4	21.4	24.4	30.4	34.1	39.8	42.3	39.6	40.9	40.3	40.1	38.7	36.4	35.1	34.1	31.8	31.0	29.9	-1.1
12th Grade	36.7	32.6	35.3	38.2	41.7	44.9	49.6	49.1	49.7	48.8	49.0	47.8	46.1	45.7	44.8	42.3	41.8	42.6	+0.8
<b>Inhalants<sup>c,d</sup></b>																			
8th Grade	17.6	17.4	19.4	19.9	21.6	21.2	21.0	20.5	19.7	17.9	17.1	15.2	15.8	17.3	17.1	16.1	15.6	15.7	+0.2
10th Grade	15.7	16.6	17.5	18.0	19.0	19.3	18.3	18.3	17.0	16.6	15.2	13.5	12.7	12.4	13.1	13.3	13.6	12.8	-0.9
12th Grade	17.6	16.6	17.4	17.7	17.4	16.6	16.1	15.2	15.4	14.2	13.0	11.7	11.2	10.9	11.4	11.1	10.5	9.9	-0.6
<b>Nitrites<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.6	1.5	1.4	1.7	1.5	1.8	2.0	2.7	1.7	0.8	1.9	1.5	1.6	1.3	1.1	1.2	1.2	0.6	-0.7
<b>Hallucinogens<sup>b,f</sup></b>																			
8th Grade	3.2	3.8	3.9	4.3	5.2	5.9	5.4	4.9	4.8	4.6†	5.2	4.1	4.0	3.5	3.8	3.4	3.1	3.3	+0.2
10th Grade	6.1	6.4	6.8	8.1	9.3	10.5	10.5	9.8	9.7	8.9†	8.9	7.8	6.9	6.4	5.8	6.1	6.4	5.5	-0.9
12th Grade	9.6	9.2	10.9	11.4	12.7	14.0	15.1	14.1	13.7	13.0†	14.7	12.0	10.6	9.7	8.8	8.3	8.4	8.7	+0.4
<b>LSD</b>																			
8th Grade	2.7	3.2	3.5	3.7	4.4	5.1	4.7	4.1	4.1	3.9	3.4	2.5	2.1	1.8	1.9	1.6	1.6	1.9	+0.3
10th Grade	5.6	5.8	6.2	7.2	8.4	9.4	9.5	8.5	8.5	7.6	6.3	5.0	3.5	2.8	2.5	2.7	3.0	2.6	-0.4
12th Grade	8.8	8.6	10.3	10.5	11.7	12.6	13.6	12.6	12.2	11.1	10.9	8.4	5.9	4.6	3.5	3.3	3.4	4.0	+0.5
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	1.4	1.7	1.7	2.2	2.5	3.0	2.6	2.5	2.4	2.3†	3.9	3.3	3.2	3.0	3.3	2.8	2.6	2.5	-0.1
10th Grade	2.2	2.5	2.8	3.8	3.9	4.7	4.8	5.0	4.7	4.8†	6.6	6.3	5.9	5.8	5.2	5.5	5.7	4.8	-0.9 s
12th Grade	3.7	3.3	3.9	4.9	5.4	6.8	7.5	7.1	6.7	6.9†	10.4	9.2	9.0	8.7	8.1	7.8	7.7	7.8	+0.1
<b>PCP<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	2.9	2.4	2.9	2.8	2.7	4.0	3.9	3.9	3.4	3.4	3.5	3.1	2.5	1.6	2.4	2.2	2.1	1.8	-0.3

(Table continued on next page.)

**TABLE 5-5a (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>Ecstasy (MDMA)<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	3.4	3.2	2.7	2.7	4.3	5.2	4.3	3.2	2.8	2.8	2.5	2.3	2.4	+0.1
10th Grade	—	—	—	—	—	5.6	5.7	5.1	6.0	7.3	8.0	6.6	5.4	4.3	4.0	4.5	5.2	4.3	-1.0
12th Grade	—	—	—	—	—	6.1	6.9	5.8	8.0	11.0	11.7	10.5	8.3	7.5	5.4	6.5	6.5	6.2	-0.3
<b>Cocaine</b>																			
8th Grade	2.3	2.9	2.9	3.6	4.2	4.5	4.4	4.6	4.7	4.5	4.3	3.6	3.6	3.4	3.7	3.4	3.1	3.0	-0.1
10th Grade	4.1	3.3	3.6	4.3	5.0	6.5	7.1	7.2	7.7	6.9	5.7	6.1	5.1	5.4	5.2	4.8	5.3	4.5	-0.8
12th Grade	7.8	6.1	6.1	5.9	6.0	7.1	8.7	9.3	9.8	8.6	8.2	7.8	7.7	8.1	8.0	8.5	7.8	7.2	-0.6
<b>Crack</b>																			
8th Grade	1.3	1.6	1.7	2.4	2.7	2.9	2.7	3.2	3.1	3.1	3.0	2.5	2.5	2.4	2.4	2.3	2.1	2.0	-0.1
10th Grade	1.7	1.5	1.8	2.1	2.8	3.3	3.6	3.9	4.0	3.7	3.1	3.6	2.7	2.6	2.5	2.2	2.3	2.0	-0.3
12th Grade	3.1	2.6	2.6	3.0	3.0	3.3	3.9	4.4	4.6	3.9	3.7	3.8	3.6	3.9	3.5	3.5	3.2	2.8	-0.5
<b>Other Cocaine<sup>h</sup></b>																			
8th Grade	2.0	2.4	2.4	3.0	3.4	3.8	3.5	3.7	3.8	3.5	3.3	2.8	2.7	2.6	2.9	2.7	2.6	2.4	-0.2
10th Grade	3.8	3.0	3.3	3.8	4.4	5.5	6.1	6.4	6.8	6.0	5.0	5.2	4.5	4.8	4.6	4.3	4.8	4.0	-0.8
12th Grade	7.0	5.3	5.4	5.2	5.1	6.4	8.2	8.4	8.8	7.7	7.4	7.0	6.7	7.3	7.1	7.9	6.8	6.5	-0.4
<b>Heroin<sup>i</sup></b>																			
8th Grade	1.2	1.4	1.4	2.0	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	0.0
10th Grade	1.2	1.2	1.3	1.5	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	-0.4 s
12th Grade	0.9	1.2	1.1	1.2	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	-0.3
<b>With a Needle<sup>j</sup></b>																			
8th Grade	—	—	—	—	1.5	1.6	1.3	1.4	1.6	1.1	1.2	1.0	1.0	1.1	1.0	1.0	0.9	0.9	0.0
10th Grade	—	—	—	—	1.0	1.1	1.1	1.2	1.3	1.0	0.8	1.0	0.9	0.8	0.8	0.9	0.9	0.7	-0.2
12th Grade	—	—	—	—	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.8	0.7	0.7	0.9	0.8	0.7	0.7	0.0
<b>Without a Needle<sup>j</sup></b>																			
8th Grade	—	—	—	—	1.5	1.6	1.4	1.5	1.4	1.3	1.1	1.0	1.1	1.0	0.9	0.9	0.7	0.9	+0.2
10th Grade	—	—	—	—	1.1	1.7	1.7	1.7	1.6	1.7	1.3	1.3	1.0	1.1	1.1	1.0	1.1	0.8	-0.2
12th Grade	—	—	—	—	1.4	1.7	2.1	1.6	1.8	2.4	1.5	1.6	1.8	1.4	1.3	1.1	1.4	1.1	-0.3
<b>Narcotics other than Heroin<sup>k,l</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.6	6.1	6.4	6.6	7.2	8.2	9.7	9.8	10.2	10.6	9.9†	13.5	13.2	13.5	12.8	13.4	13.1	13.2	+0.1
<b>Amphetamines<sup>k</sup></b>																			
8th Grade	10.5	10.8	11.8	12.3	13.1	13.5	12.3	11.3	10.7	9.9	10.2	8.7	8.4	7.5	7.4	7.3	6.5	6.8	+0.3
10th Grade	13.2	13.1	14.9	15.1	17.4	17.7	17.0	16.0	15.7	15.7	16.0	14.9	13.1	11.9	11.1	11.2	11.1	9.0	-2.1 ss
12th Grade	15.4	13.9	15.1	15.7	15.3	15.3	16.5	16.4	16.3	15.6	16.2	16.8	14.4	15.0	13.1	12.4	11.4	10.5	-0.9
<b>Methamphetamine<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	4.5	4.2	4.4	3.5	3.9	2.5	3.1	2.7	1.8	2.3	+0.5
10th Grade	—	—	—	—	—	—	—	—	7.3	6.9	6.4	6.1	5.2	5.3	4.1	3.2	2.8	2.4	-0.4
12th Grade	—	—	—	—	—	—	—	—	8.2	7.9	6.9	6.7	6.2	6.2	4.5	4.4	3.0	2.8	-0.3

(Table continued on next page.)

**TABLE 5-5a (cont.)**  
**Trends in Lifetime Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>Crystal Methamphetamine (Ice)<sup>n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.3	2.9	3.1	3.4	3.9	4.4	4.4	5.3	4.8	4.0	4.1	4.7	3.9	4.0	4.0	3.4	3.4	2.8	-0.6
<b>Sedatives (Barbiturates)<sup>k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	6.2	5.5	6.3	7.0	7.4	7.6	8.1	8.7	8.9	9.2	8.7	9.5	8.8	9.9	10.5	10.2	9.3	8.5	-0.9
<b>Methaqualone<sup>6,k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.3	1.6	0.8	1.4	1.2	2.0	1.7	1.6	1.8	0.8	1.1	1.5	1.0	1.3	1.3	1.2	1.0	0.8	-0.2
<b>Tranquilizers<sup>b,k</sup></b>																			
8th Grade	3.8	4.1	4.4	4.6	4.5	5.3	4.8	4.6	4.4	4.4†	5.0	4.3	4.4	4.0	4.1	4.3	3.9	3.9	0.0
10th Grade	5.8	5.9	5.7	5.4	6.0	7.1	7.3	7.8	7.9	8.0†	9.2	8.8	7.8	7.3	7.1	7.2	7.4	6.8	-0.6
12th Grade	7.2	6.0	6.4	6.6	7.1	7.2	7.8	8.5	9.3	8.9†	10.3	11.4	10.2	10.6	9.9	10.3	9.5	8.9	-0.6
<b>Rohypnol<sup>o</sup></b>																			
8th Grade	—	—	—	—	—	1.5	1.1	1.4	1.3	1.0	1.1	0.8	1.0	1.0	1.1	1.0	1.0	0.7	-0.3
10th Grade	—	—	—	—	—	1.5	1.7	2.0	1.8	1.3	1.5	1.3	1.0	1.2	1.0	0.8	1.3	0.9	-0.4
12th Grade	—	—	—	—	—	1.2	1.8	3.0	2.0	1.5	1.7	—	—	—	—	—	—	—	—
<b>Alcohol<sup>p</sup></b>																			
<b>Any Use</b>																			
8th Grade	70.1	69.3‡	55.7	55.8	54.5	55.3	53.8	52.5	52.1	51.7	50.5	47.0	45.6	43.9	41.0	40.5	38.9	38.9	+0.1
10th Grade	83.8	82.3‡	71.6	71.1	70.5	71.8	72.0	69.8	70.6	71.4	70.1	66.9	66.0	64.2	63.2	61.5	61.7	58.3	-3.4 ss
12th Grade	88.0	87.5‡	80.0	80.4	80.7	79.2	81.7	81.4	80.0	80.3	79.7	78.4	76.6	76.8	75.1	72.7	72.2	71.9	-0.2
<b>Been Drunk<sup>n</sup></b>																			
8th Grade	26.7	26.8	26.4	25.9	25.3	26.8	25.2	24.8	24.8	25.1	23.4	21.3	20.3	19.9	19.5	19.5	17.9	18.0	+0.1
10th Grade	50.0	47.7	47.9	47.2	46.9	48.5	49.4	46.7	48.9	49.3	48.2	44.0	42.4	42.3	42.1	41.4	41.2	37.2	-4.0 sss
12th Grade	65.4	63.4	62.5	62.9	63.2	61.8	64.2	62.4	62.3	62.3	63.9	61.6	58.1	60.3	57.5	56.4	55.1	54.7	-0.4
<b>Flavored Alcoholic Beverages<sup>6,m</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	37.9	35.5	35.5	34.0	32.8	-1.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	58.6	58.8	58.1	55.7	53.5	-2.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	71.0	73.6	69.9	68.4	65.5	-2.9
<b>Cigarettes</b>																			
<b>Any Use</b>																			
8th Grade	44.0	45.2	45.3	46.1	46.4	49.2	47.3	45.7	44.1	40.5	36.6	31.4	28.4	27.9	25.9	24.6	22.1	20.5	-1.7
10th Grade	55.1	53.5	56.3	56.9	57.6	61.2	60.2	57.7	57.6	55.1	52.8	47.4	43.0	40.7	38.9	36.1	34.6	31.7	-2.9 ss
12th Grade	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	50.0	47.1	46.2	44.7	-1.5
<b>Smokeless Tobacco<sup>q</sup></b>																			
8th Grade	22.2	20.7	18.7	19.9	20.0	20.4	16.8	15.0	14.4	12.8	11.7	11.2	11.3	11.0	10.1	10.2	9.1	9.8	+0.8
10th Grade	28.2	26.6	28.1	29.2	27.6	27.4	26.3	22.7	20.4	19.1	19.5	16.9	14.6	13.8	14.5	15.0	15.1	12.2	-2.9 ss
12th Grade	—	32.4	31.0	30.7	30.9	29.8	25.3	26.2	23.4	23.1	19.7	18.3	17.0	16.7	17.5	15.2	15.1	15.6	+0.5
<b>Steroids<sup>f</sup></b>																			
8th Grade	1.9	1.7	1.6	2.0	2.0	1.8	1.8	2.3	2.7	3.0	2.8	2.5	2.5	1.9	1.7	1.6	1.5	1.4	-0.2
10th Grade	1.8	1.7	1.7	1.8	2.0	1.8	2.0	2.0	2.7	3.5	3.5	3.5	3.0	2.4	2.0	1.8	1.8	1.4	-0.4
12th Grade	2.1	2.1	2.0	2.4	2.3	1.9	2.4	2.7	2.9	2.5	3.7	4.0	3.5	3.4	2.6	2.7	2.2	2.2	0.0

Source. The Monitoring the Future study, the University of Michigan.

### Footnotes for Tables 5-5a through 5-5d

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

“‡” indicates some change in the question. See relevant footnote for that drug.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

Approximate Weighted <i>N</i>	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
8th Graders	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700
10th Graders	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100
12th Graders	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000

<sup>a</sup>For 12th graders only: Use of “any illicit drug” includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), or tranquilizers not under a doctor’s orders. For 8th and 10th graders only: The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>In 2001 the question text was changed on half of the questionnaire forms for each age group. “Other psychedelics” was changed to “other hallucinogens” and “shrooms” was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. For 8th, 10th, and 12th graders: The 2001 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2002 the remaining forms were changed to the new wording. The data are based on all forms beginning in 2002. Data for any illicit drug other than marijuana and data for hallucinogens are also affected by these changes and have been handled in a parallel manner.

<sup>c</sup>For 12th graders only: Data based on five of six forms in 1991–1998; *N* is five sixths of *N* indicated. Data based on three of six forms beginning in 1999; *N* is three sixths of *N* indicated.

<sup>d</sup>Inhalants are unadjusted for underreporting of amyl and butyl nitrites.

<sup>e</sup>For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated.

<sup>f</sup>Hallucinogens are unadjusted for underreporting of PCP.

<sup>g</sup>For 8th and 10th graders only: Data based on one of two forms in 1996; *N* is one half of *N* indicated. Data based on one third of *N* indicated in 1997–2001 due to changes in the questionnaire forms. Data based on two of four forms beginning in 2002; *N* is one half of *N* indicated. For 12th graders only: Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated. Data based on two of six forms beginning in 2002; *N* is two sixths of *N* indicated.

<sup>h</sup>For 12th graders only: Data based on four of six forms; *N* is four sixths of *N* indicated.

<sup>i</sup>In 1995 the heroin question was changed in one of two forms for 8th and 10th graders and in three of six forms for 12th graders. Separate questions were asked for use with and without injection. In 1996, the heroin question was changed in all remaining 8th- and 10th-grade forms. Data presented here represent the combined data from all forms.

<sup>j</sup>For 8th and 10th graders only: Data based on one of two forms in 1995; *N* is one half of *N* indicated. Data based on all forms beginning in 1996. For 12th graders only: Data based on three of six forms; *N* is three sixths of *N* indicated.

<sup>k</sup>Only drug use not under a doctor’s orders is included here.

<sup>l</sup>In 2002 the question text was changed in half of the questionnaire forms. The list of examples of narcotics other than heroin was updated: Talwin, laudanum, and paregoric—all of which had negligible rates of use by 2001—were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2003, the remaining forms were changed to the new wording. The data are based on all forms beginning in 2003.

<sup>m</sup>For 8th and 10th graders only: Data based on one of four forms; *N* is one third of *N* indicated.

<sup>n</sup>For 12th graders only: Data based on two of six forms; *N* is two sixths of *N* indicated.

<sup>o</sup>For 8th and 10th graders only: Data based on one of two forms in 1996; *N* is one half of *N* indicated. Data based on three of four forms in 1997–1998; *N* is two thirds of *N* indicated. Data based on two of four forms in 1999–2001; *N* is one third of *N* indicated. Data based on one of four forms beginning in 2002; *N* is one sixth of *N* indicated. For 12th graders only: Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated. Data based on two of six forms beginning in 2002; *N* is two sixths of *N* indicated. Data for 2001 and 2002 are not comparable due to changes in the questionnaire forms.

<sup>p</sup>For 8th, 10th, and 12th graders: In 1993, the question text was changed slightly in half of the forms to indicate that a “drink” meant “more than just a few sips.” The 1993 data are based on the changed forms only; *N* is one half of *N* indicated for these groups. In 1994 the remaining forms were changed to the new wording. The data are based on all forms beginning in 1994. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

<sup>q</sup>For 8th and 10th graders only: Data based on one of two forms for 1991–1996 and on two of four forms beginning in 1997; *N* is one half of *N* indicated. For 12th graders only: Data based on one of six forms; *N* is one sixth of *N* indicated.

<sup>r</sup>For 8th, 10th, and 12th graders: In 2006, the question text was changed slightly in some of the forms. An examination of the data did not show any effect from the wording change. In 2007 the remaining forms were changed in a like manner. In 2008 the question text was changed slightly. An examination of the data did not show any effect from the wording change. For 12th graders only: Data based on two of six forms in 1991–2005; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated.

<sup>s</sup>For 12th graders only: Data based on two of six forms in 2002–2005; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2006; *N* is three sixths of *N* indicated.

<sup>t</sup>For 12th graders only: Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms in 2001; *N* is three sixths of *N* indicated. Data based on one of six forms beginning in 2002; *N* is one sixth of *N* indicated.

<sup>u</sup>Data based on two of six forms in 2000; *N* is two sixths of *N* indicated. Data based on three of six forms beginning in 2001; *N* is three sixths of *N* indicated.

<sup>v</sup>The 2003 flavored alcoholic beverage data were created by adjusting the 2004 data to reflect the change in the 2003 and 2004 “alcopops” data.

<sup>w</sup>Daily use is defined as use on 20 or more occasions in the past 30 days except for cigarettes and smokeless tobacco, for which actual daily use is measured, and for 5+ drinks, for which the prevalence of having five or more drinks in a row in the last two weeks is measured.

<sup>x</sup>For 12th graders only: Due to a coding error, previously released versions of this table contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here. For 8th and 10th graders only: The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008. The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this table.

**TABLE 5-5b**  
**Trends in Annual Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Any Illicit Drug<sup>a</sup></b>																			
8th Grade	11.3	12.9	15.1	18.5	21.4	23.6	22.1	21.0	20.5	19.5	19.5	17.7	16.1	15.2	15.5	14.8	13.2	14.1	+0.8
10th Grade	21.4	20.4	24.7	30.0	33.3	37.5	38.5	35.0	35.9	36.4	37.2	34.8	32.0	31.1	29.8	28.7	28.1	26.9	-1.2
12th Grade	29.4	27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	+0.6
<b>Any Illicit Drug other than Marijuana<sup>a,b</sup></b>																			
8th Grade	8.4	9.3	10.4	11.3	12.6	13.1	11.8	11.0	10.5	10.2†	10.8	8.8	8.8	7.9	8.1	7.7	7.0	7.4	+0.4
10th Grade	12.2	12.3	13.9	15.2	17.5	18.4	18.2	16.6	16.7	16.7†	17.9	15.7	13.8	13.5	12.9	12.7	13.1	11.3	-1.7 s
12th Grade	16.2	14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4†	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	-0.3
<b>Any Illicit Drug including Inhalants<sup>a,c</sup></b>																			
8th Grade	16.7	18.2	21.1	24.2	27.1	28.7	27.2	26.2	25.3	24.0	23.9	21.4	20.4	20.2	20.4	19.7	18.0	19.0	+1.0
10th Grade	23.9	23.5	27.4	32.5	35.6	39.6	40.3	37.1	37.7	38.0	38.7	36.1	33.5	32.9	31.7	30.7	30.2	28.8	-1.3
12th Grade	31.2	28.8	32.5	37.6	40.2	41.9	43.3	42.4	42.8	42.5	42.6	42.1	40.5	39.1	40.3	38.0	37.0	37.3	+0.3
<b>Marijuana/Hashish</b>																			
8th Grade	6.2	7.2	9.2	13.0	15.8	18.3	17.7	16.9	16.5	15.6	15.4	14.6	12.8	11.8	12.2	11.7	10.3	10.9	+0.6
10th Grade	16.5	15.2	19.2	25.2	28.7	33.6	34.8	31.1	32.1	32.2	32.7	30.3	28.2	27.5	26.6	25.2	24.6	23.9	-0.6
12th Grade	23.9	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	+0.7
<b>Inhalants<sup>c,d</sup></b>																			
8th Grade	9.0	9.5	11.0	11.7	12.8	12.2	11.8	11.1	10.3	9.4	9.1	7.7	8.7	9.6	9.5	9.1	8.3	8.9	+0.6
10th Grade	7.1	7.5	8.4	9.1	9.6	9.5	8.7	8.0	7.2	7.3	6.6	5.8	5.4	5.9	6.0	6.5	6.6	5.9	-0.7
12th Grade	6.6	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	+0.1
<b>Nitrites<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.9	0.5	0.9	1.1	1.1	1.6	1.2	1.4	0.9	0.6	0.6	1.1	0.9	0.8	0.6	0.5	0.8	0.6	-0.2
<b>Hallucinogens<sup>b,f</sup></b>																			
8th Grade	1.9	2.5	2.6	2.7	3.6	4.1	3.7	3.4	2.9	2.8†	3.4	2.6	2.6	2.2	2.4	2.1	1.9	2.1	+0.2
10th Grade	4.0	4.3	4.7	5.8	7.2	7.8	7.6	6.9	6.9	6.1†	6.2	4.7	4.1	4.1	4.0	4.1	4.4	3.9	-0.5
12th Grade	5.8	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1†	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	+0.5
<b>LSD</b>																			
8th Grade	1.7	2.1	2.3	2.4	3.2	3.5	3.2	2.8	2.4	2.4	2.2	1.5	1.3	1.1	1.2	0.9	1.1	1.3	+0.2
10th Grade	3.7	4.0	4.2	5.2	6.5	6.9	6.7	5.9	6.0	5.1	4.1	2.6	1.7	1.6	1.5	1.7	1.9	1.8	-0.1
12th Grade	5.2	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	+0.6
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	0.7	1.1	1.0	1.3	1.7	2.0	1.8	1.6	1.5	1.4†	2.4	2.1	2.1	1.9	2.0	1.8	1.6	1.6	0.0
10th Grade	1.3	1.4	1.9	2.4	2.8	3.3	3.3	3.4	3.2	3.1†	4.3	4.0	3.6	3.7	3.5	3.7	3.8	3.3	-0.5
12th Grade	2.0	1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4†	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0	+0.2

(Table continued on next page.)

**TABLE 5-5b (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>PCP<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.4	1.4	1.6	1.8	2.6	2.3	2.1	1.8	2.3	1.8	1.1	1.3	0.7	1.3	0.7	0.9	1.1	+0.2
<b>Ecstasy (MDMA)<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	2.3	2.3	1.8	1.7	3.1	3.5	2.9	2.1	1.7	1.7	1.4	1.5	1.7	+0.2
10th Grade	—	—	—	—	—	4.6	3.9	3.3	4.4	5.4	6.2	4.9	3.0	2.4	2.6	2.8	3.5	2.9	-0.6
12th Grade	—	—	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	-0.2
<b>Cocaine</b>																			
8th Grade	1.1	1.5	1.7	2.1	2.6	3.0	2.8	3.1	2.7	2.6	2.5	2.3	2.2	2.0	2.2	2.0	2.0	1.8	-0.2
10th Grade	2.2	1.9	2.1	2.8	3.5	4.2	4.7	4.7	4.9	4.4	3.6	4.0	3.3	3.7	3.5	3.2	3.4	3.0	-0.5
12th Grade	3.5	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	-0.8
<b>Crack</b>																			
8th Grade	0.7	0.9	1.0	1.3	1.6	1.8	1.7	2.1	1.8	1.8	1.7	1.6	1.6	1.3	1.4	1.3	1.3	1.1	-0.2
10th Grade	0.9	0.9	1.1	1.4	1.8	2.1	2.2	2.5	2.4	2.2	1.8	2.3	1.6	1.7	1.7	1.3	1.3	1.3	-0.1
12th Grade	1.5	1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6	-0.4 s
<b>Other Cocaine<sup>h</sup></b>																			
8th Grade	1.0	1.2	1.3	1.7	2.1	2.5	2.2	2.4	2.3	1.9	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.4	-0.1
10th Grade	2.1	1.7	1.8	2.4	3.0	3.5	4.1	4.0	4.4	3.8	3.0	3.4	2.8	3.3	3.0	2.9	3.1	2.6	-0.5
12th Grade	3.2	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	-0.5
<b>Heroin<sup>i</sup></b>																			
8th Grade	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.0
10th Grade	0.5	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.0
12th Grade	0.4	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	-0.2
<b>With a Needle<sup>j</sup></b>																			
8th Grade	—	—	—	—	0.9	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.0
10th Grade	—	—	—	—	0.6	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.0
12th Grade	—	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.0
<b>Without a Needle<sup>j</sup></b>																			
8th Grade	—	—	—	—	0.8	1.0	0.8	0.8	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	+0.1
10th Grade	—	—	—	—	0.8	0.9	1.1	1.0	1.1	1.1	0.7	0.8	0.5	0.7	0.7	0.6	0.6	0.6	0.0
12th Grade	—	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	-0.5 ss
<b>Narcotics other than Heroin<sup>k,l</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.5	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7†	9.4	9.3	9.5	9.0	9.0	9.2	9.1	0.0
<b>OxyContin<sup>m,s</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	1.3	1.7	1.7	1.8	2.6	1.8	2.1	+0.3
10th Grade	—	—	—	—	—	—	—	—	—	—	—	3.0	3.6	3.5	3.2	3.8	3.9	3.6	-0.3
12th Grade	—	—	—	—	—	—	—	—	—	—	—	4.0	4.5	5.0	5.5	4.3	5.2	4.7	-0.5

(Table continued on next page.)

**TABLE 5-5b (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Vicodin<sup>m,s</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	2.5	2.8	2.5	2.6	3.0	2.7	2.9	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	—	—	6.9	7.2	6.2	5.9	7.0	7.2	6.7	-0.5
12th Grade	—	—	—	—	—	—	—	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	+0.1
<b>Amphetamines<sup>k</sup></b>																			
8th Grade	6.2	6.5	7.2	7.9	8.7	9.1	8.1	7.2	6.9	6.5	6.7	5.5	5.5	4.9	4.9	4.7	4.2	4.5	+0.3
10th Grade	8.2	8.2	9.6	10.2	11.9	12.4	12.1	10.7	10.4	11.1	11.7	10.7	9.0	8.5	7.8	7.9	8.0	6.4	-1.6 ss
12th Grade	8.2	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	-0.7
<b>Ritalin<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	2.9	2.8	2.6	2.5	2.4	2.6	2.1	1.6	-0.4
10th Grade	—	—	—	—	—	—	—	—	—	—	4.8	4.8	4.1	3.4	3.4	3.6	2.8	2.9	+0.2
12th Grade	—	—	—	—	—	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4	3.8	3.4	-0.4
<b>Methamphetamine<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	3.2	2.5	2.8	2.2	2.5	1.5	1.8	1.8	1.1	1.2	+0.1
10th Grade	—	—	—	—	—	—	—	—	4.6	4.0	3.7	3.9	3.3	3.0	2.9	1.8	1.6	1.5	-0.1
12th Grade	—	—	—	—	—	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5	1.7	1.2	-0.5
<b>Crystal Methamphetamine (Ice)<sup>n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.3	1.7	1.8	2.4	2.8	2.3	3.0	1.9	2.2	2.5	3.0	2.0	2.1	2.3	1.9	1.6	1.1	-0.6 s
<b>Sedatives (Barbiturates)<sup>k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	3.4	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6	6.2	5.8	-0.4
<b>Methaqualone<sup>e,k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	0.2	0.8	0.7	1.1	1.0	1.1	1.1	0.3	0.8	0.9	0.6	0.8	0.9	0.8	0.5	0.5	0.0
<b>Tranquilizers<sup>b,k</sup></b>																			
8th Grade	1.8	2.0	2.1	2.4	2.7	3.3	2.9	2.6	2.5	2.6†	2.8	2.6	2.7	2.5	2.8	2.6	2.4	2.4	0.0
10th Grade	3.2	3.5	3.3	3.3	4.0	4.6	4.9	5.1	5.4	5.6†	7.3	6.3	5.3	5.1	4.8	5.2	5.3	4.6	-0.7
12th Grade	3.6	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7†	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	0.0
<b>OTC Cough/Cold Medicines<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.2	4.0	3.6	-0.5
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.3	5.4	5.3	-0.1
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.9	5.8	5.5	-0.3

(Table continued on next page.)

**TABLE 5-5b (cont.)**  
**Trends in Annual Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Rohypnol<sup>p</sup></b>																			
8th Grade	—	—	—	—	—	1.0	0.8	0.8	0.5	0.5	0.7	0.3	0.5	0.6	0.7	0.5	0.7	0.5	-0.2
10th Grade	—	—	—	—	—	1.1	1.3	1.2	1.0	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.7	0.4	-0.3
12th Grade	—	—	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9‡	1.6	1.3	1.6	1.2	1.1	1.0	1.3	+0.3
<b>GHB<sup>m,t</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	1.2	1.1	0.8	0.9	0.7	0.5	0.8	0.7	1.1	+0.4 <sup>s</sup>
10th Grade	—	—	—	—	—	—	—	—	—	1.1	1.0	1.4	1.4	0.8	0.8	0.7	0.6	0.5	0.0
12th Grade	—	—	—	—	—	—	—	—	—	1.9	1.6	1.5	1.4	2.0	1.1	1.1	0.9	1.2	+0.3
<b>Ketamine<sup>m,u</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	1.6	1.3	1.3	1.1	0.9	0.6	0.9	1.0	1.2	+0.2
10th Grade	—	—	—	—	—	—	—	—	—	2.1	2.1	2.2	1.9	1.3	1.0	1.0	0.8	1.0	+0.2
12th Grade	—	—	—	—	—	—	—	—	—	2.5	2.5	2.6	2.1	1.9	1.6	1.4	1.3	1.5	+0.2
<b>Alcohol<sup>p</sup></b>																			
<b>Any Use</b>																			
8th Grade	54.0	53.7‡	45.4	46.8	45.3	46.5	45.5	43.7	43.5	43.1	41.9	38.7	37.2	36.7	33.9	33.6	31.8	32.1	+0.3
10th Grade	72.3	70.2‡	63.4	63.9	63.5	65.0	65.2	62.7	63.7	65.3	63.5	60.0	59.3	58.2	56.7	55.8	56.3	52.5	-3.8 <sup>sss</sup>
12th Grade	77.7	76.8‡	72.7	73.0	73.7	72.5	74.8	74.3	73.8	73.2	73.3	71.5	70.1	70.6	68.6	66.5	66.4	65.5	-0.9
<b>Been Drunk<sup>n</sup></b>																			
8th Grade	17.5	18.3	18.2	18.2	18.4	19.8	18.4	17.9	18.5	18.5	16.6	15.0	14.5	14.5	14.1	13.9	12.6	12.7	+0.1
10th Grade	40.1	37.0	37.8	38.0	38.5	40.1	40.7	38.3	40.9	41.6	39.9	35.4	34.7	35.1	34.2	34.5	34.4	30.0	-4.3 <sup>sss</sup>
12th Grade	52.7	50.3	49.6	51.7	52.5	51.9	53.2	52.0	53.2	51.8	53.2	50.4	48.0	51.8	47.7	47.9	46.1	45.6	-0.5
<b>Flavored Alcoholic Beverages<sup>e,m,v</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	30.4	27.9	26.8	26.0	25.0	-1.0
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	49.7	48.5	48.8	45.9	43.4	-2.4
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	55.2	55.8	58.4	54.7	53.6	-1.9
<b>Bidis<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	3.9	2.7	2.7	2.0	1.7	1.6	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	6.4	4.9	3.1	2.8	2.1	1.6	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	9.2	7.0	5.9	4.0	3.6	3.3	2.3	1.7	1.9	+0.2
<b>Kreteks<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	2.6	2.6	2.0	1.9	1.4	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	6.0	4.9	3.8	3.7	2.8	—	—	—	—
12th Grade	—	—	—	—	—	—	—	—	—	—	10.1	8.4	6.7	6.5	7.1	6.2	6.8	6.8	0.0
<b>Steroids<sup>f</sup></b>																			
8th Grade	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4	1.1	1.1	0.9	0.8	0.9	+0.1
10th Grade	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7	1.5	1.3	1.2	1.1	0.9	-0.1
12th Grade	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	+0.1

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 5-5a.

**TABLE 5-5c**  
**Trends in 30-Day Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
Any Illicit Drug <sup>a</sup>																			
8th Grade	5.7	6.8	8.4	10.9	12.4	14.6	12.9	12.1	12.2	11.9	11.7	10.4	9.7	8.4	8.5	8.1	7.4	7.6	+0.2
10th Grade	11.6	11.0	14.0	18.5	20.2	23.2	23.0	21.5	22.1	22.5	22.7	20.8	19.5	18.3	17.3	16.8	16.9	15.8	-1.1
12th Grade	16.4	14.4	18.3	21.9	23.8	24.6	26.2	25.6	25.9	24.9	25.7	25.4	24.1	23.4	23.1	21.5	21.9	22.3	+0.5
Any Illicit Drug other than Marijuana <sup>a,b</sup>																			
8th Grade	3.8	4.7	5.3	5.6	6.5	6.9	6.0	5.5	5.5	5.6‡	5.5	4.7	4.7	4.1	4.1	3.8	3.6	3.8	+0.1
10th Grade	5.5	5.7	6.5	7.1	8.9	8.9	8.8	8.6	8.6	8.5‡	8.7	8.1	6.9	6.9	6.4	6.3	6.9	5.3	-1.6 sss
12th Grade	7.1	6.3	7.9	8.8	10.0	9.5	10.7	10.7	10.4	10.4‡	11.0	11.3	10.4	10.8	10.3	9.8	9.5	9.3	-0.2
Any Illicit Drug including Inhalants <sup>a,c</sup>																			
8th Grade	8.8	10.0	12.0	14.3	16.1	17.5	16.0	14.9	15.1	14.4	14.0	12.6	12.1	11.2	11.2	10.9	10.1	10.4	+0.3
10th Grade	13.1	12.6	15.5	20.0	21.6	24.5	24.1	22.5	23.1	23.6	23.6	21.7	20.5	19.3	18.4	17.7	18.1	16.8	-1.3
12th Grade	17.8	15.5	19.3	23.0	24.8	25.5	26.9	26.6	26.4	26.4	26.5	25.9	24.6	23.3	24.2	22.1	22.8	22.8	0.0
Marijuana/Hashish																			
8th Grade	3.2	3.7	5.1	7.8	9.1	11.3	10.2	9.7	9.7	9.1	9.2	8.3	7.5	6.4	6.6	6.5	5.7	5.8	+0.1
10th Grade	8.7	8.1	10.9	15.8	17.2	20.4	20.5	18.7	19.4	19.7	19.8	17.8	17.0	15.9	15.2	14.2	14.2	13.8	-0.3
12th Grade	13.8	11.9	15.5	19.0	21.2	21.9	23.7	22.8	23.1	21.6	22.4	21.5	21.2	19.9	19.8	18.3	18.8	19.4	+0.7
Inhalants <sup>c,d</sup>																			
8th Grade	4.4	4.7	5.4	5.6	6.1	5.8	5.6	4.8	5.0	4.5	4.0	3.8	4.1	4.5	4.2	4.1	3.9	4.1	+0.2
10th Grade	2.7	2.7	3.3	3.6	3.5	3.3	3.0	2.9	2.6	2.6	2.4	2.4	2.2	2.4	2.2	2.3	2.5	2.1	-0.4
12th Grade	2.4	2.3	2.5	2.7	3.2	2.5	2.5	2.3	2.0	2.2	1.7	1.5	1.5	1.5	2.0	1.5	1.2	1.4	+0.2
Nitrites <sup>e</sup>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.4	0.3	0.6	0.4	0.4	0.7	0.7	1.0	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	-0.2
Hallucinogens <sup>b,f</sup>																			
8th Grade	0.8	1.1	1.2	1.3	1.7	1.9	1.8	1.4	1.3	1.2‡	1.6	1.2	1.2	1.0	1.1	0.9	1.0	0.9	0.0
10th Grade	1.6	1.8	1.9	2.4	3.3	2.8	3.3	3.2	2.9	2.3‡	2.1	1.6	1.5	1.6	1.5	1.5	1.7	1.3	-0.4
12th Grade	2.2	2.1	2.7	3.1	4.4	3.5	3.9	3.8	3.5	2.6‡	3.3	2.3	1.8	1.9	1.9	1.5	1.7	2.2	+0.5 s
LSD																			
8th Grade	0.6	0.9	1.0	1.1	1.4	1.5	1.5	1.1	1.1	1.0	1.0	0.7	0.6	0.5	0.5	0.4	0.5	0.5	0.0
10th Grade	1.5	1.6	1.6	2.0	3.0	2.4	2.8	2.7	2.3	1.6	1.5	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.0
12th Grade	1.9	2.0	2.4	2.6	4.0	2.5	3.1	3.2	2.7	1.6	2.3	0.7	0.6	0.7	0.7	0.6	0.6	1.1	+0.5 ss

(Table continued on next page.)

**TABLE 5-5c (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Hallucinogens other than LSD<sup>b</sup></b>																			
8th Grade	0.3	0.4	0.5	0.7	0.8	0.9	0.7	0.7	0.6	0.6‡	1.1	1.0	1.0	0.8	0.9	0.7	0.7	0.7	0.0
10th Grade	0.4	0.5	0.7	1.0	1.0	1.0	1.2	1.4	1.2	1.2‡	1.4	1.4	1.2	1.4	1.3	1.3	1.4	1.0	-0.5 ss
12th Grade	0.7	0.5	0.8	1.2	1.3	1.6	1.7	1.6	1.6	1.7‡	1.9	2.0	1.5	1.7	1.6	1.3	1.4	1.6	+0.3
<b>PCP<sup>e</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.5	0.6	1.0	0.7	0.6	1.3	0.7	1.0	0.8	0.9	0.5	0.4	0.6	0.4	0.7	0.4	0.5	0.6	+0.1
<b>Ecstasy (MDMA)<sup>g</sup></b>																			
8th Grade	—	—	—	—	—	1.0	1.0	0.9	0.8	1.4	1.8	1.4	0.7	0.8	0.6	0.7	0.6	0.8	+0.2
10th Grade	—	—	—	—	—	1.8	1.3	1.3	1.8	2.6	2.6	1.8	1.1	0.8	1.0	1.2	1.2	1.1	-0.1
12th Grade	—	—	—	—	—	2.0	1.6	1.5	2.5	3.6	2.8	2.4	1.3	1.2	1.0	1.3	1.6	1.8	+0.2
<b>Cocaine</b>																			
8th Grade	0.5	0.7	0.7	1.0	1.2	1.3	1.1	1.4	1.3	1.2	1.2	1.1	0.9	0.9	1.0	1.0	0.9	0.8	-0.1
10th Grade	0.7	0.7	0.9	1.2	1.7	1.7	2.0	2.1	1.8	1.8	1.3	1.6	1.3	1.7	1.5	1.5	1.3	1.2	0.0
12th Grade	1.4	1.3	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.1	2.1	2.3	2.1	2.3	2.3	2.5	2.0	1.9	-0.1
<b>Crack</b>																			
8th Grade	0.3	0.5	0.4	0.7	0.7	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	-0.2
10th Grade	0.3	0.4	0.5	0.6	0.9	0.8	0.9	1.1	0.8	0.9	0.7	1.0	0.7	0.8	0.7	0.7	0.5	0.5	0.0
12th Grade	0.7	0.6	0.7	0.8	1.0	1.0	0.9	1.0	1.1	1.0	1.1	1.2	0.9	1.0	1.0	0.9	0.9	0.8	-0.1
<b>Other Cocaine<sup>h</sup></b>																			
8th Grade	0.5	0.5	0.6	0.9	1.0	1.0	0.8	1.0	1.1	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.0
10th Grade	0.6	0.6	0.7	1.0	1.4	1.3	1.6	1.8	1.6	1.6	1.2	1.3	1.1	1.5	1.3	1.3	1.1	1.0	-0.1
12th Grade	1.2	1.0	1.2	1.3	1.3	1.6	2.0	2.0	2.5	1.7	1.8	1.9	1.8	2.2	2.0	2.4	1.7	1.7	0.0
<b>Heroin<sup>i</sup></b>																			
8th Grade	0.3	0.4	0.4	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.0
10th Grade	0.2	0.2	0.3	0.4	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	-0.1
12th Grade	0.2	0.3	0.2	0.3	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.0
<b>With a Needle<sup>j</sup></b>																			
8th Grade	—	—	—	—	0.4	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.0
10th Grade	—	—	—	—	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	-0.1
12th Grade	—	—	—	—	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.0
<b>Without a Needle<sup>k</sup></b>																			
8th Grade	—	—	—	—	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.0
10th Grade	—	—	—	—	0.3	0.3	0.4	0.5	0.5	0.4	0.2	0.4	0.2	0.3	0.3	0.3	0.2	0.3	0.0
12th Grade	—	—	—	—	0.6	0.4	0.6	0.4	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.3	0.4	0.2	-0.2

(Table continued on next page.)

**TABLE 5-5c (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**  
(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Narcotics other than Heroin<sup>k,l</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.4	2.6	2.9	3.0‡	4.0	4.1	4.3	3.9	3.8	3.8	3.8	0.0
<b>Amphetamines<sup>k</sup></b>																			
8th Grade	2.6	3.3	3.6	3.6	4.2	4.6	3.8	3.3	3.4	3.4	3.2	2.8	2.7	2.3	2.3	2.1	2.0	2.2	+0.2
10th Grade	3.3	3.6	4.3	4.5	5.3	5.5	5.1	5.1	5.0	5.4	5.6	5.2	4.3	4.0	3.7	3.5	4.0	2.8	-1.2 sss
12th Grade	3.2	2.8	3.7	4.0	4.0	4.1	4.8	4.6	4.5	5.0	5.6	5.5	5.0	4.6	3.9	3.7	3.7	2.9	-0.8 ss
<b>Methamphetamine<sup>m,n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	1.1	0.8	1.3	1.1	1.2	0.6	0.7	0.6	0.6	0.7	+0.1
10th Grade	—	—	—	—	—	—	—	—	1.8	2.0	1.5	1.8	1.4	1.3	1.1	0.7	0.4	0.7	+0.4 s
12th Grade	—	—	—	—	—	—	—	—	1.7	1.9	1.5	1.7	1.7	1.4	0.9	0.9	0.6	0.6	-0.1
<b>Crystal Methamphetamine (Ice)<sup>n</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.6	0.5	0.6	0.7	1.1	1.1	0.8	1.2	0.8	1.0	1.1	1.2	0.8	0.8	0.9	0.7	0.6	0.6	0.0
<b>Sedatives (Barbiturates)<sup>k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	1.4	1.1	1.3	1.7	2.2	2.1	2.1	2.6	2.6	3.0	2.8	3.2	2.9	2.9	3.3	3.0	2.7	2.8	+0.1
<b>Methaqualone<sup>e,k</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12th Grade	0.2	0.4	0.1	0.4	0.4	0.6	0.3	0.6	0.4	0.2	0.5	0.3	0.4	0.5	0.5	0.4	0.4	0.2	-0.1
<b>Tranquilizers<sup>b,k</sup></b>																			
8th Grade	0.8	0.8	0.9	1.1	1.2	1.5	1.2	1.2	1.1	1.4‡	1.2	1.2	1.4	1.2	1.3	1.3	1.1	1.2	+0.1
10th Grade	1.2	1.5	1.1	1.5	1.7	1.7	2.2	2.2	2.2	2.5‡	2.9	2.9	2.4	2.3	2.3	2.4	2.6	1.9	-0.7 sss
12th Grade	1.4	1.0	1.2	1.4	1.8	2.0	1.8	2.4	2.5	2.6‡	2.9	3.3	2.8	3.1	2.9	2.7	2.6	2.6	0.0
<b>Rohypnol<sup>p</sup></b>																			
8th Grade	—	—	—	—	—	0.5	0.3	0.4	0.3	0.3	0.4	0.2	0.1	0.2	0.2	0.4	0.3	0.1	-0.3
10th Grade	—	—	—	—	—	0.5	0.5	0.4	0.5	0.4	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.0
12th Grade	—	—	—	—	—	0.5	0.3	0.3	0.3	0.4	0.3	—	—	—	—	—	—	—	—

(Table continued on next page.)

**TABLE 5-5c (cont.)**  
**Trends in 30-Day Prevalence of Use of Various Drugs**  
**in Grades 8, 10, and 12**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Alcohol<sup>p</sup></b>																			
<b>Any Use</b>																			
8th Grade	25.1	26.1†	24.3	25.5	24.6	26.2	24.5	23.0	24.0	22.4	21.5	19.6	19.7	18.6	17.1	17.2	15.9	15.9	+0.1
10th Grade	42.8	39.9‡	38.2	39.2	38.8	40.4	40.1	38.8	40.0	41.0	39.0	35.4	35.4	35.2	33.2	33.8	33.4	28.8	-4.7 sss
12th Grade	54.0	51.3‡	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	-1.3
<b>Been Drunk<sup>l</sup></b>																			
8th Grade	7.6	7.5	7.8	8.7	8.3	9.6	8.2	8.4	9.4	8.3	7.7	6.7	6.7	6.2	6.0	6.2	5.5	5.4	-0.1
10th Grade	20.5	18.1	19.8	20.3	20.8	21.3	22.4	21.1	22.5	23.5	21.9	18.3	18.2	18.5	17.6	18.8	18.1	14.4	-3.7 sss
12th Grade	31.6	29.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	-1.1
<b>Flavored Alcoholic Beverages<sup>e,m</sup></b>																			
8th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	14.6	12.9	13.1	12.2	10.2	-2.0 ss
10th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	25.1	23.1	24.7	21.8	20.2	-1.6
12th Grade	—	—	—	—	—	—	—	—	—	—	—	—	—	31.1	30.5	29.3	29.1	27.4	-1.8
<b>Cigarettes</b>																			
<b>Any Use</b>																			
8th Grade	14.3	15.5	16.7	18.6	19.1	21.0	19.4	19.1	17.5	14.6	12.2	10.7	10.2	9.2	9.3	8.7	7.1	6.8	-0.2
10th Grade	20.8	21.5	24.7	25.4	27.9	30.4	29.8	27.6	25.7	23.9	21.3	17.7	16.7	16.0	14.9	14.5	14.0	12.3	-1.7 s
12th Grade	28.3	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	-1.2
<b>Smokeless Tobacco<sup>q</sup></b>																			
8th Grade	6.9	7.0	6.6	7.7	7.1	7.1	5.5	4.8	4.5	4.2	4.0	3.3	4.1	4.1	3.3	3.7	3.2	3.5	+0.3
10th Grade	10.0	9.6	10.4	10.5	9.7	8.6	8.9	7.5	6.5	6.1	6.9	6.1	5.3	4.9	5.6	5.7	6.1	5.0	-1.1
12th Grade	—	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	-0.1
<b>Steroids<sup>r</sup></b>																			
8th Grade	0.4	0.5	0.5	0.5	0.6	0.4	0.5	0.5	0.7	0.8	0.7	0.8	0.7	0.5	0.5	0.5	0.4	0.5	+0.1
10th Grade	0.6	0.6	0.5	0.6	0.6	0.5	0.7	0.6	0.9	1.0	0.9	1.0	0.8	0.8	0.6	0.6	0.5	0.5	0.0
12th Grade	0.8	0.6	0.7	0.9	0.7	0.7	1.0	1.1	0.9	0.8	1.3	1.4	1.3	1.6	0.9	1.1	1.0	1.0	0.0

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 5-5a.

**TABLE 5-5d**  
**Trends in 30-Day Prevalence of Daily Use of Various Drugs**  
**in Grades 8, 10, and 12**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
<b>Marijuana/Hashish</b>																			
Daily <sup>w</sup>																			
8th Grade	0.2	0.2	0.4	0.7	0.8	1.5	1.1	1.1	1.4	1.3	1.3	1.2	1.0	0.8	1.0	1.0	0.8	0.9	+0.1
10th Grade	0.8	0.8	1.0	2.2	2.8	3.5	3.7	3.6	3.8	3.8	4.5	3.9	3.6	3.2	3.1	2.8	2.8	2.7	-0.1
12th Grade	2.0	1.9	2.4	3.6	4.6	4.9	5.8	5.6	6.0	6.0	5.8	6.0	6.0	5.6	5.0	5.0	5.1	5.4	+0.4
<b>Alcohol<sup>p,w</sup></b>																			
Any Daily Use																			
8th Grade	0.5	0.6‡	1.0	1.0	0.7	1.0	0.8	0.9	1.0	0.8	0.9	0.7	0.8	0.6	0.5	0.5	0.6	0.7	+0.2
10th Grade	1.3	1.2‡	1.8	1.7	1.7	1.6	1.7	1.9	1.9	1.8	1.9	1.8	1.5	1.3	1.3	1.4	1.4	1.0	-0.4 ss
12th Grade	3.6	3.4‡	3.4	2.9	3.5	3.7	3.9	3.9	3.4	2.9	3.6	3.5	3.2	2.8	3.1	3.0	3.1	2.8	-0.3
<b>Been Drunk</b>																			
Daily <sup>n,w</sup>																			
8th Grade	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0
10th Grade	0.2	0.3	0.4	0.4	0.6	0.4	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.3	-0.2 ss
12th Grade	0.9	0.8	0.9	1.2	1.3	1.6	2.0	1.5	1.9	1.7	1.4	1.2	1.6	1.8	1.5	1.6	1.3	1.4	+0.1
<b>5+ Drinks in a Row</b>																			
in Last 2 Weeks <sup>x</sup>																			
8th Grade	10.9	11.3	11.3	12.1	12.3	13.3	12.3	11.5	13.1	11.7	11.0	10.3	9.8	9.4	8.4	8.7	8.3	8.1	-0.2
10th Grade	21.0	19.1	21.0	21.9	22.0	22.8	23.1	22.4	23.5	24.1	22.8	20.3	20.0	19.9	19.0	19.9	19.6	16.0	-3.7 sss
12th Grade	29.8	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	-1.3
<b>Cigarettes</b>																			
Any Daily Use																			
8th Grade	7.2	7.0	8.3	8.8	9.3	10.4	9.0	8.8	8.1	7.4	5.5	5.1	4.5	4.4	4.0	4.0	3.0	3.1	0.0
10th Grade	12.6	12.3	14.2	14.6	16.3	18.3	18.0	15.8	15.9	14.0	12.2	10.1	8.9	8.3	7.5	7.6	7.2	5.9	-1.3 s
12th Grade	18.5	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	-0.9
<b>1/2 Pack+/Day</b>																			
8th Grade	3.1	2.9	3.5	3.6	3.4	4.3	3.5	3.6	3.3	2.8	2.3	2.1	1.8	1.7	1.7	1.5	1.1	1.2	0.0
10th Grade	6.5	6.0	7.0	7.6	8.3	9.4	8.6	7.9	7.6	6.2	5.5	4.4	4.1	3.3	3.1	3.3	2.7	2.0	-0.7 s
12th Grade	10.7	10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4	-0.2
<b>Smokeless Tobacco</b>																			
Daily <sup>q</sup>																			
8th Grade	1.6	1.8	1.5	1.9	1.2	1.5	1.0	1.0	0.9	0.9	1.2	0.8	0.8	1.0	0.7	0.7	0.8	0.8	-0.1
10th Grade	3.3	3.0	3.3	3.0	2.7	2.2	2.2	2.2	1.5	1.9	2.2	1.7	1.8	1.6	1.9	1.7	1.6	1.4	-0.2
12th Grade	—	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	-0.1

Source. The Monitoring the Future study, the University of Michigan.

Note. See relevant footnotes at the end of Table 5-5a.

**TABLE 5-6a**  
**Trends in Lifetime Prevalence of Use of Heroin *with* and *without* a Needle**  
**in Grades 8, 10, and 12**

	Percentage who used in lifetime														2007– 2008 change
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<b>8th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.7	0.8	0.7	0.8	0.9	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.4	-0.2
Only <i>without</i> a needle	0.7	0.9	0.8	0.9	0.7	0.8	0.6	0.6	0.7	0.5	0.4	0.5	0.4	0.5	+0.1
Both ways	<u>0.8</u>	<u>0.7</u>	<u>0.6</u>	<u>0.6</u>	<u>0.7</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>	<u>0.4</u>	<u>0.4</u>	<u>0.3</u>	<u>0.5</u>	+0.2
Used heroin at all	2.3	2.4	2.1	2.3	2.3	1.9	1.7	1.6	1.6	1.6	1.5	1.4	1.3	1.4	0.0
<i>Approximate wtd. N =</i>	8,800	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
<b>10th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.6	0.5	0.4	0.6	0.7	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.3	-0.1
Only <i>without</i> a needle	0.7	1.1	1.0	1.2	1.1	1.2	0.8	0.9	0.6	0.7	0.7	0.6	0.7	0.5	-0.2
Both ways	<u>0.4</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.5</u>	<u>0.4</u>	<u>0.5</u>	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.5</u>	<u>0.4</u>	<u>0.3</u>	0.0
Used heroin at all	1.7	2.1	2.1	2.3	2.3	2.2	1.7	1.8	1.5	1.5	1.5	1.4	1.5	1.2	-0.4 s
<i>Approximate wtd. N =</i>	8,500	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
<b>12th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.1	0.2	0.4	0.3	0.3	0.3	0.0
Only <i>without</i> a needle	0.9	1.1	1.3	1.2	1.2	1.8	1.2	1.0	1.0	0.9	0.7	0.7	0.9	0.6	-0.3
Both ways	<u>0.4</u>	<u>0.4</u>	<u>0.5</u>	<u>0.5</u>	<u>0.4</u>	<u>0.3</u>	<u>0.3</u>	0.0							
Used heroin at all	1.6	1.8	2.1	2.0	2.0	2.4	1.8	1.7	1.5	1.5	1.5	1.4	1.5	1.3	-0.3
<i>Approximate wtd. N =</i>	7,700	7,200	7,700	7,600	6,800	6,400	6,400	6,500	7,300	7,300	7,400	7,100	7,300	7,000	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

For 8th and 10th graders only: Data based on one of two forms in 1995 and on all forms after 1995.

For 12th graders only: Data based on three of six forms except for "used heroin at all," which is based on all six forms.

**TABLE 5-6b**  
**Trends in Annual Prevalence of Use of Heroin *with* and *without* a Needle**  
**in Grades 8, 10, and 12**

	Percentage who used in last 12 months														2007- 2008 change
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<b>8th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.5	0.6	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.4	0.3	-0.1
Only <i>without</i> a needle	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	+0.1
Both ways	<u>0.4</u>	<u>0.4</u>	<u>0.3</u>	<u>0.4</u>	<u>0.4</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	+0.1
Used heroin at all	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.0
<i>Approximate wtd. N =</i>	8,800	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
<b>10th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	-0.1
Only <i>without</i> a needle	0.5	0.6	0.7	0.6	0.8	0.8	0.5	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.0
Both ways	<u>0.3</u>	<u>0.3</u>	<u>0.4</u>	<u>0.4</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	+0.1
Used heroin at all	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.0
<i>Approximate wtd. N =</i>	8,500	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
<b>12th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	+0.1
Only <i>without</i> a needle	0.6	0.6	0.7	0.6	0.8	1.1	0.6	0.6	0.4	0.5	0.4	0.3	0.6	0.3	-0.3 s
Both ways	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	0.0
Used heroin at all	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	-0.2
<i>Approximate wtd. N =</i>	7,700	7,200	7,700	7,600	6,800	6,400	6,400	6,500	7,300	7,300	7,400	7,100	7,300	7,000	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

For 8th and 10th graders only: Data based on one of two forms in 1995 and on all forms after 1995.

For 12th graders only: Data based on three of six forms except for "used heroin at all," which is based on all six forms.

**TABLE 5-6c**  
**Trends in 30-Day Prevalence of Use of Heroin *with* and *without* a Needle**  
**in Grades 8, 10, and 12**

	Percentage who used in last 30 days														2007- 2008 change
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<b>8th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.0
Only <i>without</i> a needle	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Both ways	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	0.0								
Used heroin at all	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.0
<i>Approximate wtd. N =</i>	8,800	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
<b>10th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	-0.1
Only <i>without</i> a needle	0.2	0.2	0.3	0.3	0.4	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0
Both ways	<u>0.1</u>	<u>0.1</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.1</u>	<u>0.2</u>	<u>0.1</u>	<u>0.1</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.1</u>	0.0
Used heroin at all	0.6	0.5	0.6	0.7	0.7	0.5	0.3	0.5	0.3	0.5	0.5	0.5	0.4	0.4	-0.1
<i>Approximate wtd. N =</i>	8,500	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
<b>12th Graders</b>															
Used heroin:															
Only <i>with</i> a needle	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	+0.1
Only <i>without</i> a needle	0.3	0.1	0.3	0.3	0.3	0.5	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	-0.1
Both ways	<u>0.1</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.2</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	0.0						
Used heroin at all	0.6	0.5	0.5	0.5	0.5	0.7	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.0
<i>Approximate wtd. N =</i>	7,700	7,200	7,700	7,600	6,800	6,400	6,400	6,500	7,300	7,300	7,400	7,100	7,300	7,000	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the total who used heroin at all and the sum of those who used with a needle, those who used without a needle, and those who used both ways is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

For 8th and 10th graders only: Data based on one of two forms in 1995 and on all forms after 1995.

For 12th graders only: Data based on three of six forms except for "used heroin at all," which is based on all six forms.

**TABLE 5-7a**  
**Trends in Noncontinuation Rates among 12th Graders**  
**Who Ever Used Drug in Lifetime**

Percentage who did not use in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Marijuana/Hashish	15.4	15.7	15.6	15.2	15.9	19.1	22.5	24.5	25.8	27.1	25.1	23.8	27.7	29.9	32.3	33.7	34.9
Inhalants	—	70.9	66.7	65.8	57.5	61.3	66.7	64.8	68.4	64.6	63.0	61.6	59.4	61.1	66.5	61.7	62.5
Inhalants, Adjusted	—	—	—	—	50.8	55.7	65.5	63.3	64.4	58.4	59.8	55.7	56.5	59.4	62.9	59.5	61.7
Amyl/Butyl Nitrites	—	—	—	—	41.4	48.6	63.4	63.3	57.1	50.6	49.4	45.3	44.7	46.9	48.5	33.3	†
Hallucinogens <sup>a</sup>	31.3	37.7	36.7	32.9	29.8	30.1	32.3	35.2	38.7	39.3	38.8	38.1	37.9	38.2	40.4	37.2	39.6
Hallucinogens, Adjusted <sup>a</sup>	—	—	—	—	31.2	32.5	35.7	38.0	36.7	40.6	36.9	36.1	36.8	37.0	37.4	38.1	39.0
LSD	36.3	41.8	43.9	35.1	30.5	30.1	33.7	36.5	39.3	41.3	41.3	37.5	38.1	37.7	41.0	37.9	40.9
Hallucinogens other than LSD <sup>a</sup>	33.3	42.1	38.4	37.1	36.4	36.7	38.5	41.3	43.8	42.4	44.6	47.4	40.7	48.8	48.8	48.8	45.9
PCP	—	—	—	—	45.3	54.2	59.0	63.3	53.6	54.0	40.8	50.0	56.7	58.6	38.5	57.1	51.7
Ecstasy (MDMA)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	37.8	38.1	33.3	30.2	22.1	21.7	24.8	28.1	29.6	28.0	24.3	24.9	32.2	34.7	36.9	43.6	55.1
Crack	—	—	—	—	—	—	—	—	—	—	—	—	27.8	35.4	34.0	45.7	51.6
Other Cocaine	—	—	—	—	—	—	—	—	—	—	—	—	30.0	38.8	38.8	46.5	54.3
Heroin <sup>b</sup>	54.5	55.6	55.6	50.0	54.5	54.5	54.5	50.0	50.0	61.5	50.0	54.5	58.3	54.5	53.8	61.5	55.6
With a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin <sup>c,d</sup>	36.7	40.6	37.9	39.4	38.6	35.7	41.6	44.8	45.7	46.4	42.2	42.2	42.4	46.5	47.0	45.8	47.0
Amphetamines <sup>c</sup>	27.4	30.1	29.1	25.3	24.4	21.2	19.3	27.2	33.5	36.6	39.7	42.7	43.5	44.9	43.5	48.0	46.8
Methamphetamine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51.9	57.6
Sedatives (Barbiturates) <sup>c</sup>	36.7	40.7	40.4	40.9	36.4	38.2	41.6	46.6	47.5	50.5	50.0	50.0	51.4	52.2	49.2	50.0	45.2
Sedatives, Adjusted	35.7	39.5	37.9	38.1	32.2	30.9	34.4	40.1	45.1	50.4	50.8	50.0	52.9	52.6	50.0	—	—
Methaqualone <sup>c</sup>	37.0	39.7	38.8	38.0	28.9	24.2	28.3	36.4	46.5	54.2	58.2	59.6	62.5	60.6	51.9	69.6	†
Tranquilizers <sup>c,e</sup>	37.6	38.7	40.0	41.8	41.1	42.8	45.6	50.0	48.1	50.8	48.7	46.8	49.5	48.9	50.0	51.4	50.0
Rohypnol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol <sup>f</sup>	6.2	6.7	5.9	5.8	5.3	5.7	6.0	6.5	5.7	7.1	7.2	7.4	7.0	7.3	8.8	9.9	11.7
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.4
Cigarettes <sup>g</sup>	16.0	16.7	16.2	17.9	19.6	21.4	20.8	19.1	18.6	18.5	15.9	17.0	17.1	18.2	18.5	18.2	17.4
Smokeless Tobacco <sup>g</sup>	—	—	—	—	—	—	—	—	—	—	—	21.8	18.4	25.7	26.2	—	—
Steroids <sup>h</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36.7	41.4	33.3

(Table continued on next page.)

Cont.

**TABLE 5-7a (cont.)  
Trends in Noncontinuation Rates among 12th Graders  
Who Ever Used Drug in Lifetime**

	Percentage who did not use in last 12 months																
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Marijuana/Hashish	32.8	26.3	19.6	16.8	20.3	22.4	23.6	23.9	25.2	24.5	24.3	24.3	24.9	25.0	25.6	24.1	24.0
Inhalants	62.7	59.8	56.5	54.0	54.2	58.4	59.2	63.6	58.5	65.4	61.5	65.2	61.5	55.6	59.4	65.1	62.0
Inhalants, Adjusted	62.4	58.2	55.2	52.8	51.4	56.8	57.0	62.5	57.5	64.5	60.5	63.1	59.6	54.6	58.7	63.2	60.7
Amyl/Butyl Nitrites	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Hallucinogens <sup>a</sup>	35.9	32.1	33.3	26.8	27.9	35.1	36.2	31.4	37.7†	34.4	45.0	44.3	36.1	38.2	41.3	35.4	32.3
Hallucinogens, Adjusted <sup>a</sup>	34.0	31.0	33.3	26.0	26.2	35.1	36.1	31.0	36.0†	32.8	43.8	40.4	35.4	35.8	39.8	34.9	31.6
LSD	34.9	34.0	34.3	28.2	30.2	38.2	39.7	33.6	40.5	39.4	58.3	67.8	52.2	48.8	49.0	38.6	31.4
Hallucinogens other than LSD <sup>a</sup>	48.5	43.6	36.7	29.6	35.3	38.7	35.2	35.8	36.2†	37.1	41.3	40.0	35.6	38.6	41.4	37.5	35.3
PCP	41.7	51.7	42.9	33.3	35.0	41.0	46.2	47.1	32.4	48.6	64.5	48.0	†	†	†	†	†
Ecstasy (MDMA)	—	—	—	—	24.6	42.0	37.9	30.0	25.5	21.4	29.5	45.8	46.7	44.0	36.8	30.2	30.3
Cocaine	49.2	45.9	39.0	33.3	31.0	36.8	38.7	36.7	41.9	41.5	35.9	37.7	34.6	36.8	32.6	33.0	39.6
Crack	42.3	42.3	36.7	30.0	36.4	38.5	43.2	41.3	43.6	43.2	39.5	38.9	41.0	43.9	41.7	40.1	43.2
Other Cocaine	50.9	46.3	42.3	33.3	34.4	39.0	41.7	34.1	41.6	40.5	37.1	37.3	35.6	36.6	34.6	34.3	38.0
Heroin <sup>b</sup>	50.0	54.5	50.0	31.3	44.4	42.9	50.0	45.0	37.5	50.0	41.2	46.7	40.0	43.9	45.6	39.9	43.1
With a needle	—	—	—	28.6	37.5	44.4	50.0	55.6	†	†	†	42.9	42.9	46.7	37.7	48.6	†
Without a needle	—	—	—	28.6	41.2	42.9	50.0	44.4	33.3	46.7	50.0	55.6	50.0	39.9	48.1	30.7	53.6
Narcotics other than Heroin <sup>c,d</sup>	45.9	43.8	42.4	34.7	34.2	36.1	35.7	34.3	34.0	32.3†	30.7	29.5	29.6	29.4	32.5	30.1	30.8
Amphetamines <sup>c</sup>	48.9	44.4	40.1	39.2	37.9	38.2	38.4	37.4	32.7	32.7	33.9	31.3	33.3	34.5	35.1	34.7	35.8
Methamphetamine	—	—	—	—	—	—	—	42.7	45.6	43.5	46.3	48.4	45.2	43.3	43.5	44.3	55.6
Crystal Methamphetamine (Ice)	55.2	45.2	47.1	38.5	36.4	47.7	43.4	60.4	45.0	39.0	36.2	48.7	47.5	41.9	46.0	52.0	62.6
Sedatives (Barbiturates) <sup>e</sup>	49.1	46.0	41.4	36.5	35.5	37.0	36.8	34.8	32.6	34.5	29.5	31.8	34.3	31.8	35.7	33.3	31.5
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone <sup>c</sup>	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Tranquilizers <sup>c,e</sup>	53.3	45.3	43.9	38.0	36.1	39.7	35.3	37.6	36.0†	29.3	32.5	34.3	31.1	31.5	35.5	35.2	30.4
Rohypnol	—	—	—	—	†	†	53.3	†	†	†	—	—	—	—	—	—	—
Alcohol <sup>f</sup>	12.2†	9.1	9.2	8.7	8.5	8.4	8.7	7.8	8.8	8.0	8.8	8.5	8.1	8.7	8.5	8.0	9.0
Been Drunk	20.7	20.6	17.8	16.9	16.0	17.1	16.7	14.6	16.9	16.7	18.2	17.4	14.1	17.0	15.1	16.3	16.7
Cigarettes <sup>g</sup>	18.6	16.9	15.9	14.6	13.5	13.1	14.3	16.1	16.3	17.5	17.3	17.2	15.9	16.7	18.9	17.9	17.9
Smokeless Tobacco <sup>g</sup>	29.6	25.5	33.1	26.5	27.3	26.2	17.9	20.7	15.1	18.9	20.4	16.2	15.3	15.4	25.1	17.4	16.0
Steroids <sup>h</sup>	47.6	40.0	45.8	34.8	26.3	41.7	37.0	37.9	32.0	35.1	37.5	40.0	26.5	44.2	35.6	35.5	31.5

(Table continued on next page.)

**TABLE 5-7a (cont.)  
Trends in Noncontinuation Rates among 12th Graders  
Who Ever Used Drug in Lifetime**

Source. The Monitoring the Future study, the University of Michigan.

Notes. “—” indicates data not available.

“†” indicates that the cell entry was omitted because it was based on fewer than 50 twelfth graders who ever used drug in lifetime. All other cells are based on more than 50 cases.

“‡” indicates some change in the question. See relevant footnote for that drug.

<sup>a</sup>In 2001 the question text was changed in half of the questionnaire forms. “Other psychedelics” was changed to “other hallucinogens” and “shrooms” was added to the list of examples. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens are also affected by these changes and have been handled in a parallel manner.

<sup>b</sup>In 1995, the heroin question was changed in three of six forms. Separate questions were asked for use with injection and without injection. Data presented here represent the combined data from all forms.

<sup>c</sup>Only drug use not under a doctor’s orders is included here.

<sup>d</sup>In 2002 the question text was changed in half of the questionnaire forms. In the list of examples of narcotics other than heroin, Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet. The 2002 data are based on the changed forms only. In 2003, the remaining forms were changed to the new wording. Beginning in 2003, the data are based on all forms.

<sup>e</sup>In 2001, for the tranquilizer list of examples, Mittown was replaced with Xanax in half of the questionnaire forms. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms.

<sup>f</sup>In 1993, the question text was changed slightly in half of the questionnaire forms to indicate that a “drink” meant “more than a few sips.” The 1993 data are based on the changed forms only. In 1994 the remaining forms were changed to the new wording. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

<sup>g</sup>Percentage of regular users (ever) who did not use at all in the last 30 days.

<sup>h</sup>In 2006, the question text was changed slightly in one of the questionnaire forms. An examination of the data did not show any effect from the wording change. The remaining forms where changed in 2007. In 2008 the question text was changed slightly. An examination of the data did not show any effect from the wording change.

**TABLE 5-7b**  
**Trends in Noncontinuation Rates among 12th Graders**  
**Who Used Drug 10 or More Times in Lifetime**

Percentage who did not use in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Marijuana/Hashish	4.0	4.0	4.1	3.7	4.6	5.4	7.2	7.6	8.3	8.8	7.8	7.9	9.2	9.9	10.6	12.3	10.5
Inhalants <sup>a</sup>	—	48.9	42.6	34.6	23.8	25.2	23.8	27.2	23.1	23.4	25.8	15.3	21.1	21.5	25.9	24.0	23.7
Amyl/Butyl Nitrites	—	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†
Hallucinogens <sup>b</sup>	10.8	16.1	15.2	10.8	8.1	8.4	7.7	7.5	13.0	14.1	12.2	11.1	11.9	16.6	21.8	16.5	17.4
LSD	15.2	17.3	18.0	12.2	7.4	6.4	7.1	7.5	15.3	12.1	12.6	12.2	11.5	16.0	21.2	16.0	18.5
Hallucinogens other than LSD <sup>b</sup>	—	16.6	14.4	13.3	11.5	13.1	7.7	8.2	8.5	14.5	13.7	16.0	15.8	20.1	19.5	22.6	29.3
PCP	—	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†
Ecstasy (MDMA) <sup>c</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cocaine	7.7	8.2	6.2	3.8	3.1	3.1	3.1	2.9	6.2	3.1	2.5	3.5	7.6	11.4	11.3	19.6	25.3
Crack <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	—	—	13.4	2.1	5.2	26.2	31.1
Other Cocaine	—	—	—	—	—	—	—	—	—	—	—	—	10.2	6.1	16.2	18.5	24.3
Heroin <sup>e</sup>	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
With a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Without a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Narcotics other than Heroin <sup>g</sup>	9.6	11.6	9.7	9.9	8.7	10.8	10.1	13.5	16.4	15.4	12.2	13.8	15.6	19.3	15.2	15.9	16.1
Amphetamines <sup>f</sup>	8.0	9.8	7.6	7.4	6.1	4.1	4.4	8.4	10.7	12.7	17.5	17.6	17.5	16.0	17.4	18.1	17.2
Methamphetamine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Crystal Methamphetamine (Ice) <sup>h</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†
Sedatives (Barbiturates) <sup>i</sup>	13.4	16.5	12.9	13.5	11.2	11.7	8.9	12.6	17.7	22.8	20.6	19.7	20.7	23.4	18.0	19.8	19.7
Sedatives, Adjusted	13.6	16.2	12.4	12.8	8.6	10.5	7.6	8.6	16.4	20.8	23.6	19.7	23.1	25.2	17.3	—	—
Methaqualone <sup>i</sup>	13.5	15.9	11.9	13.1	6.1	6.0	4.9	8.0	16.3	23.3	26.7	24.9	32.2	29.8	18.6	—	—
Tranquillizers <sup>i,j</sup>	12.0	13.0	11.1	14.4	14.1	14.3	16.3	16.0	14.8	18.8	19.2	15.0	17.1	15.8	11.7	19.3	13.1
Rohypnol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alcohol <sup>j</sup>	0.6	0.8	0.6	0.9	0.7	0.8	1.0	0.9	0.9	1.1	1.2	1.0	1.1	1.2	1.5	1.9	1.9
Been Drunk	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steroids <sup>k</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	†	†	†

(Table continued on next page.)

**TABLE 5-7b (cont.)  
Trends in Noncontinuation Rates among 12th Graders  
Who Used Drug 10 or More Times in Lifetime**

	Percentage who did not use in last 12 months																
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Marijuana/Hashish	10.9	7.8	5.0	4.7	6.6	7.7	8.2	8.5	9.0	8.7	9.4	8.4	8.9	8.8	9.2	8.8	7.2
Inhalants <sup>a</sup>	28.6	21.8	26.4	21.6	24.8	25.2	28.0	27.8	23.0	30.8	25.7	23.8	30.1	12.2	26.3	24.8	19.3
Amyl/Butyl Nitrites	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Hallucinogens <sup>b</sup>	11.5	12.1	14.3	10.6	9.0	12.2	16.4	12.8	12.9†	12.3	20.0	21.5	12.1	14.3	19.1	13.3	7.3
LSD	11.4	11.9	15.3	11.5	10.5	16.8	20.3	14.3	15.7	14.6	28.6	47.8	23.0	16.3	23.4	14.9	5.9
Hallucinogens other than LSD <sup>b</sup>	19.6	16.2	16.0	10.1	15.5	15.9	17.5	13.4	6.2†	10.8	11.0	18.4	9.7	13.1	17.7	15.3	7.7
PCP	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Ecstasy (MDMA) <sup>c</sup>	—	—	—	—	†	†	†	†	†	2.5	8.3	33.2	17.7	12.2	†	†	6.8
Cocaine	20.2	14.1	22.9	9.6	8.8	12.0	12.4	12.3	18.1	15.6	11.3	11.8	13.2	10.5	11.9	15.0	14.7
Crack <sup>d</sup>	15.3	16.4	16.8	6.3	8.3	17.4	19.5	16.0	13.5	7.1	10.9	12.1	13.7	7.5	18.5	18.4	17.9
Other Cocaine	23.2	14.7	24.1	15.5	13.9	14.6	17.1	13.1	22.5	14.9	11.7	11.0	15.6	12.4	14.5	11.8	17.5
Heroin <sup>e</sup>	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†
With a needle	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Without a needle	—	—	—	†	†	†	†	†	†	†	†	†	†	†	†	†	†
Narcotics other than Heroin <sup>g</sup>	16.8	16.7	16.8	12.6	11.5	10.1	12.4	12.2	10.8	9.7†	8.3	9.2	8.2	8.4	12.2	9.0	9.0
Amphetamines <sup>f</sup>	19.8	13.5	13.8	11.9	10.2	10.8	15.0	12.7	11.2	7.7	10.0	8.9	12.9	13.0	11.3	13.8	17.7
Methamphetamine	—	—	—	—	—	—	—	12.4	22.8	19.2	23.9	29.1	13.5	21.5	16.9	†	†
Crystal Methamphetamine (Ice) <sup>h</sup>	†	†	†	†	†	†	†	†	†	†	11.2	†	23.1	†	†	†	†
Sedatives (Barbiturates) <sup>i</sup>	23.4	11.0	14.9	10.9	8.3	11.1	12.5	10.7	7.0	5.6	5.7	6.9	8.5	10.4	11.4	11.9	10.0
Sedatives, Adjusted	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methaqualone <sup>f</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tranquilizers <sup>h,i</sup>	21.0	6.7	13.8	6.2	6.9	13.9	13.6	9.9	5.3†	8.1	5.8	11.2	7.9	9.8	12.3	10.7	8.7
Rohypnol	—	—	—	—	†	†	†	†	†	†	†	—	—	—	—	—	—
Alcohol <sup>j</sup>	2.3†	2.5	2.1	2.0	1.6	1.9	1.9	1.7	1.7	1.3	1.9	1.5	1.3	1.6	1.4	1.2	1.5
Been Drunk	4.1	4.6	3.3	2.8	2.1	3.6	2.8	1.8	2.6	2.3	2.0	2.9	2.1	2.9	3.1	2.2	2.6
Steroids <sup>k</sup>	†	†	†	†	†	†	†	†	†	†	†	†	†	†	11.9	†	†

(Table continued on next page.)

**TABLE 5-7b (cont.)  
Trends in Noncontinuation Rates among 12th Graders  
Who Used Drug 10 or More Times in Lifetime**

Source. The Monitoring the Future study, the University of Michigan.

Notes. “—” indicates data not available.

“†” indicates that the cell entry was omitted because it was based on fewer than 50 twelfth graders who used 10 or more times. All other cells are based on more than 50 cases.

“‡” indicates some change in the question. See relevant footnote for that drug.

<sup>a</sup>Inhalants are unadjusted for underreporting of amyl and butyl nitrates.

<sup>b</sup>In 2001 the question text was changed in half of the questionnaire forms. “Other psychedelics” was changed to “other hallucinogens,” and “shrooms” was added to the list of examples. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens are also affected by these changes and have been handled in a parallel manner. Hallucinogens are unadjusted for underreporting of PCP.

<sup>c</sup>Based on 54 cases in 2005.

<sup>d</sup>Based on 85 cases in 1987, 54 cases in 1988, and 56 cases in 1989. Crack was included in all six questionnaire forms beginning in 1990.

<sup>e</sup>In 1995, the heroin question was changed in three of six forms. Separate questions were asked for use with injection and without injection. Data presented here represent the combined data from all forms.

<sup>f</sup>Only drug use not under a doctor’s orders is included here.

<sup>g</sup>In 2002 the question text was changed in half of the questionnaire forms. In the list of examples of narcotics other than heroin, Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet. The 2002 data are based on the changed forms only. In 2003, the remaining forms were changed to the new wording. Beginning in 2003, the data are based on all forms.

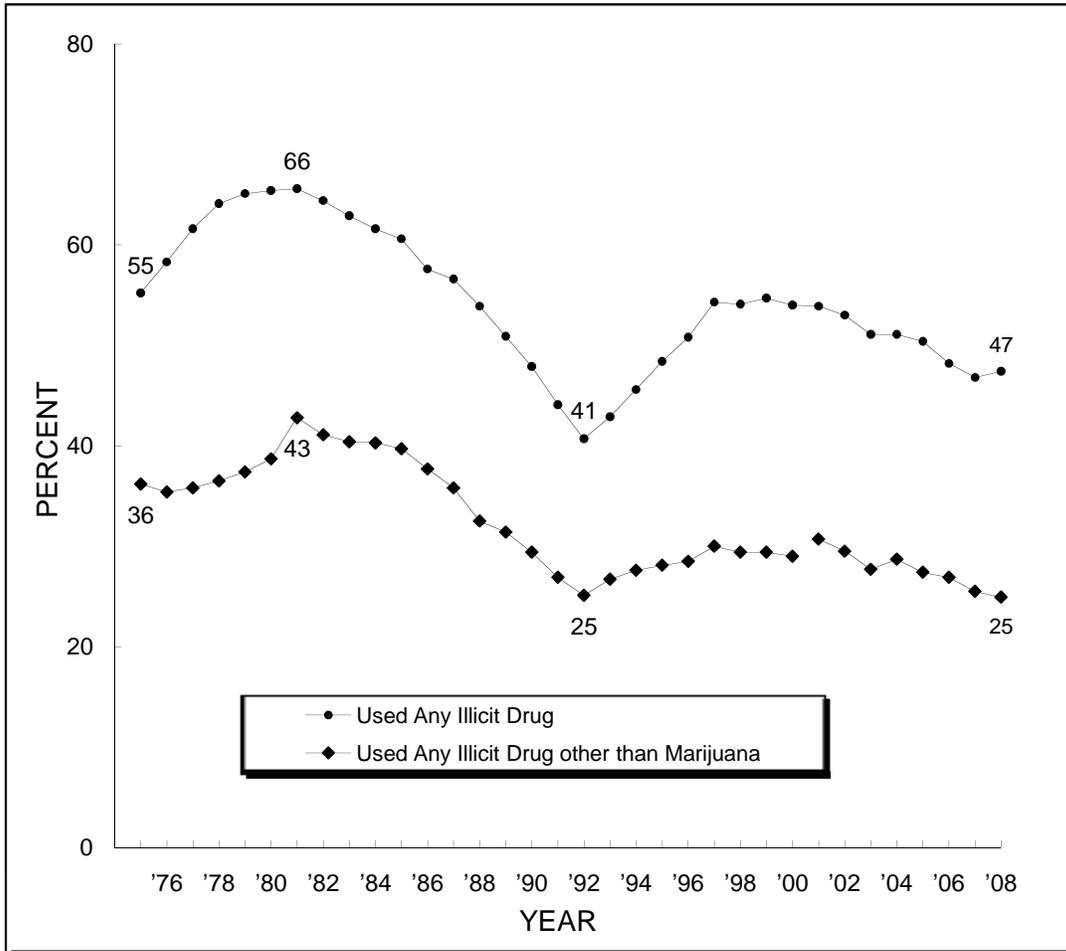
<sup>h</sup>Based on 55 cases in 2002 and 56 cases in 2004.

<sup>i</sup>In 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax in half of the questionnaire forms. The 2001 data are based on the changed forms only. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms.

<sup>j</sup>In 1993, the question text was changed slightly in half of the questionnaire forms to indicate that a “drink” meant “more than a few sips.” The 1993 data are based on the changed forms only. In 1994 the remaining forms were changed to the new wording. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

<sup>k</sup>In 2006, the question text was changed slightly in one of the questionnaire forms. An examination of the data did not show any effect from the wording change. Based on 62 cases in 2006. The remaining forms were changed in 2007. In 2008 the question text was changed slightly. An examination of the data did not show any effect from the wording change.

**FIGURE 5-1**  
**An Illicit Drug Use Index: Trends in Lifetime Prevalence in Grade 12**



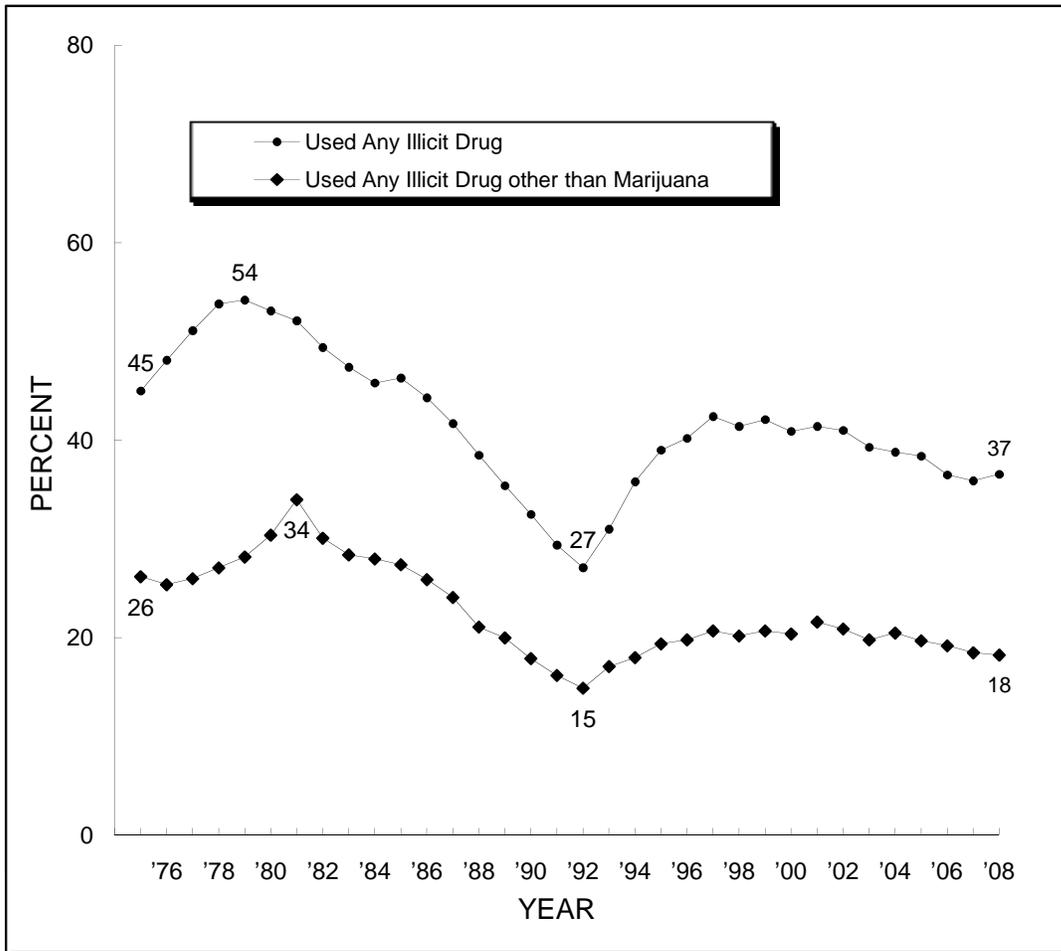
Source. The Monitoring the Future study, the University of Michigan.

Notes. Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which is not under a doctor's orders.

Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. From 2001 on, data points are based on revised questions.

**FIGURE 5-2**  
**An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12**



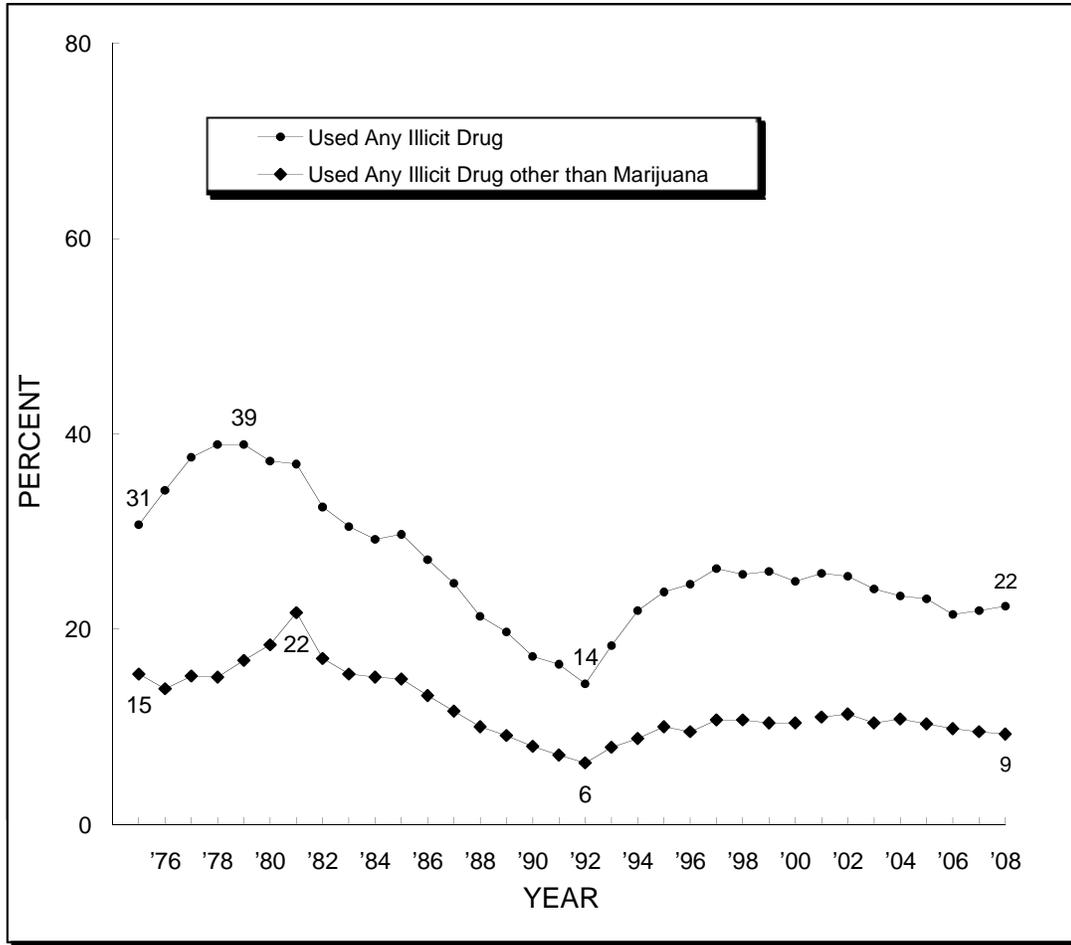
Source. The Monitoring the Future study, the University of Michigan.

Notes. Use of “any illicit drug” includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which is not under a doctor’s orders.

Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for “any illicit drug other than marijuana” are affected by these changes. From 2001 on, data points are based on revised questions.

**FIGURE 5-3**  
**An Illicit Drug Use Index: Trends in 30-Day Prevalence in Grade 12**



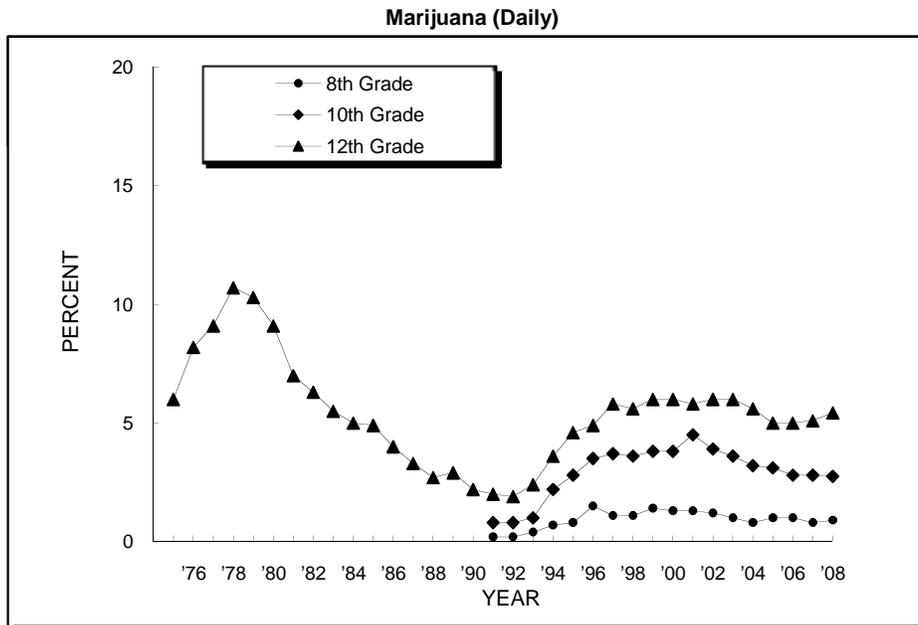
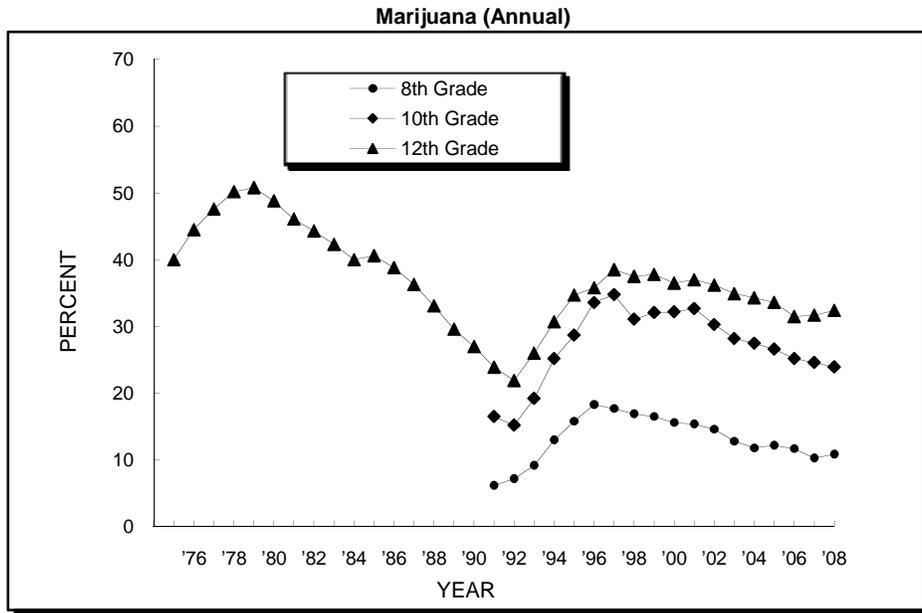
Source The Monitoring the Future study, the University of Michigan.

Notes Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of other narcotics, stimulants, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers which is not under a doctor's orders.

Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.

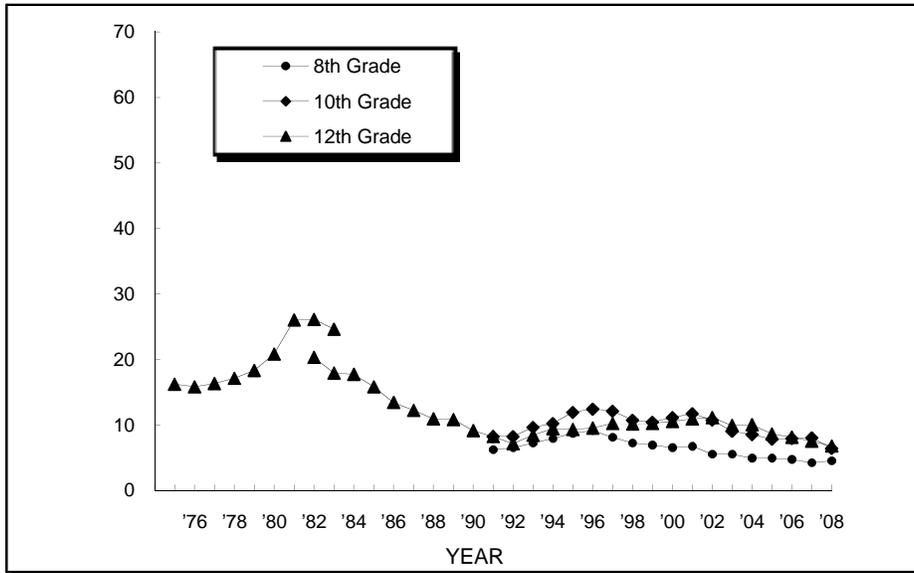
Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for any illicit drug other than marijuana are affected by these changes. From 2001 on, data points are based on revised questions.

**FIGURE 5-4a**  
**Marijuana: Trends in 30-Day Prevalence and 30-Day Prevalence of**  
**Daily Use in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

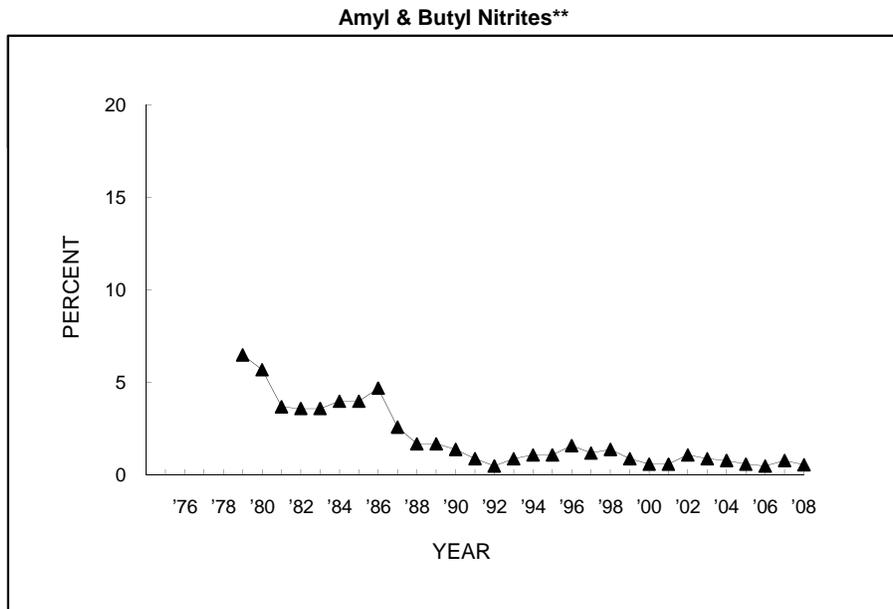
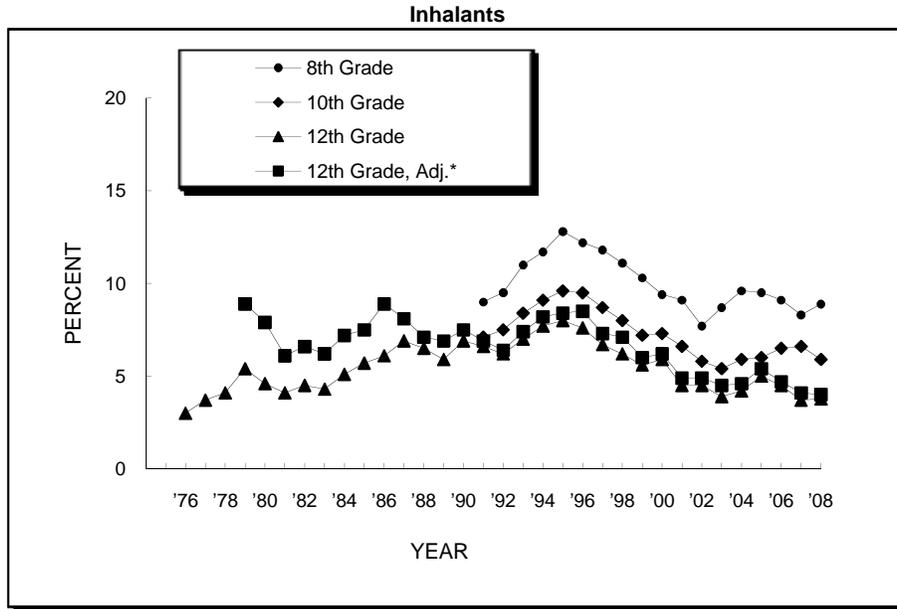
**FIGURE 5-4b**  
**Amphetamines: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

\*Beginning in 1982, the lines connect percentages that result if nonprescription stimulants are excluded.

**FIGURE 5-4c**  
**Inhalants and Amyl/Butyl Nitrites: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**

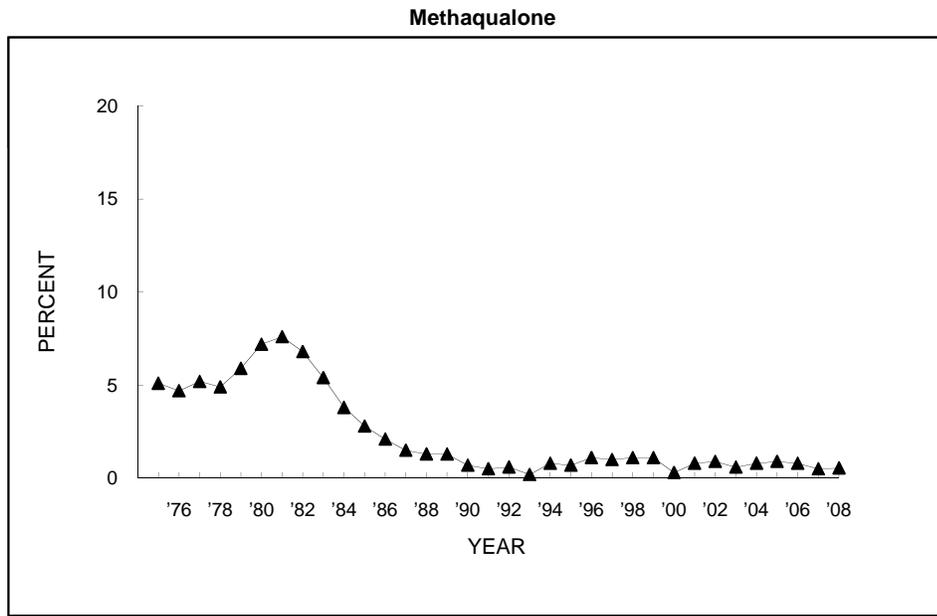
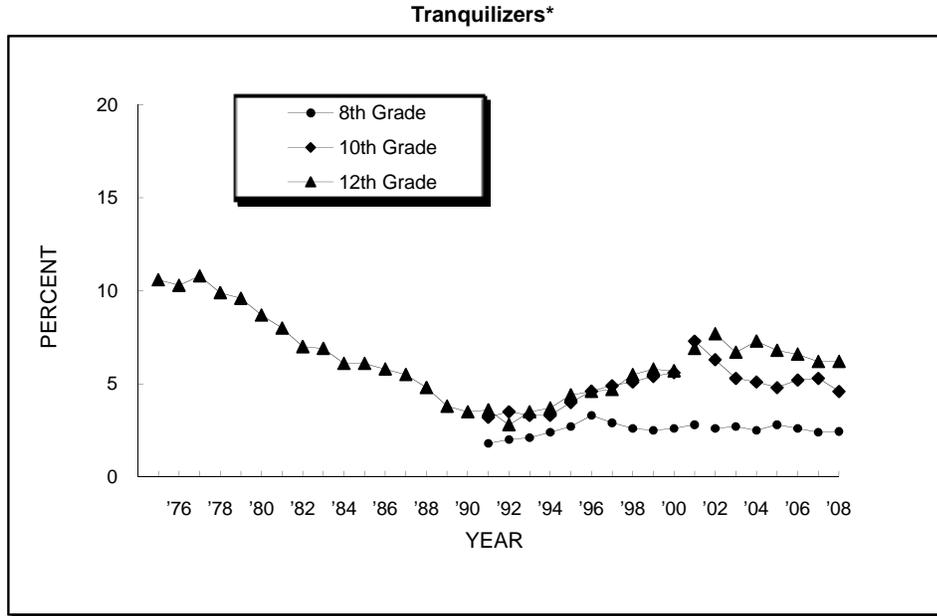


Source. The Monitoring the Future study, the University of Michigan.

\*Adjusted for underreporting of amyl and butyl nitrites.

\*\*Eighth and 10th graders are not asked about nitrite use.

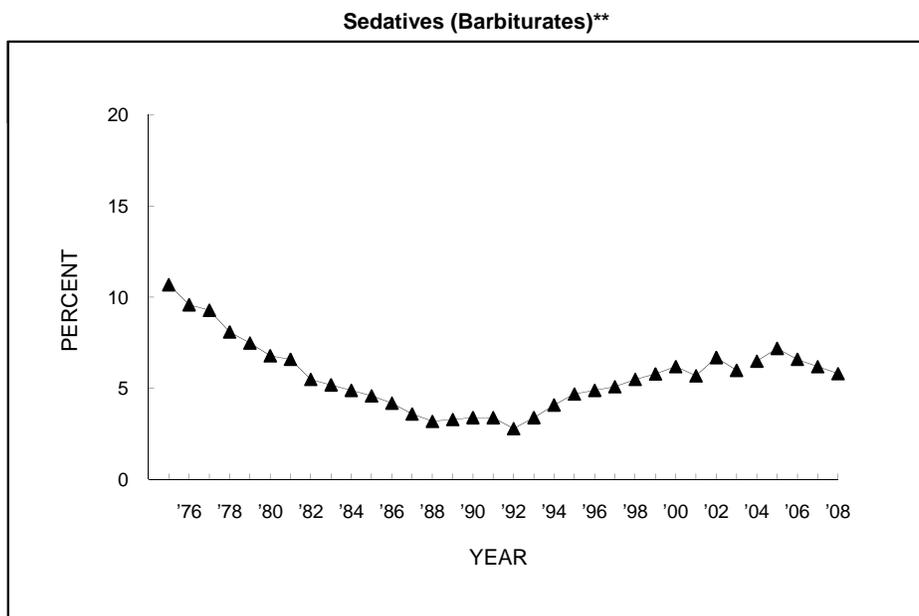
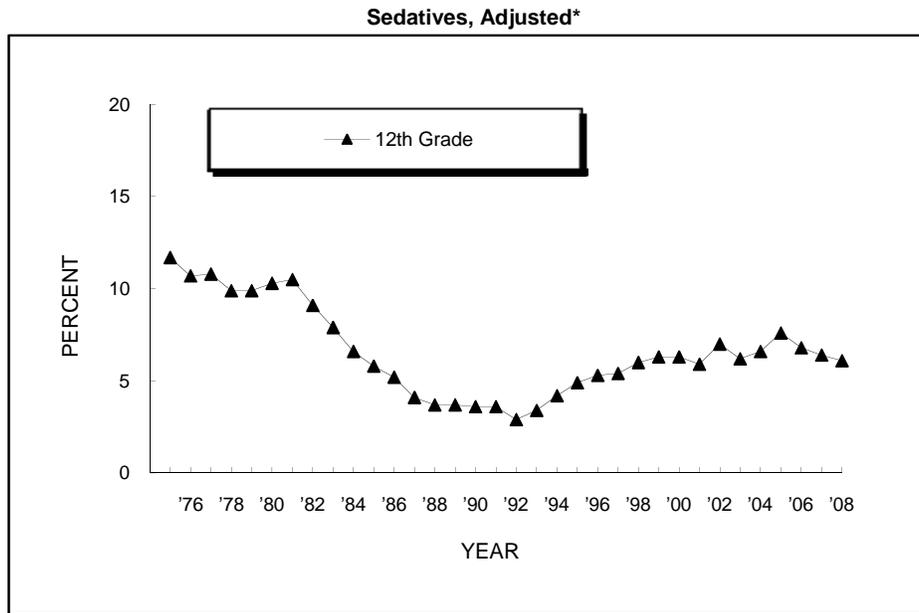
**FIGURE 5-4d**  
**Tranquilizers and Methaqualone: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

\*Beginning in 2001, a revised set of questions on tranquilizer use was introduced. From 2001 on, data points are based on the revised question.

**FIGURE 5-4e**  
**Adjusted Sedatives and Sedatives (Barbiturates): Trends in Annual Prevalence**  
**in Grade 12**



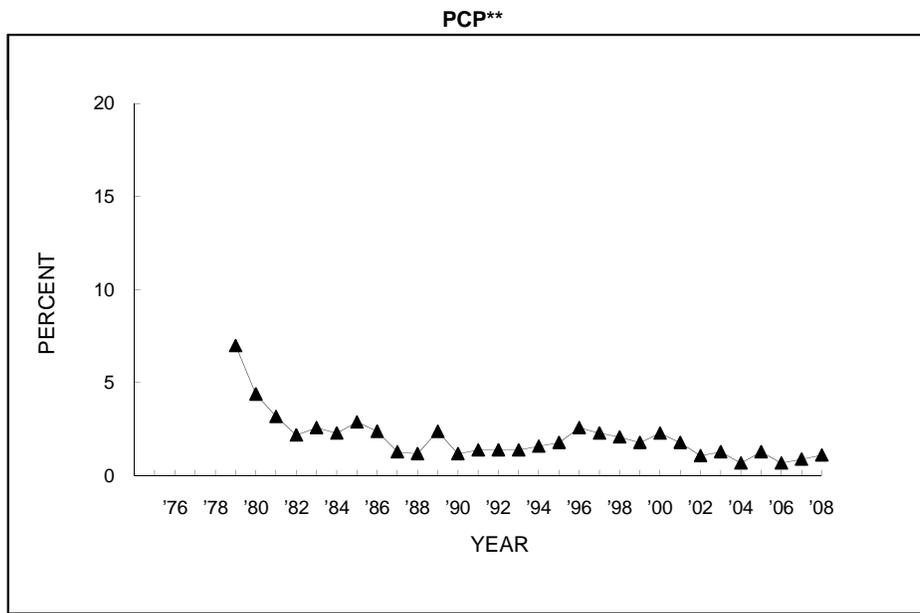
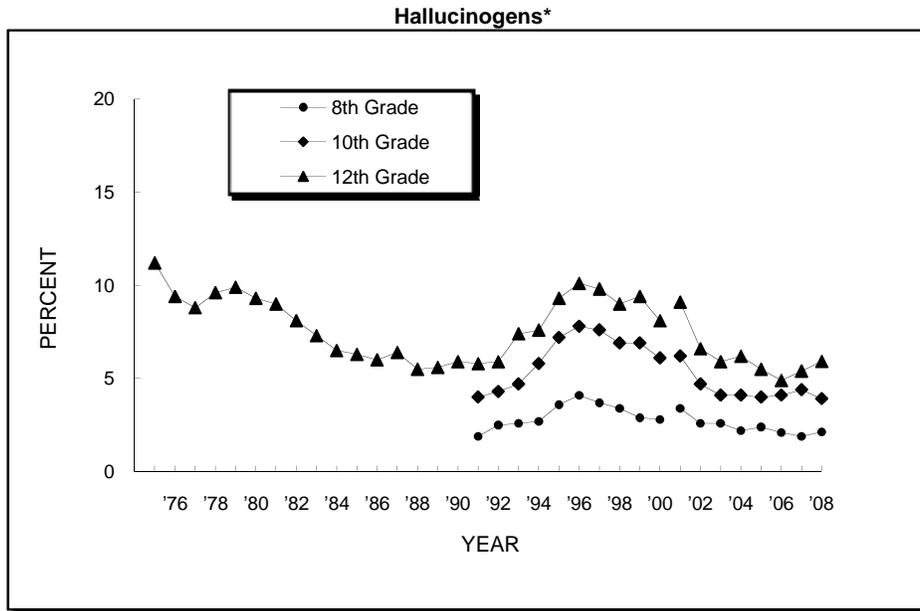
Source. The Monitoring the Future study, the University of Michigan.

\*Adjusted for underreporting of methaqualone.

\*\*Beginning in 2004, a revised set of questions on sedative (barbiturate) use was introduced.

From 2004 on, data points are based on the revised question.

**FIGURE 5-4f**  
**Hallucinogens and PCP: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**

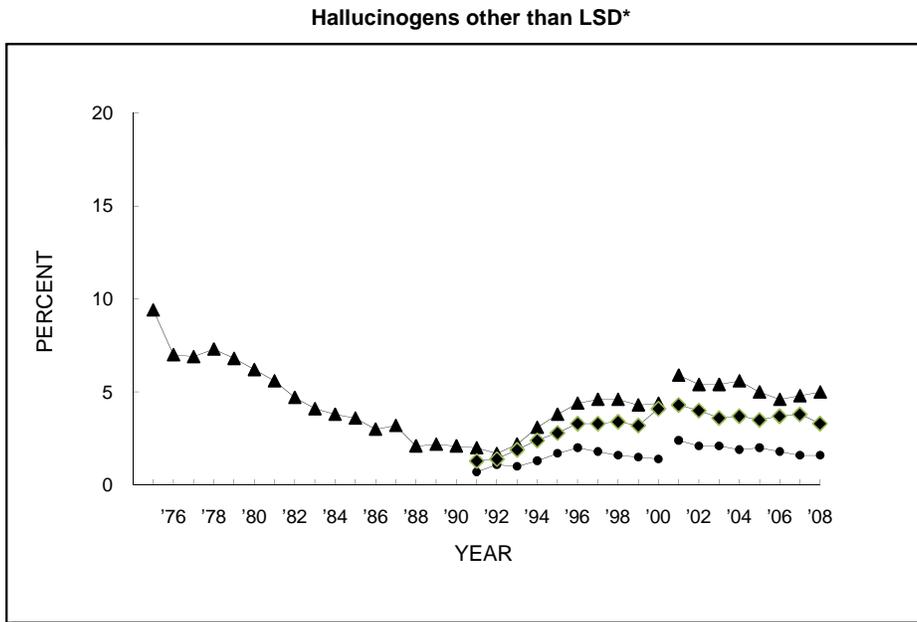
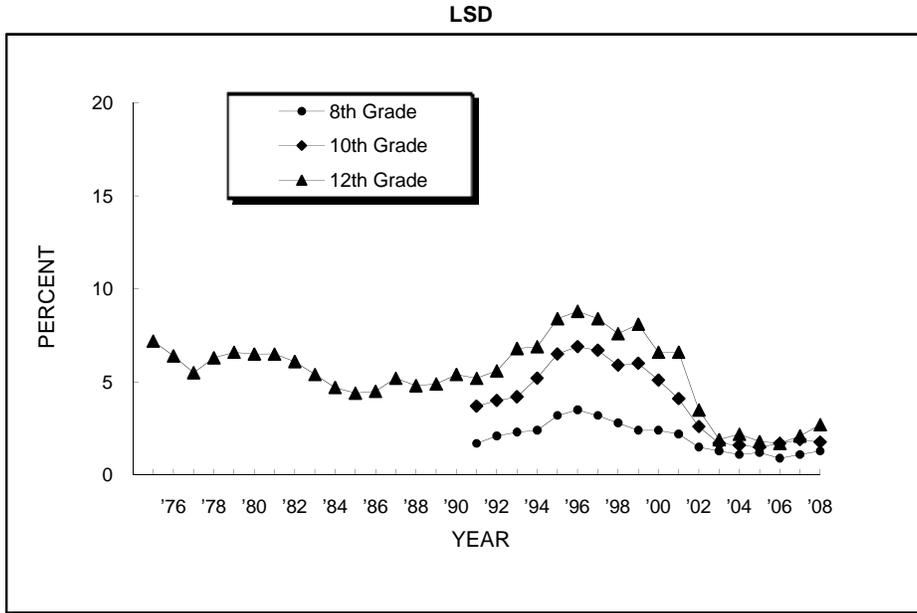


Source. The Monitoring the Future study, the University of Michigan.

\*In 2001, a revised set of questions on other hallucinogen use was introduced. Data for hallucinogens were affected by these changes. From 2001 on, data points are based on the revised questions.

\*\*Eighth and 10th graders are not asked about PCP use.

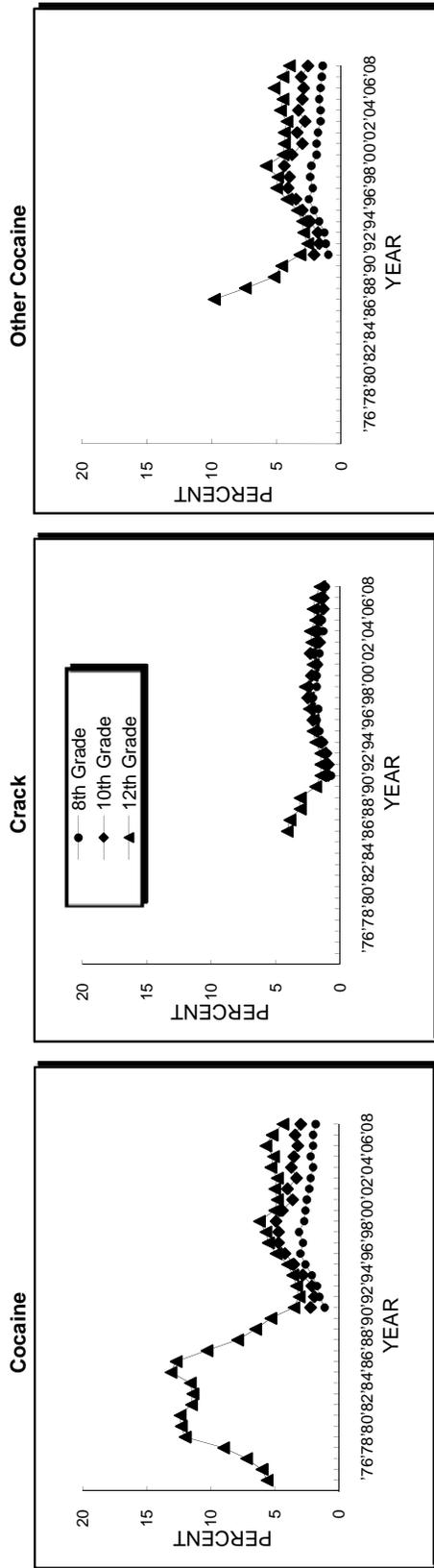
**FIGURE 5-4g**  
**LSD and Hallucinogens other than LSD: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

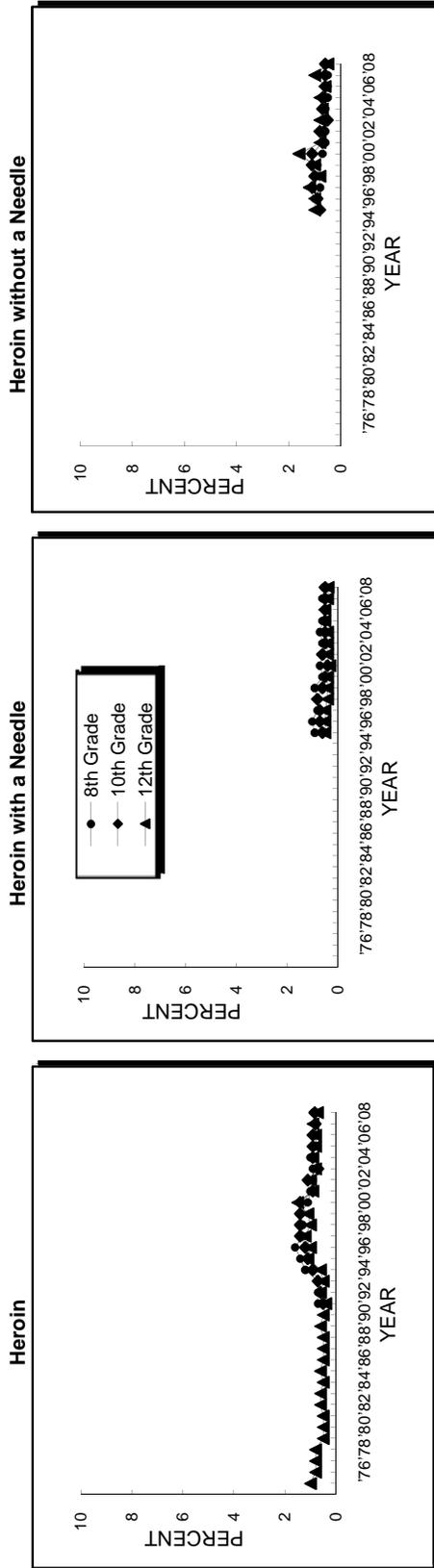
\*In 2001, a revised set of questions on other hallucinogen use was introduced. From 2001 on, data points are based on the revised questions.

**FIGURE 5-4h**  
**Cocaine, Crack, and Other Cocaine: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



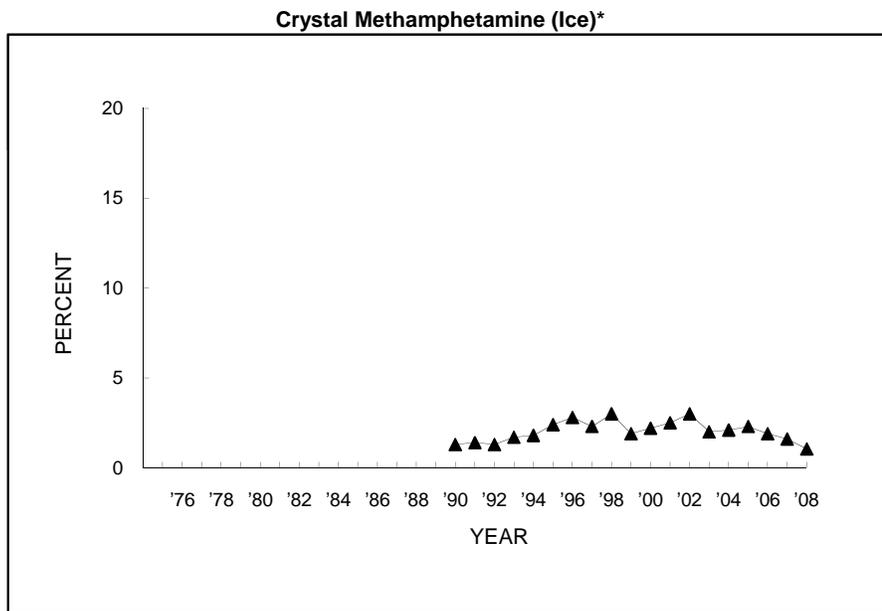
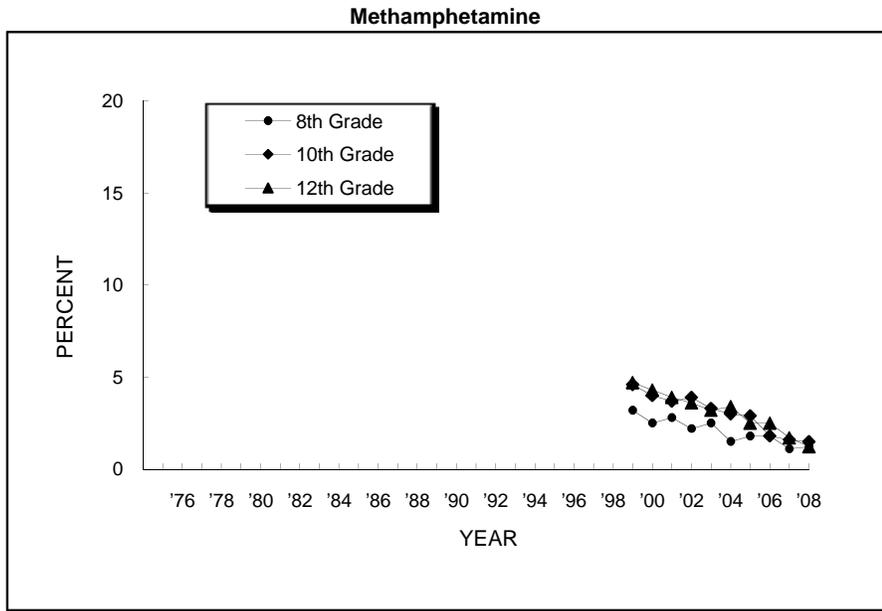
Source: The Monitoring the Future study, the University of Michigan.

**FIGURE 5-4i**  
**Heroin: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source: The Monitoring the Future study, the University of Michigan.

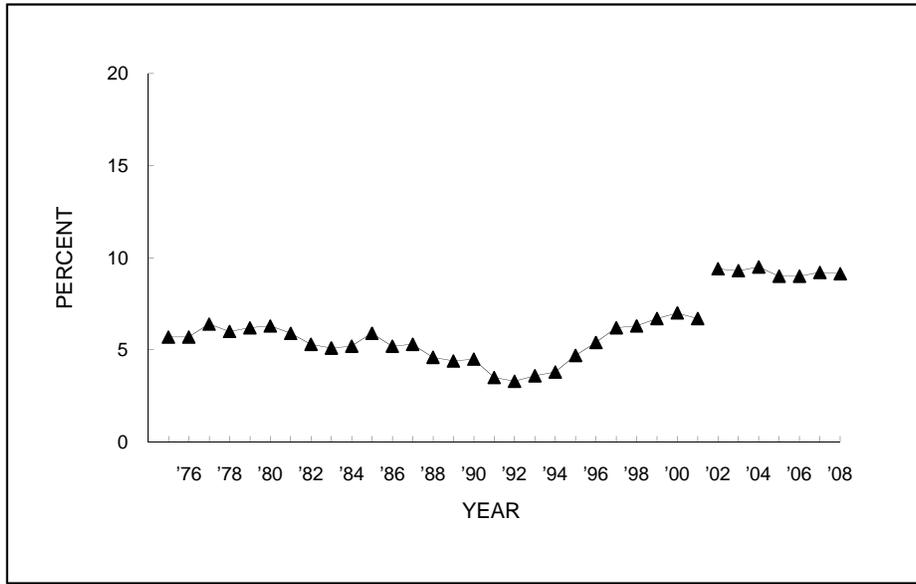
**FIGURE 5-4j**  
**Methamphetamine and Crystal Methamphetamine (Ice): Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

\*Eighth and 10th graders are not asked about crystal methamphetamine use.

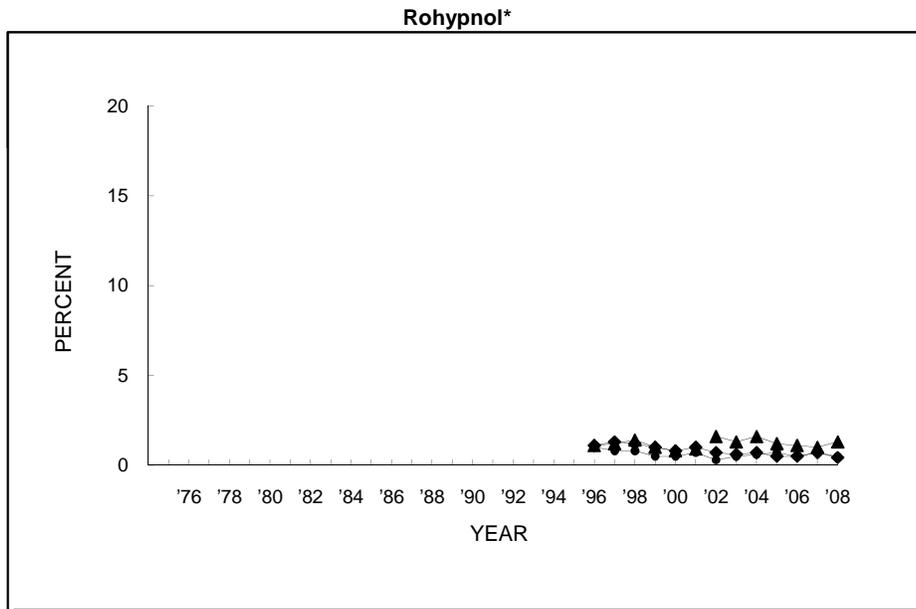
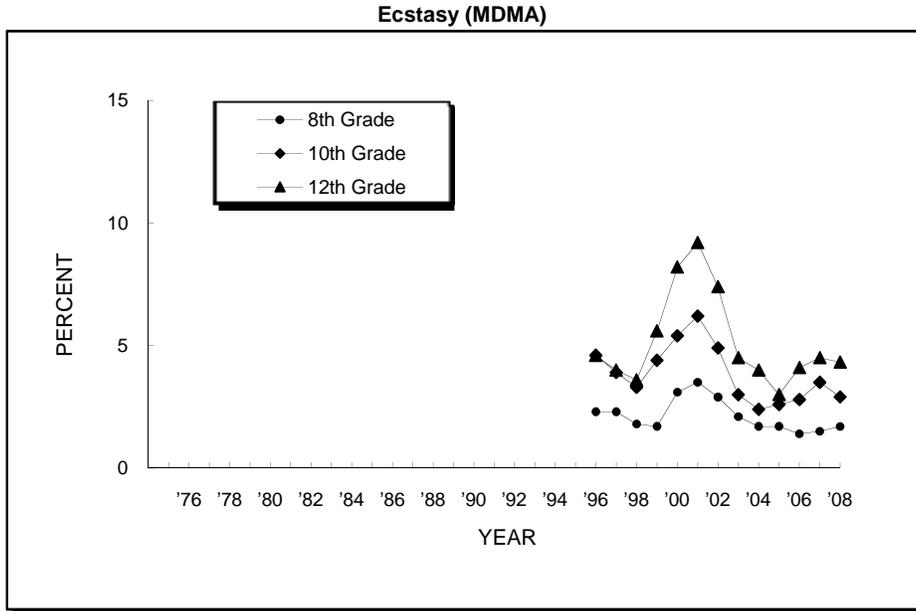
**FIGURE 5-4k**  
**Narcotics other than Heroin: Trends in Annual Prevalence**  
**in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

\*Eighth and 10th graders are not asked about use of narcotics other than heroin. In 2002, a revised set of questions on other narcotic use was introduced. From 2002 on, data points are based on the revised question.

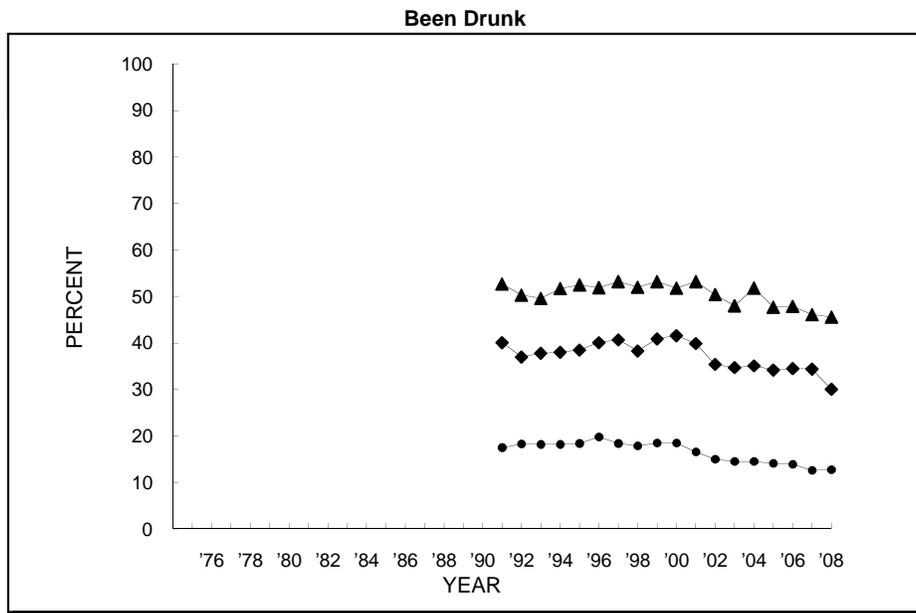
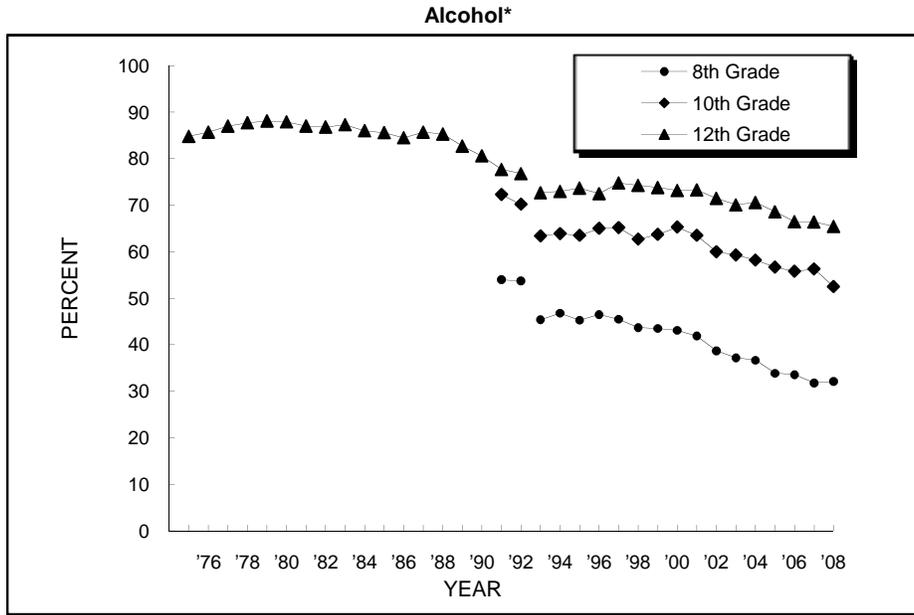
**FIGURE 5-41**  
**Ecstasy (MDMA) and Rohypnol: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

\*For 12th graders only, Rohypnol data for 2001 are not comparable with data for 2002 due to changes in the questionnaire forms.

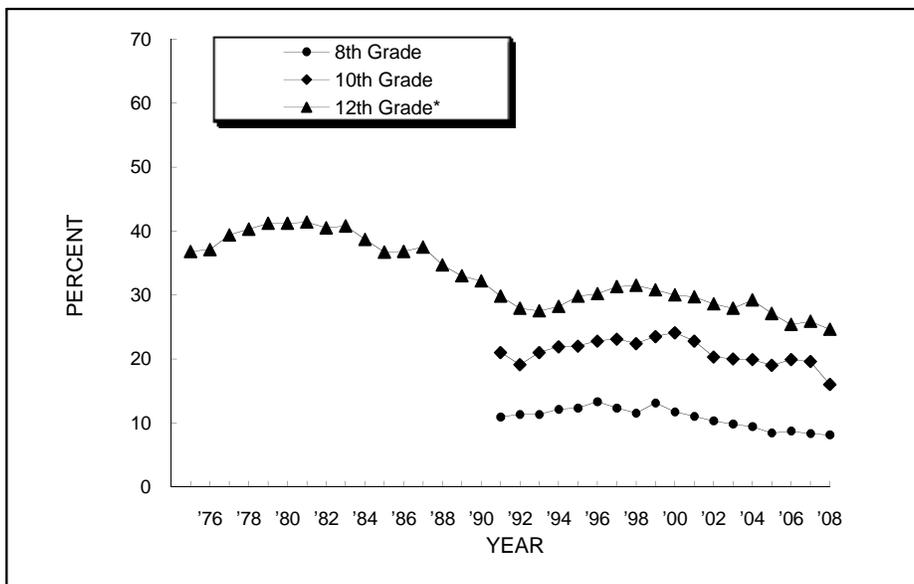
**FIGURE 5-4m**  
**Alcohol and Been Drunk: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

\*In 1993, a revised set of questions on alcohol use was introduced. From 1993 on, data points are based on the revised question.

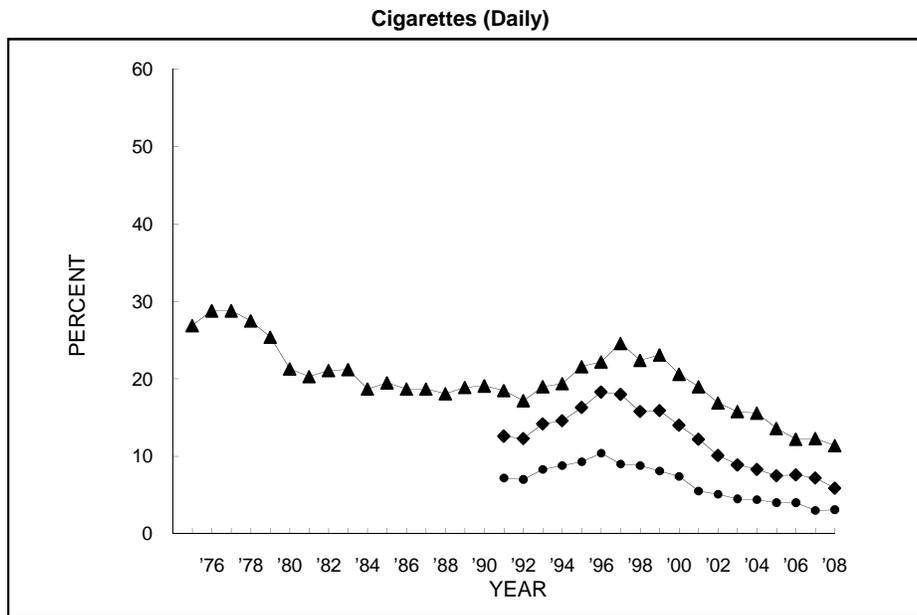
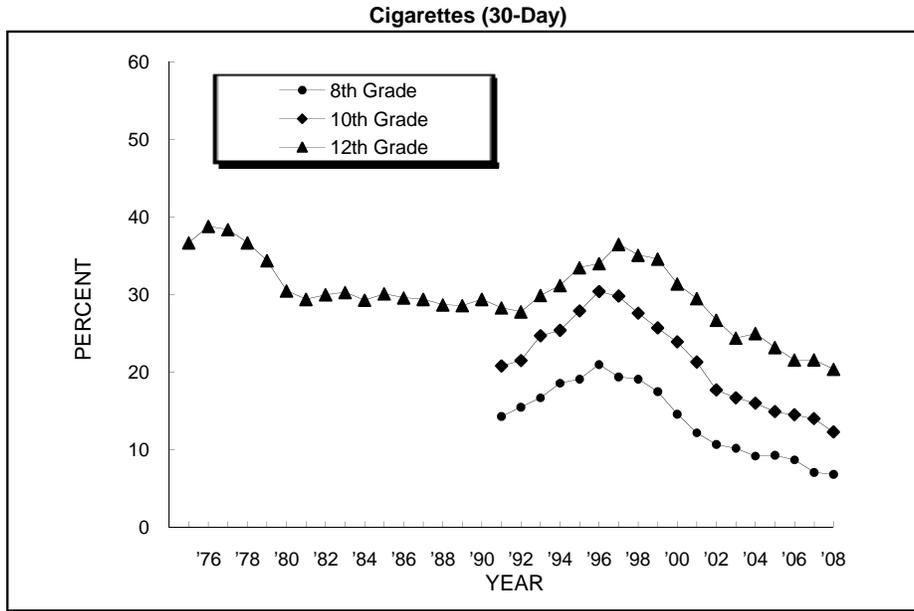
**FIGURE 5-4n**  
**Five or More Drinks in a Row: Trends in 2-Week Prevalence**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

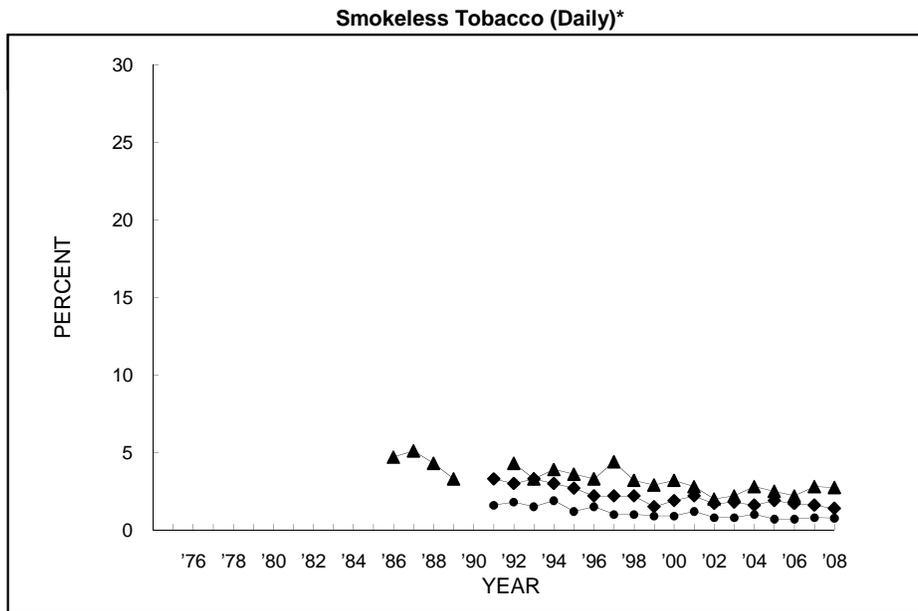
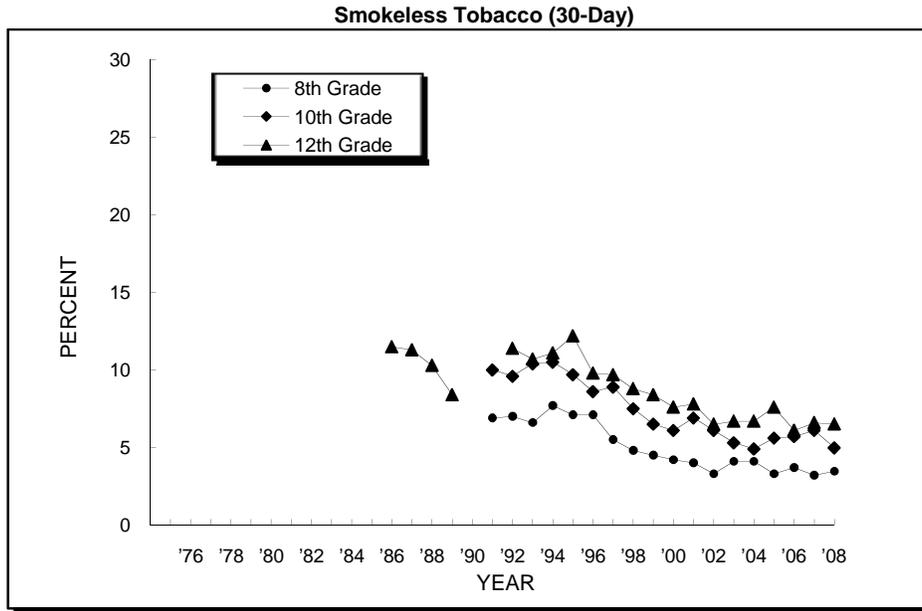
\*Due to a coding error, previously released versions of this figure contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here. For 8th and 10th graders only: The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008. The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this figure.

**FIGURE 5-4o**  
**Cigarettes: Trends in 30-Day Prevalence and 30-Day Prevalence of**  
**Daily Use in Grades 8, 10, and 12**



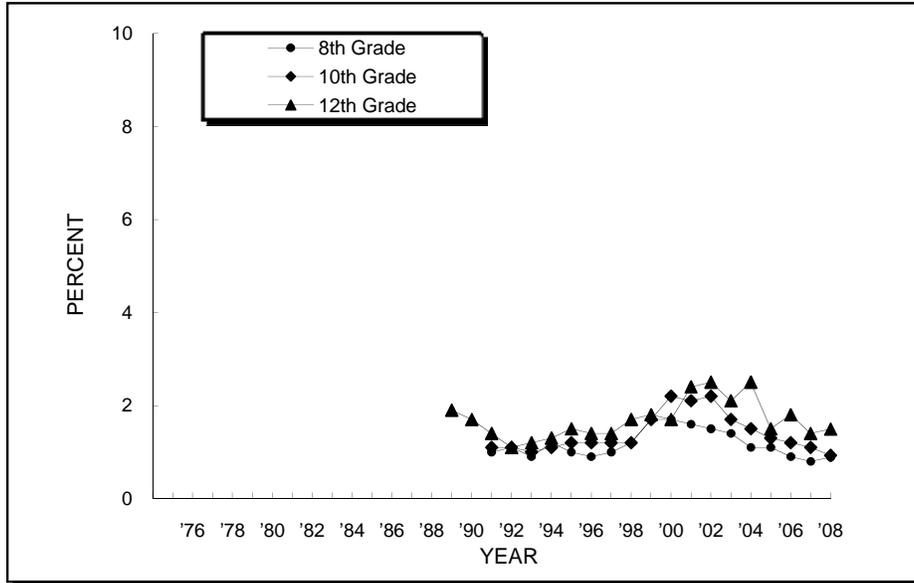
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-4p**  
**Smokeless Tobacco: Trends in 30-Day Prevalence and**  
**30-Day Prevalence of Daily Use**  
**in Grades 8, 10, and 12**



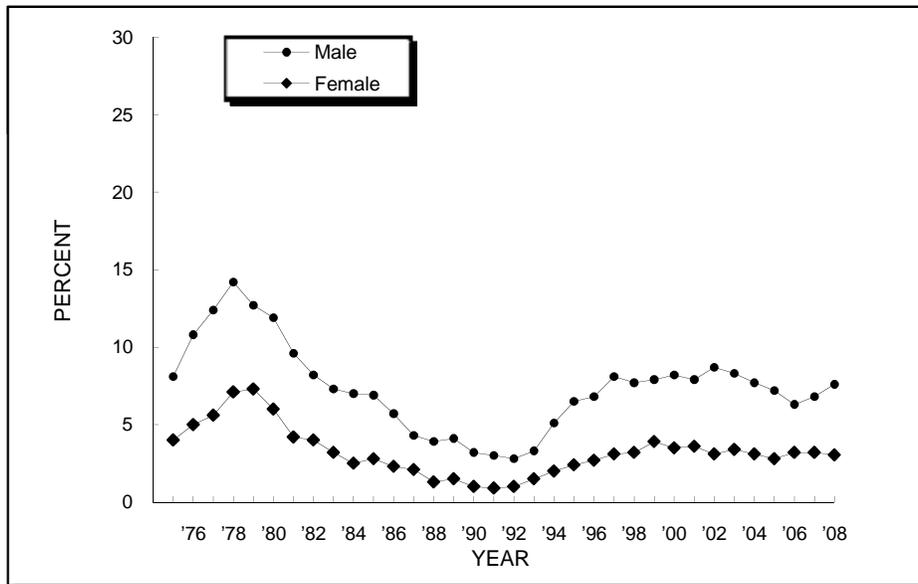
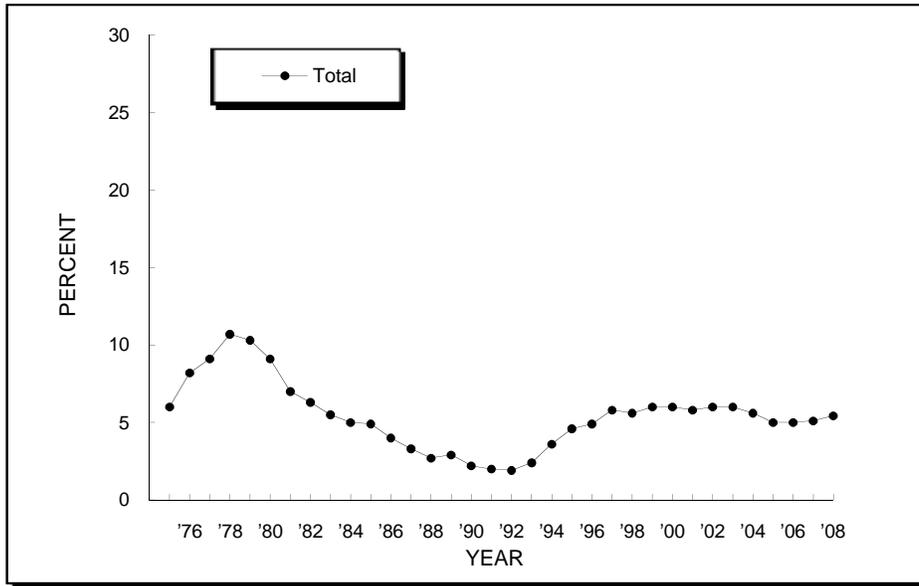
Source: The Monitoring the Future study, the University of Michigan.  
 \*Twelfth graders: Smokeless tobacco data not available in 1990 or 1991.

**FIGURE 5-4q**  
**Steroids: Trends in Annual Prevalence**  
**in Grades 8, 10, and 12**



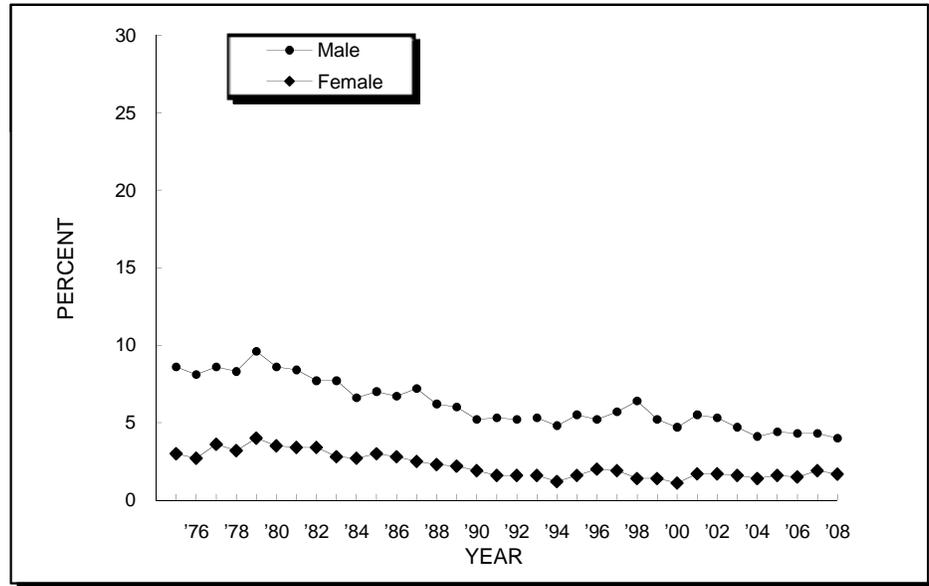
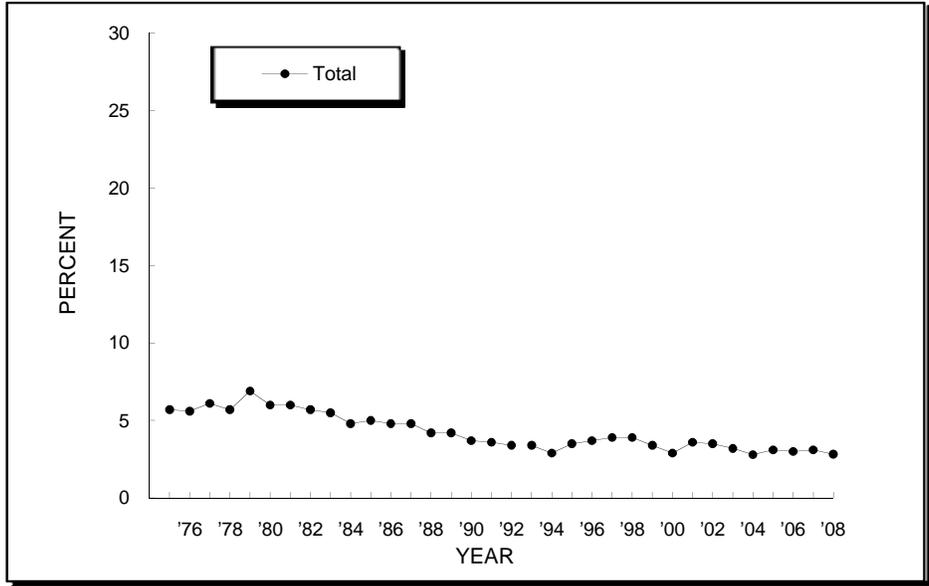
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-5a**  
**Marijuana: Trends in 30-Day Prevalence of Daily Use in Grade 12**  
**by Total and by Gender**



Source. The Monitoring the Future study, the University of Michigan.  
 Note. Daily use for marijuana is defined as use on 20 or more occasions in the last 30 days.

**FIGURE 5-5b**  
**Alcohol:\* Trends in 30-Day Prevalence of Daily Use in Grade 12**  
**by Total and by Gender**

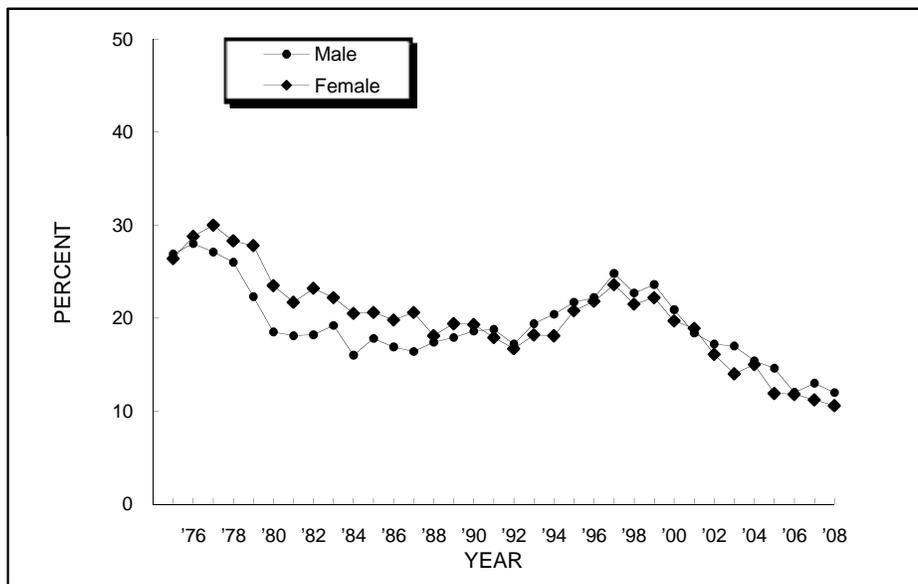
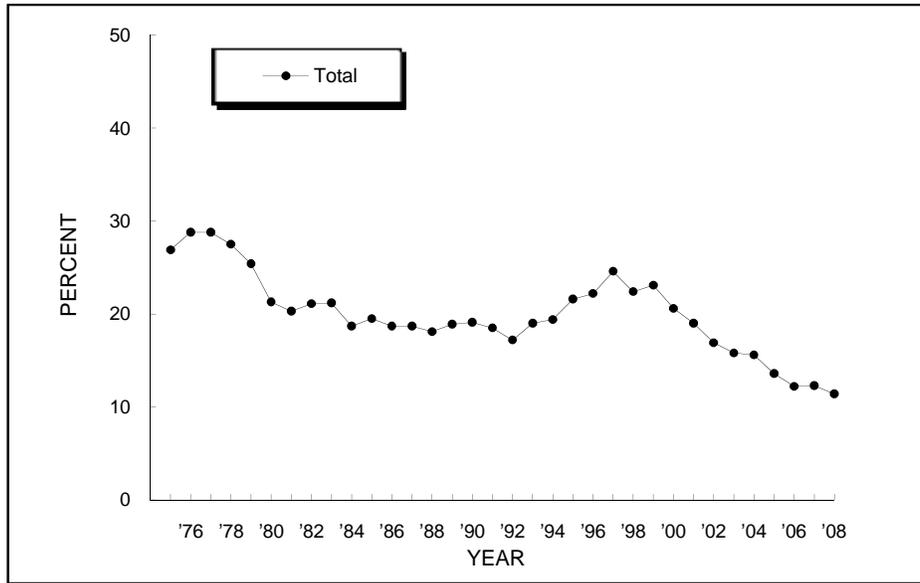


Source. The Monitoring the Future study, the University of Michigan.

Note. Daily use for alcohol is defined as use on 20 or more occasions in the last 30 days.

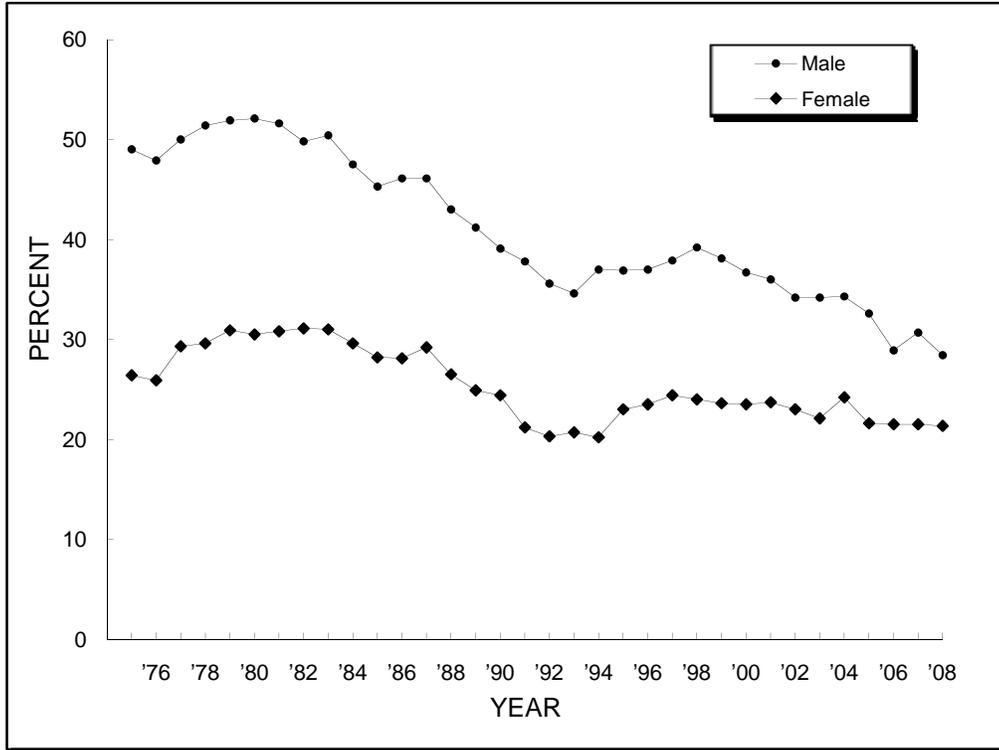
\*In 1993, a revised set of questions on alcohol use was introduced. From 1993 on, data points are based on the revised question.

**FIGURE 5-5c**  
**Cigarettes: Trends in 30-Day Prevalence of Daily Use in Grade 12**  
**by Total and by Gender**



Source. The Monitoring the Future study, the University of Michigan.  
 Note. Daily use for cigarettes is defined as smoking one or more cigarettes per day in the last 30 days.

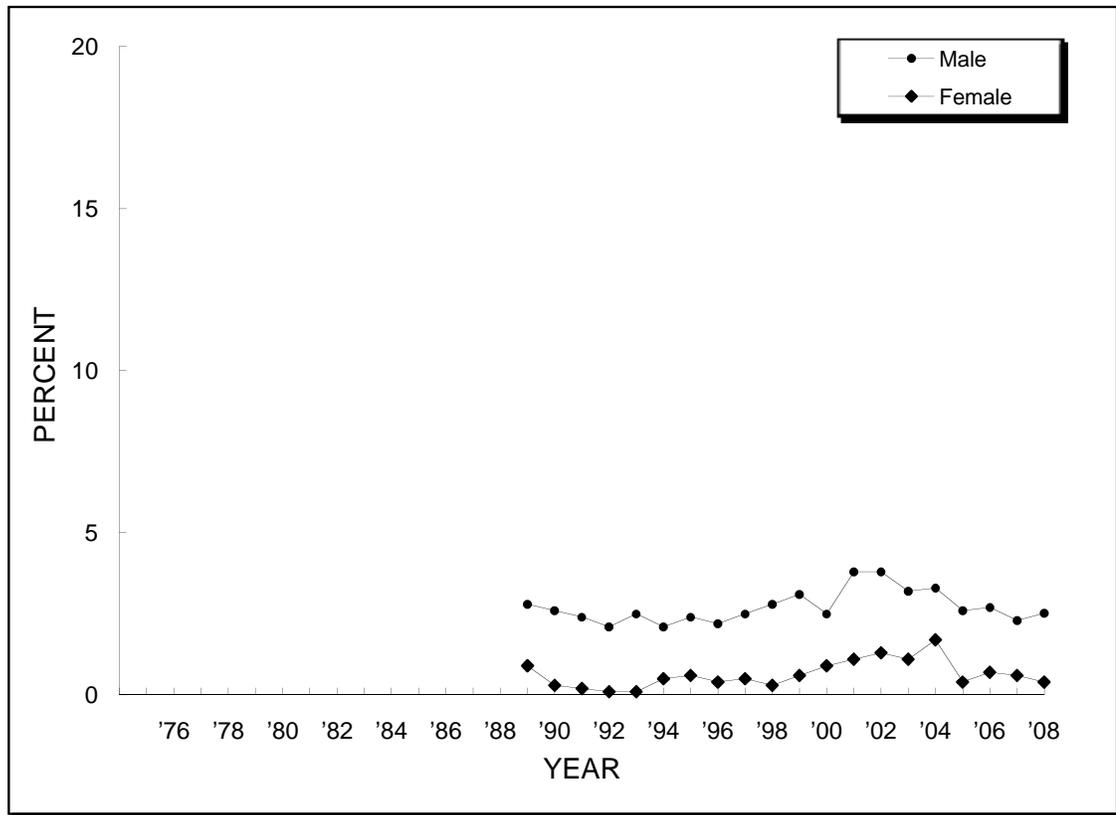
**FIGURE 5-6a**  
**Alcohol: Trends in 2-Week Prevalence of Heavy Drinking**  
**in Grade 12 by Gender**



Source. The Monitoring the Future study, the University of Michigan.

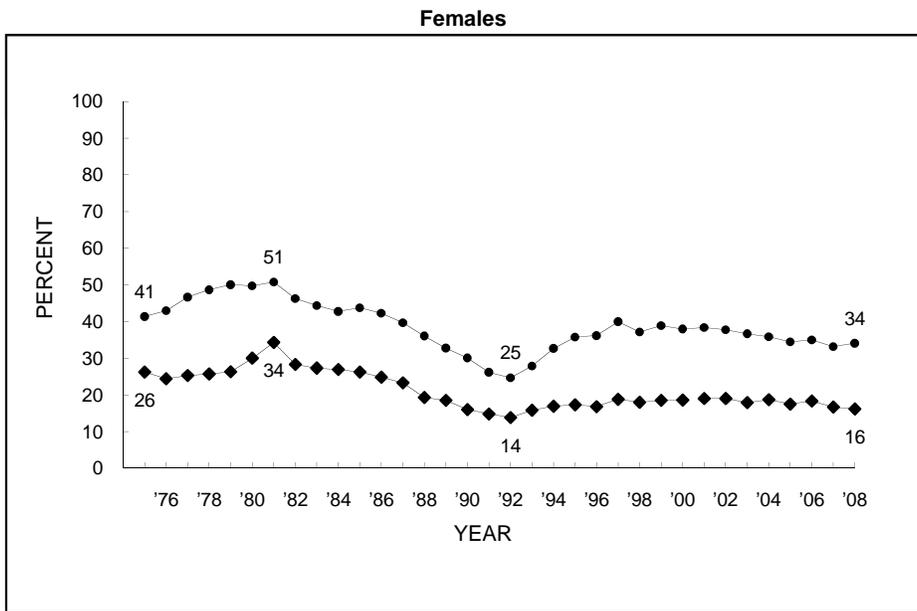
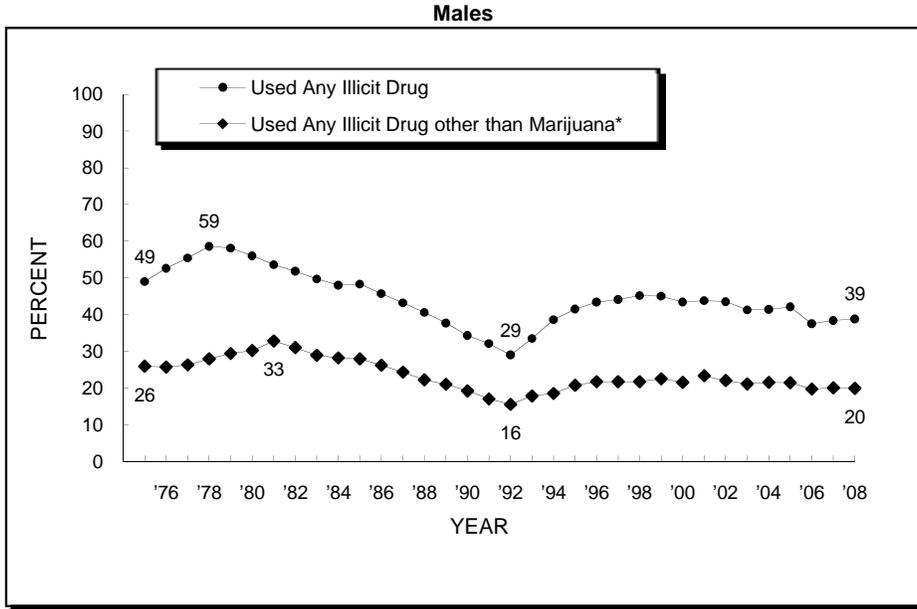
\*Due to a coding error, previously released versions of this figure contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here.

**FIGURE 5-6b**  
**Steroids: Trends in Annual Prevalence in Grade 12**  
**by Gender**



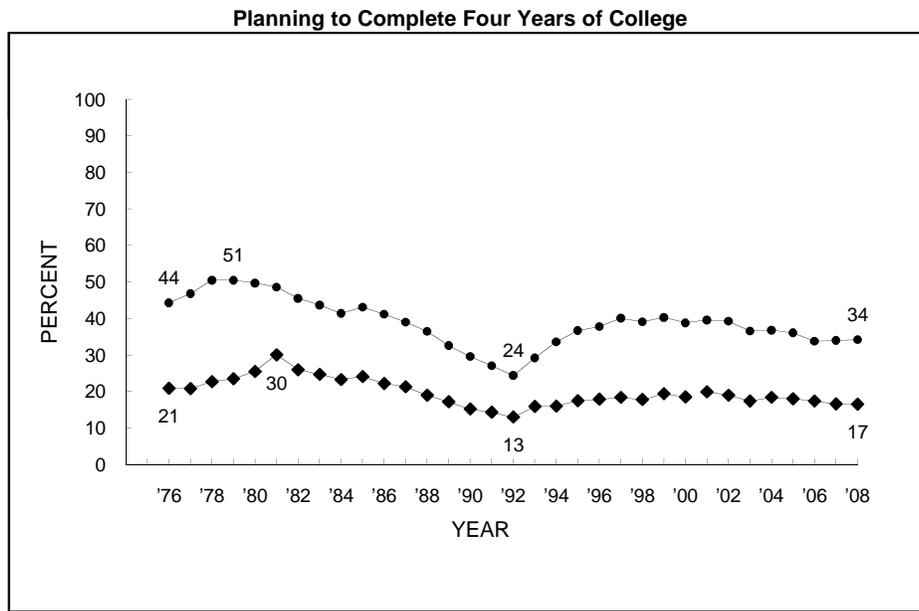
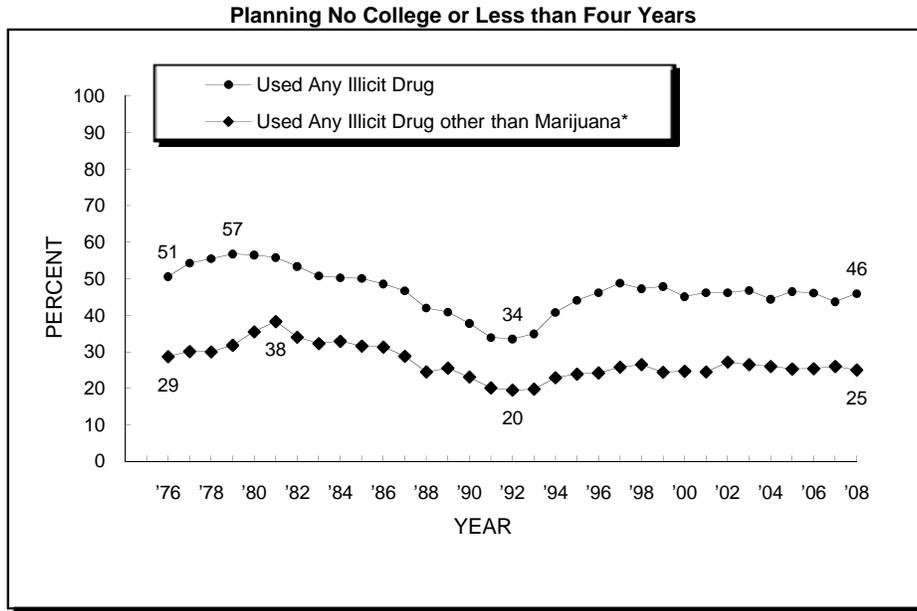
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-7**  
**An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12**  
**by Gender**



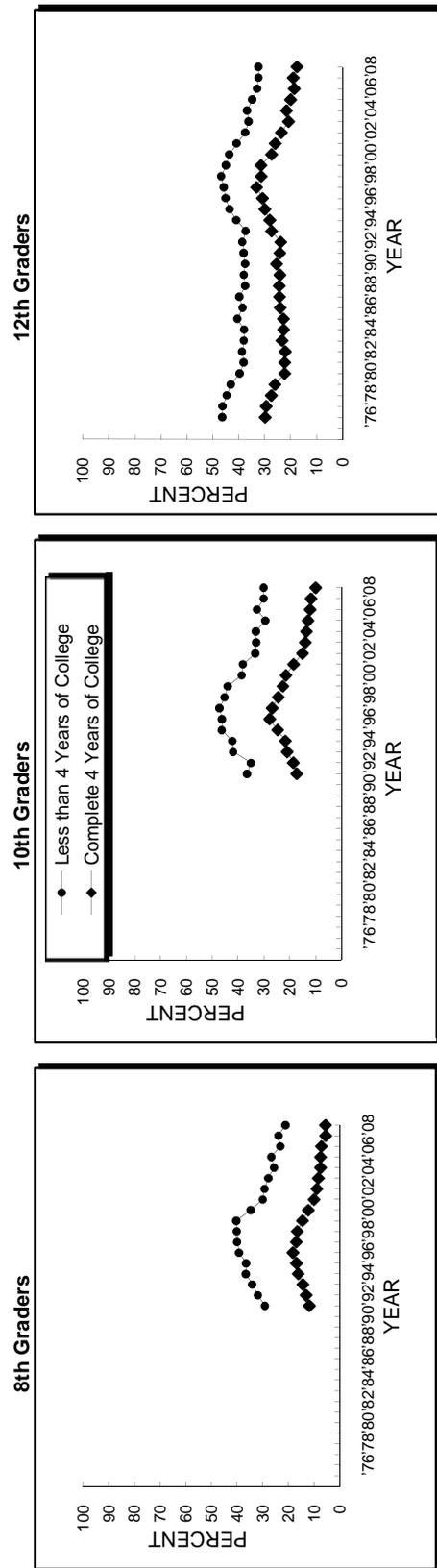
Source. The Monitoring the Future study, the University of Michigan.  
 \*Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. From 2001 on, data points are based on the revised questions.

**FIGURE 5-8**  
**An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12**  
**by College Plans**



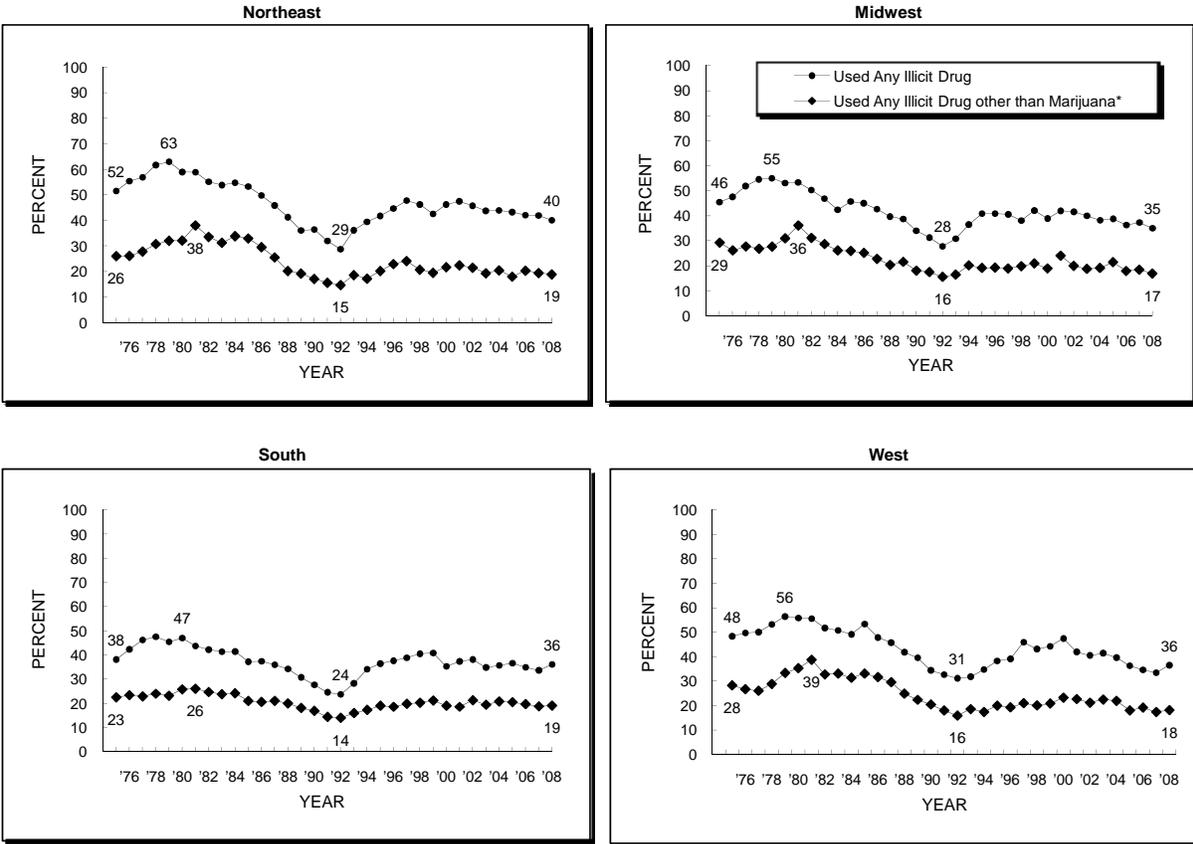
Source. The Monitoring the Future study, the University of Michigan.  
 \*Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. From 2001 on, data points are based on the revised questions.

**FIGURE 5-9**  
**Cigarettes: Trends in 30-Day Prevalence in Grades 8, 10, and 12**  
**by College Plans**



Source: The Monitoring the Future study, the University of Michigan.

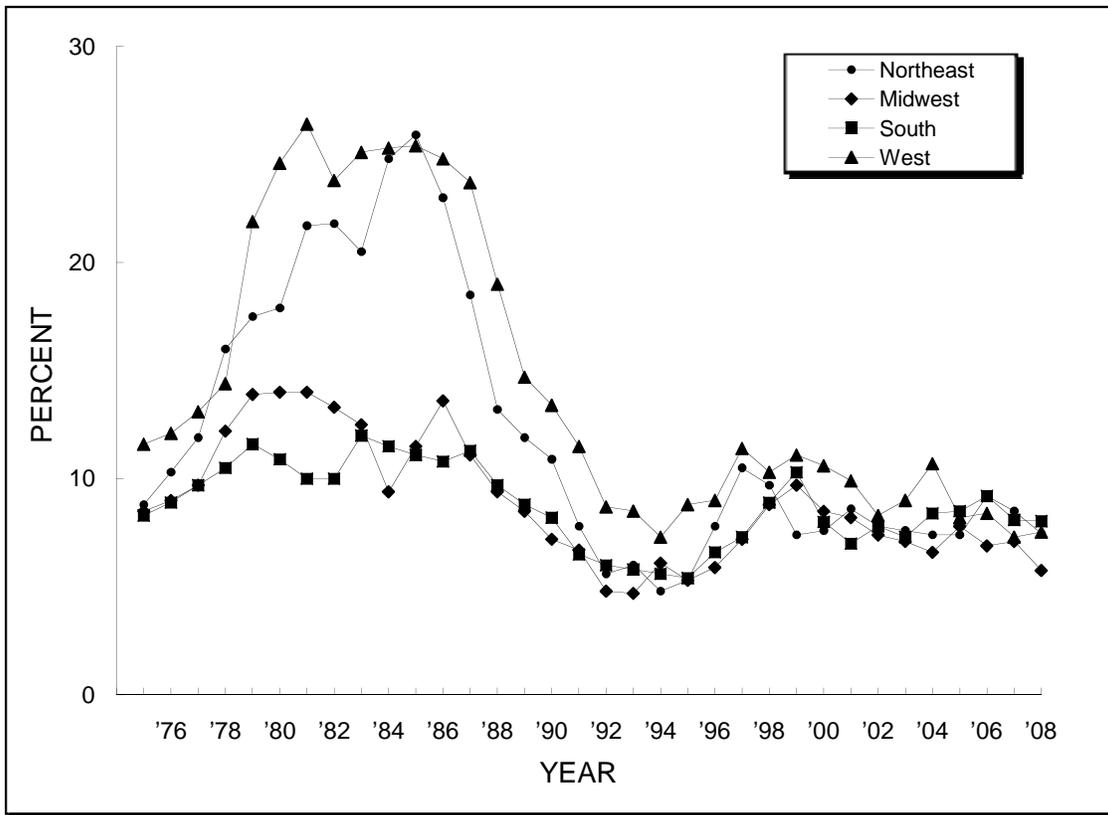
**FIGURE 5-10a**  
**An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12**  
**by Region of the Country**



Source. The Monitoring the Future study, the University of Michigan.

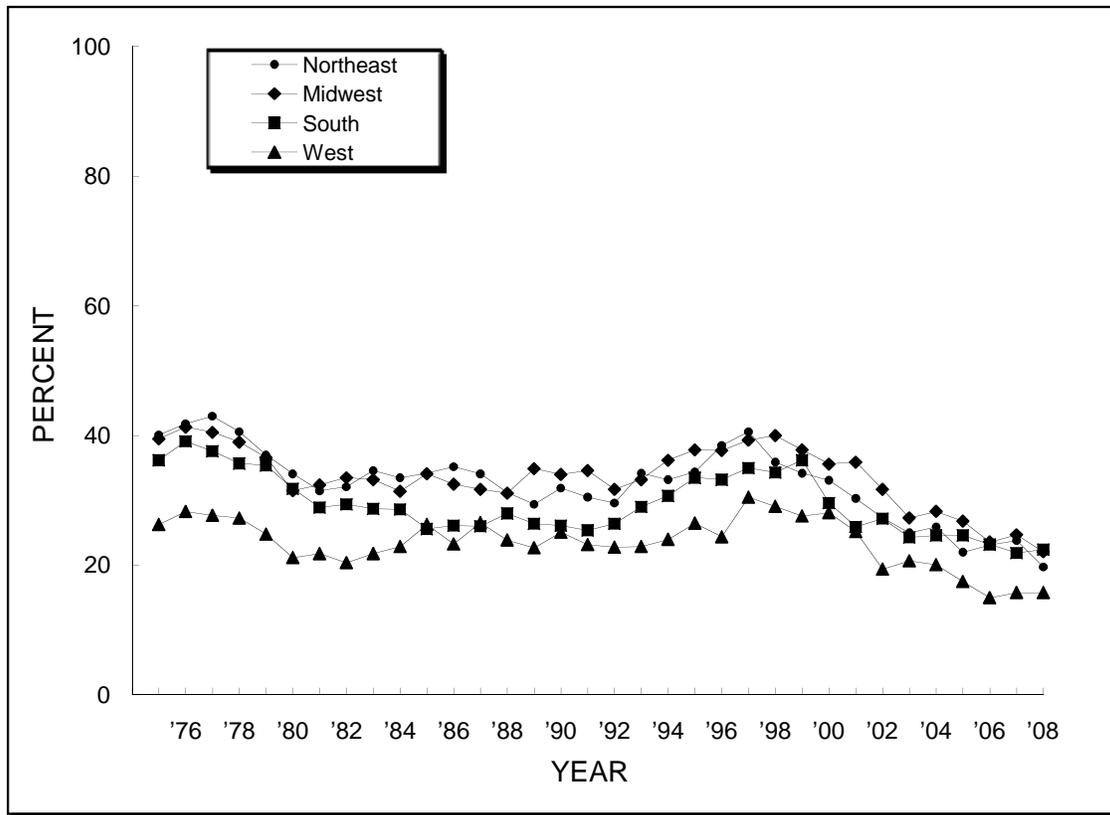
\*Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. From 2001 on, data points are based on the revised questions.

**FIGURE 5-10b**  
**Cocaine: Trends in Lifetime Prevalence in Grade 12**  
**by Region of the Country**



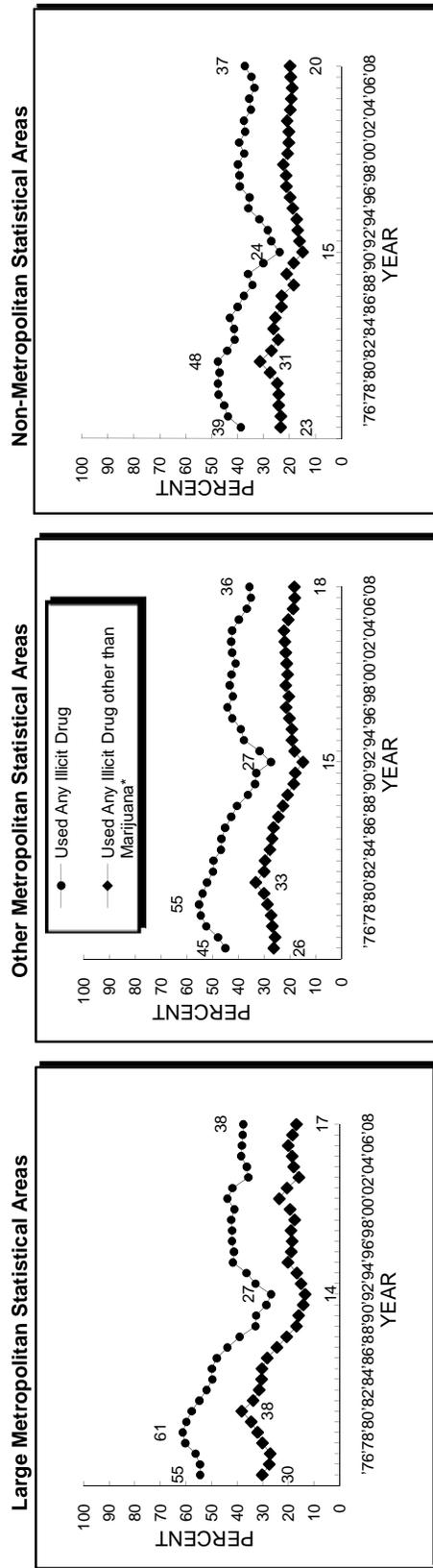
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-10c**  
**Cigarettes: Trends in 30-Day Prevalence in Grade 12**  
**by Region of the Country**



Source. The Monitoring the Future study, the University of Michigan.

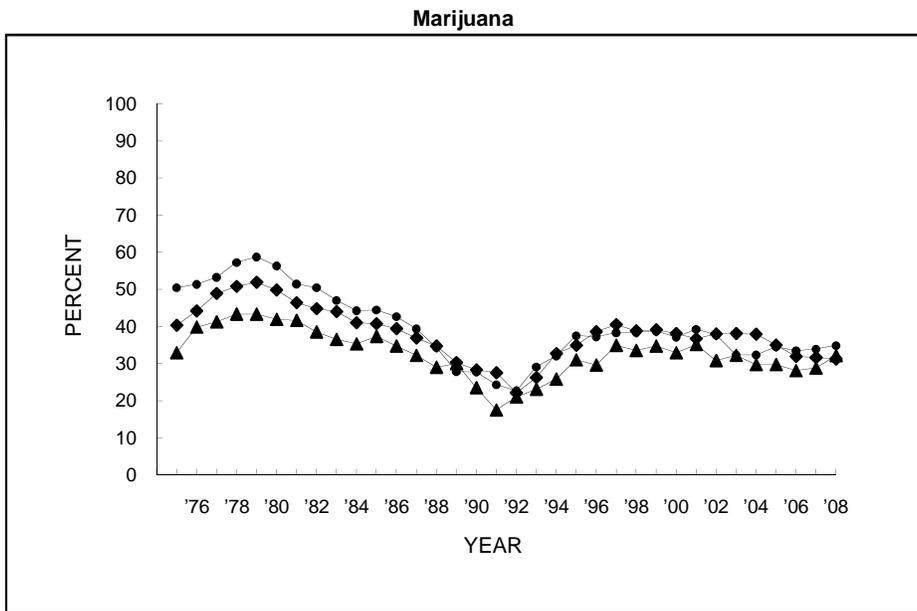
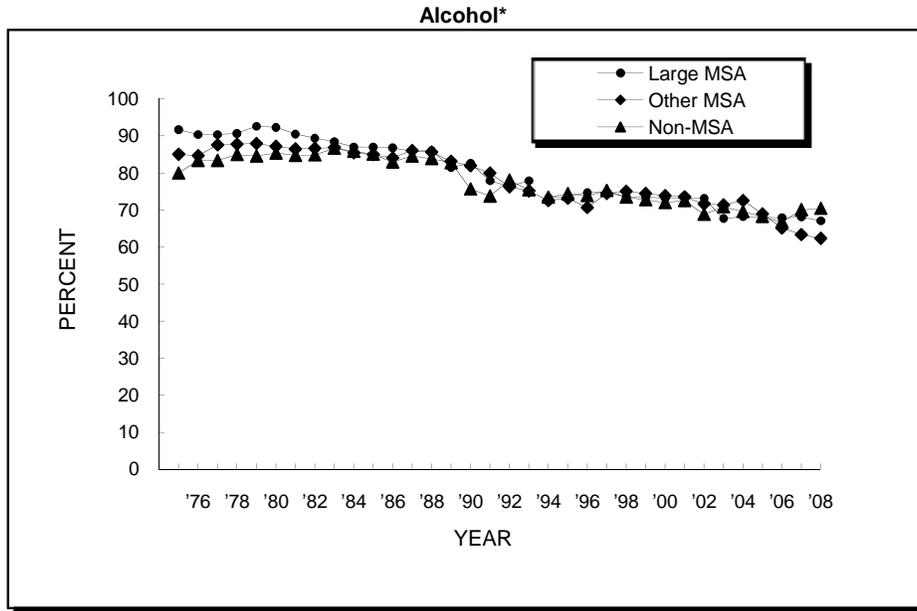
**FIGURE 5-11a**  
**An Illicit Drug Use Index: Trends in Annual Prevalence in Grade 12**  
**by Population Density**



Source. The Monitoring the Future study, the University of Michigan.

\*Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. From 2001 on, data points are based on the revised questions.

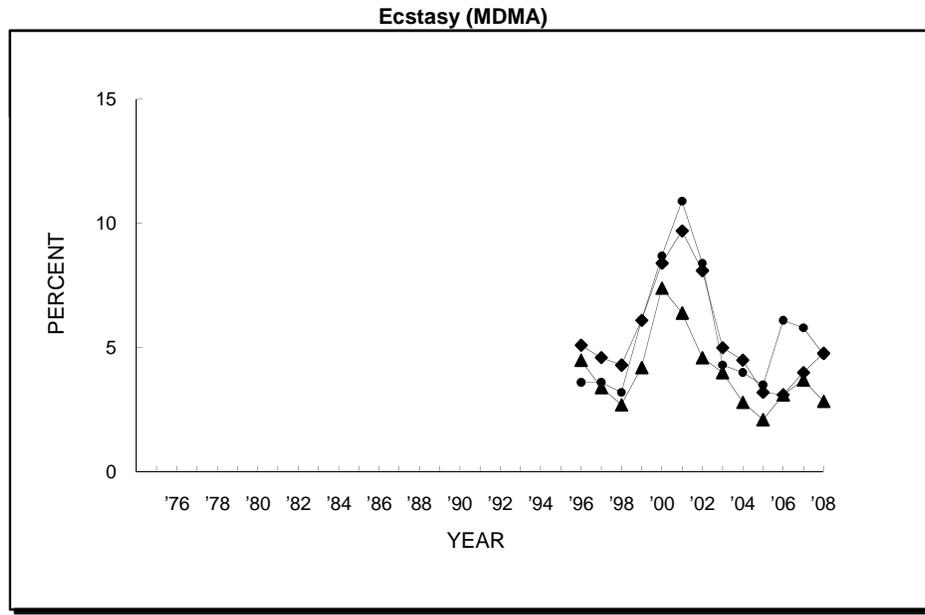
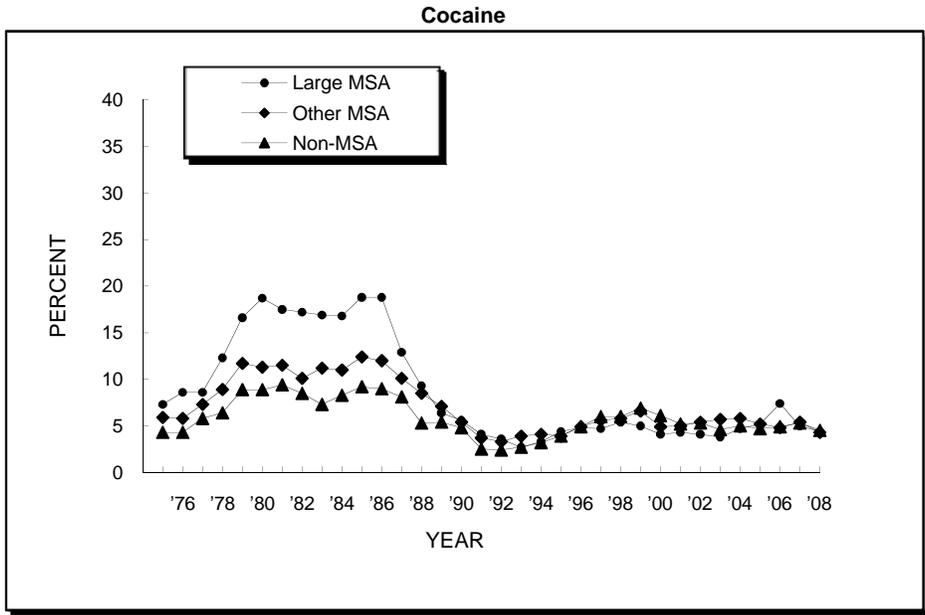
**FIGURE 5-11b**  
**Alcohol and Marijuana: Trends in Annual Prevalence in Grade 12**  
**by Population Density**



Source. The Monitoring the Future study, the University of Michigan.

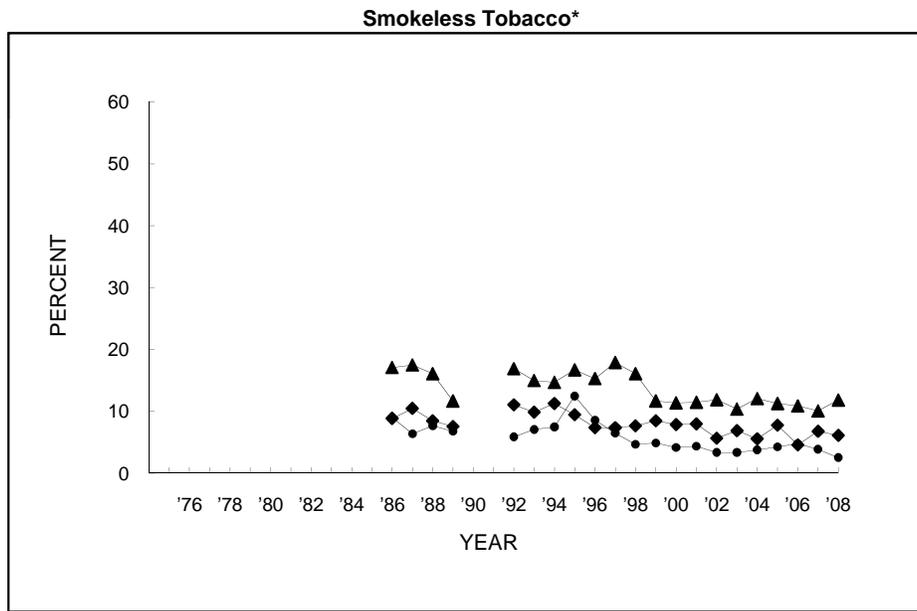
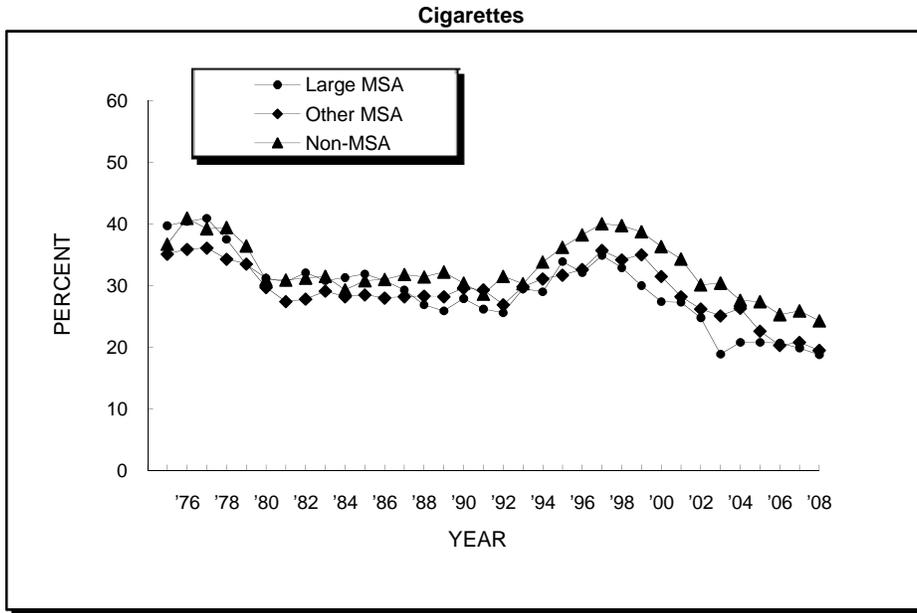
\*Beginning in 1993, a revised set of questions on alcohol use was introduced. From 1993 on, data points are based on the revised questions.

**FIGURE 5-11c**  
**Cocaine and Ecstasy (MDMA): Trends in Annual Prevalence in Grade 12**  
**by Population Density**



Source. The Monitoring the Future study, the University of Michigan.

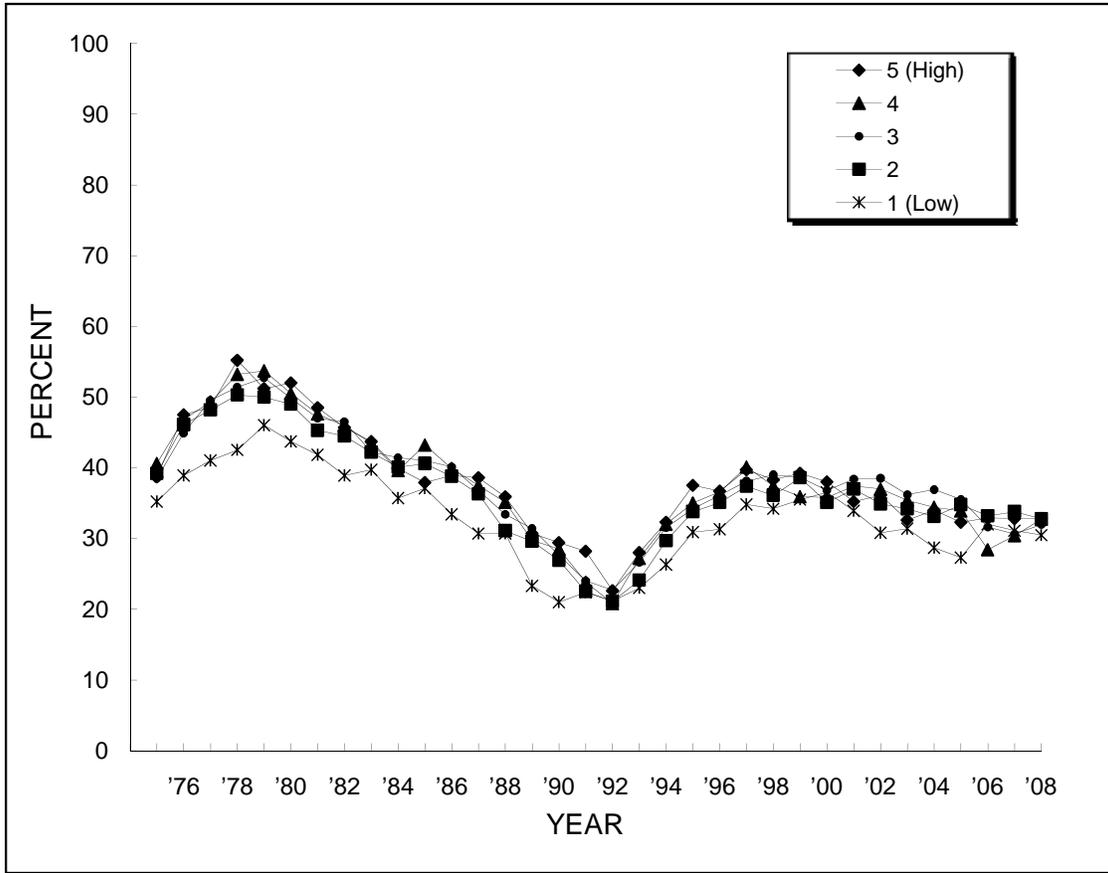
**FIGURE 5-11d**  
**Cigarettes and Smokeless Tobacco: Trends in 30-Day Prevalence in Grade 12**  
**by Population Density**



Source. The Monitoring the Future study, the University of Michigan.

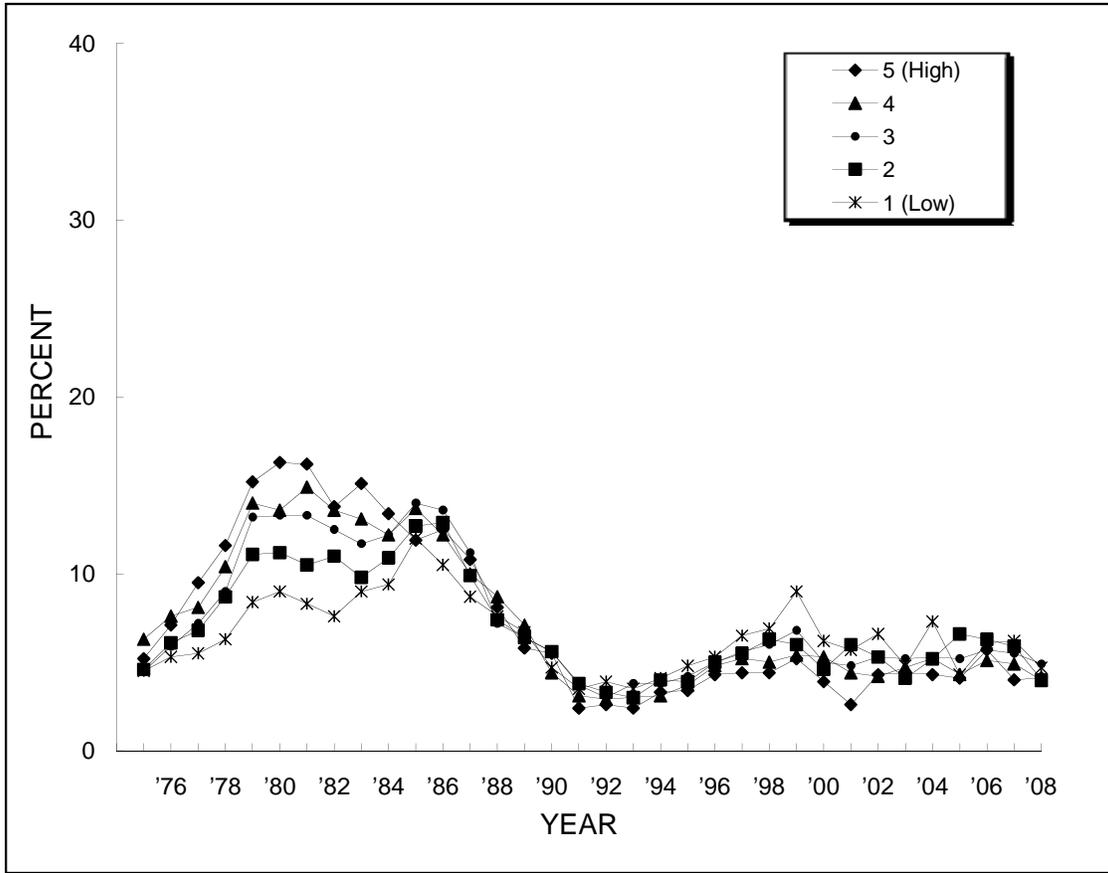
\*Question was not asked in 1990 or 1991.

**FIGURE 5-12a**  
**Marijuana: Trends in Annual Prevalence in Grade 12**  
**by Average Education of Parents**



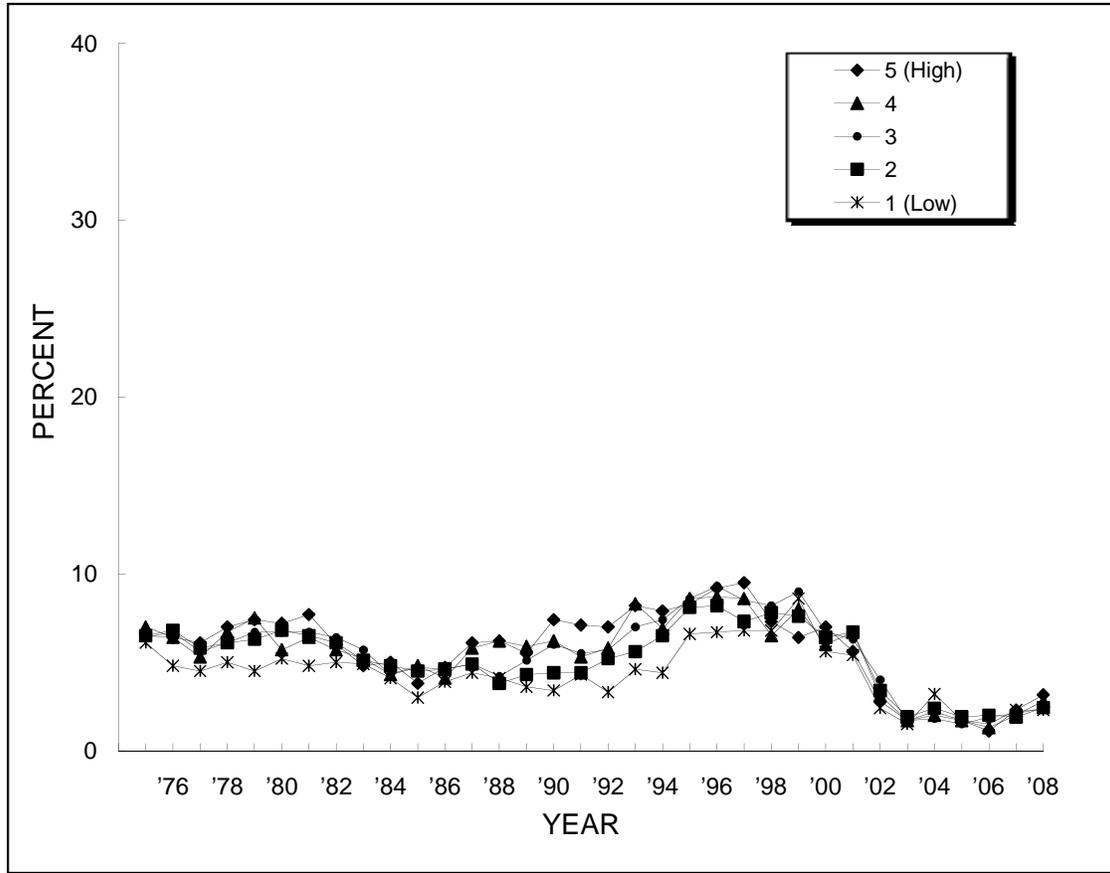
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-12b**  
**Cocaine: Trends in Annual Prevalence in Grade 12**  
**by Average Education of Parents**



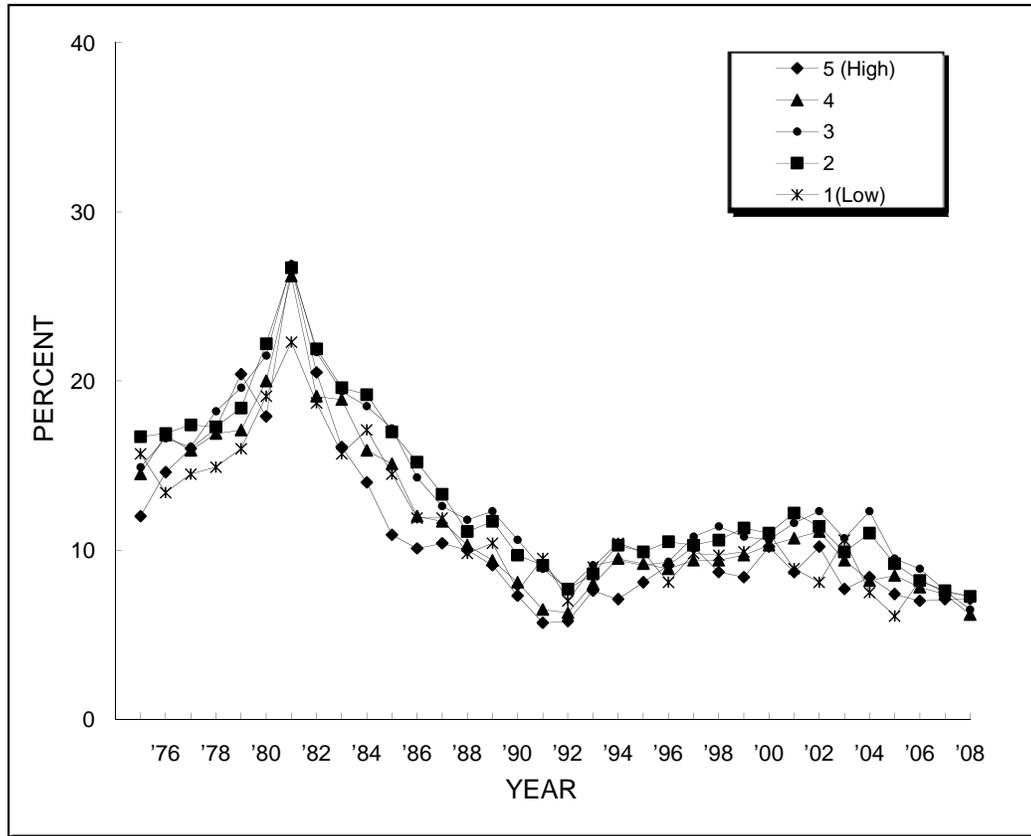
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-12c**  
**LSD: Trends in Annual Prevalence in Grade 12**  
**by Average Education of Parents**



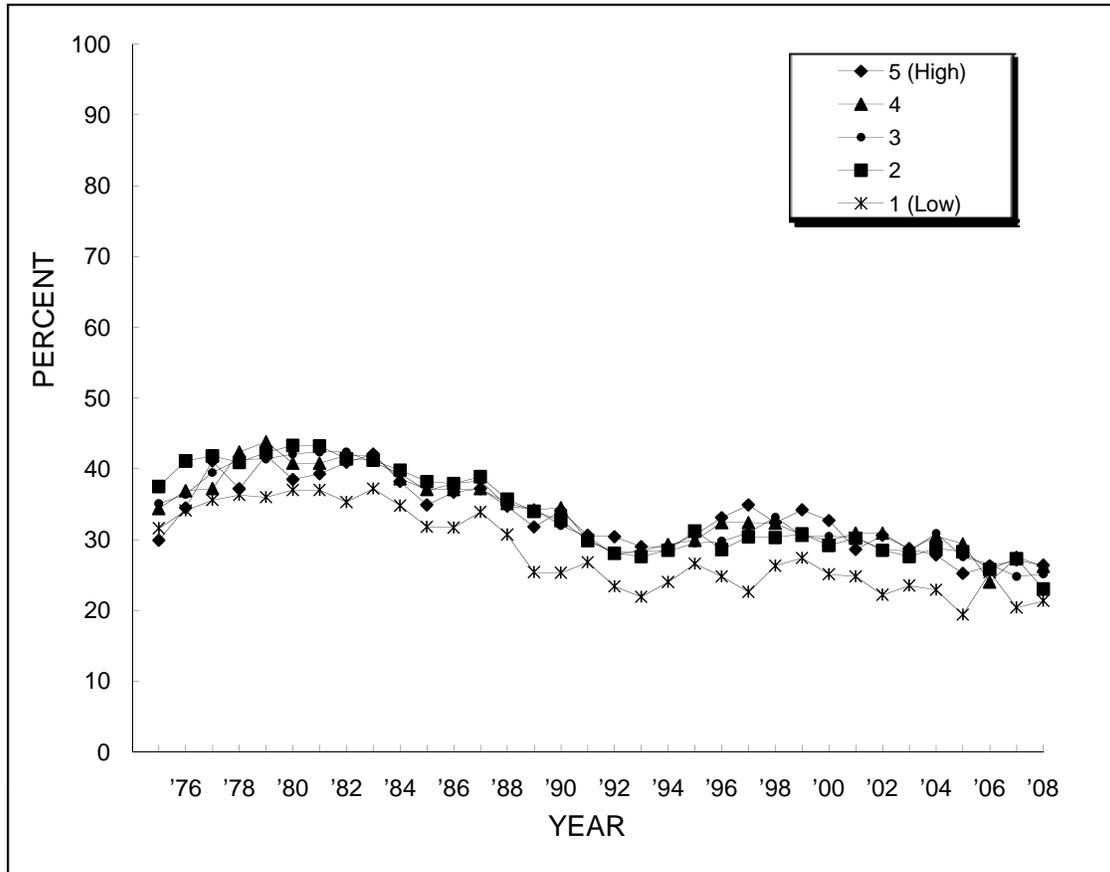
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-12d**  
**Amphetamines: Trends in Annual Prevalence in Grade 12**  
**by Average Education of Parents**



*Source.* The Monitoring the Future study, the University of Michigan.  
*Note.* Beginning in 1982, the question about stimulant use (i.e., amphetamines) was revised to get respondents to exclude the inappropriate reporting of nonprescription stimulants. The prevalence rate dropped slightly as a result of this methodological change.

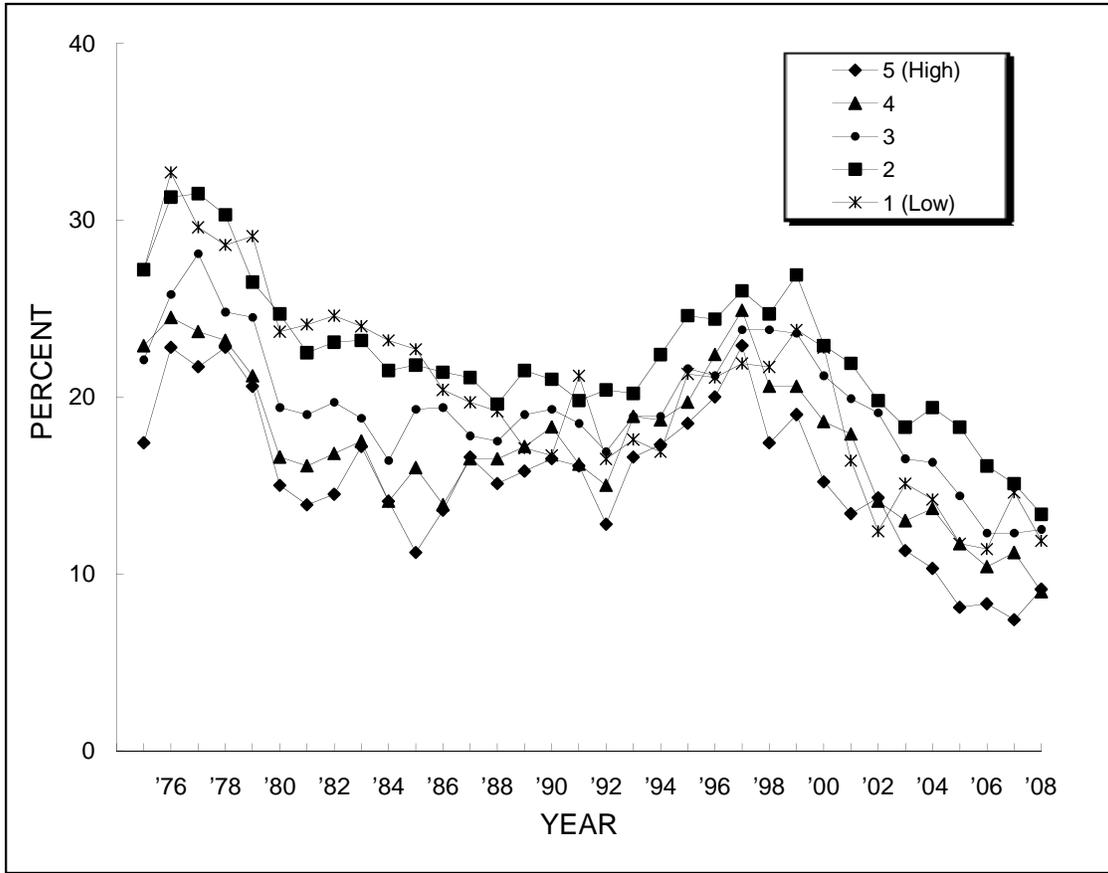
**FIGURE 5-12e**  
**Alcohol: Trends in 2-Week Prevalence of**  
**5 or More Drinks in a Row in Grade 12**  
**by Average Education of Parents**



Source. The Monitoring the Future study, the University of Michigan.

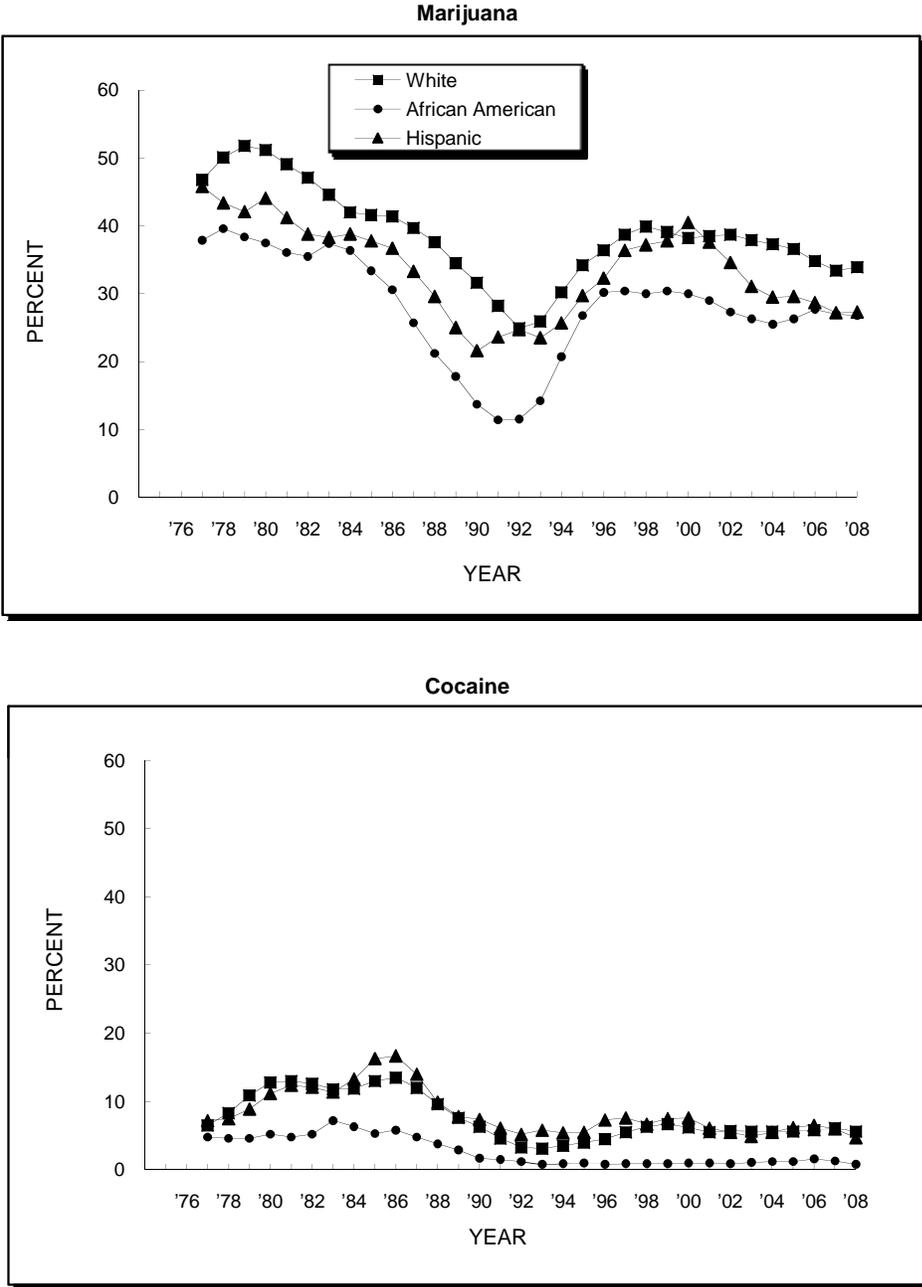
\*Due to a coding error, previously released versions of this figure contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here.

**FIGURE 5-12f**  
**Cigarettes: Trends in Daily Prevalence in Grade 12**  
**by Average Education of Parents**



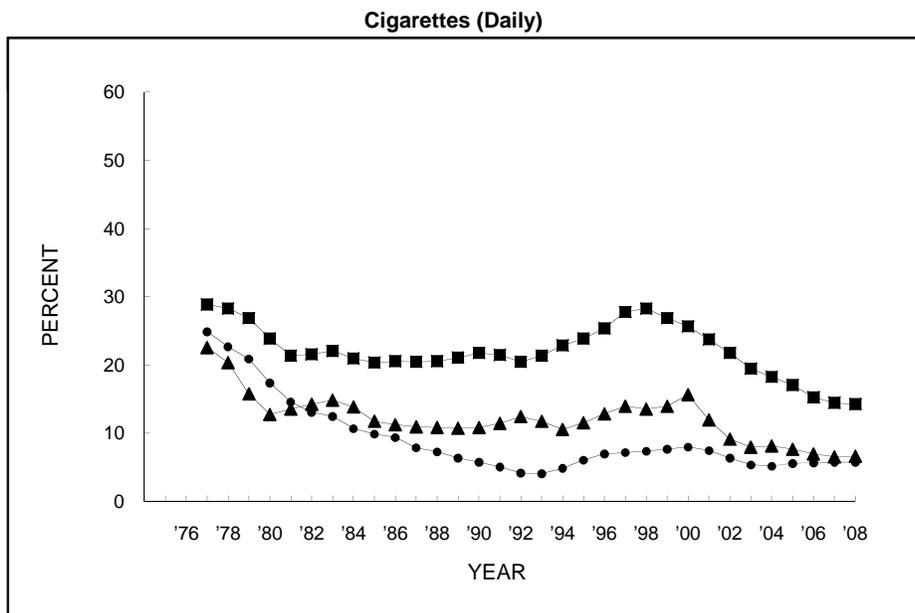
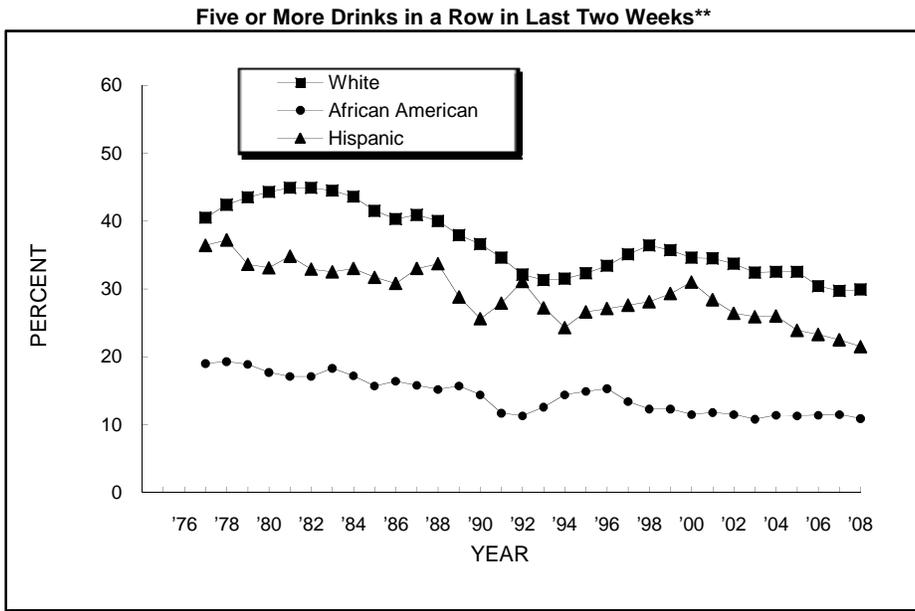
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 5-13a**  
**Marijuana and Cocaine: Trends in Annual Prevalence in Grade 12**  
**by Race/Ethnicity**  
**(Two-year moving average.\*)**



Source. The Monitoring the Future study, the University of Michigan.  
 \*Each point plotted here is the mean of the specified year and the previous year.

**FIGURE 5-13b**  
**Alcohol and Cigarettes: Trends in Prevalence in Grade 12**  
**by Race/Ethnicity**  
**(Two-year moving average.\*)**

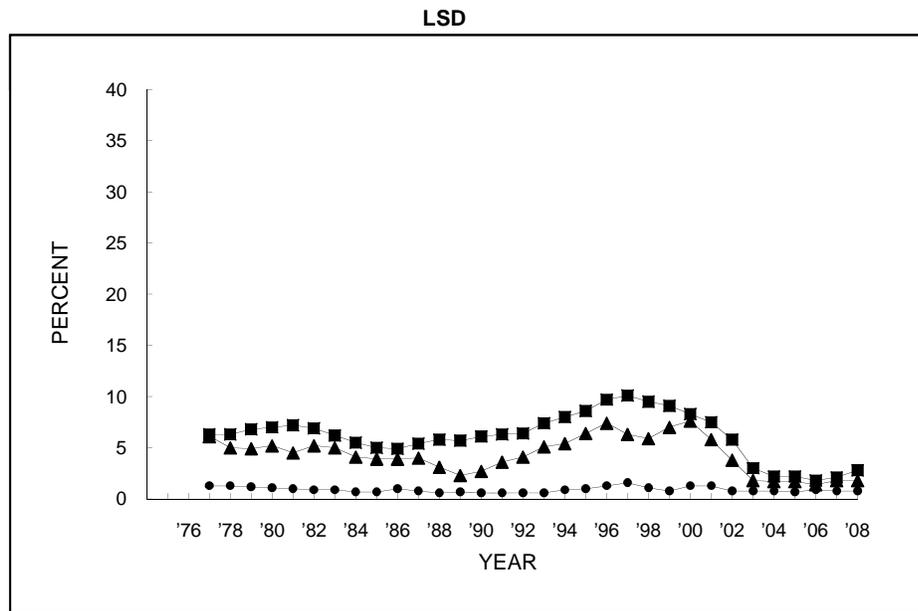
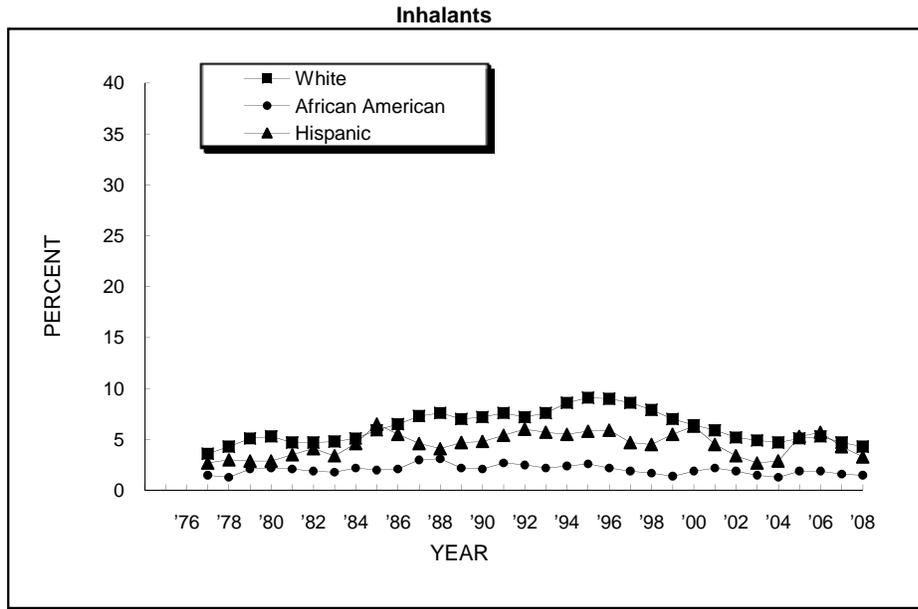


Source. The Monitoring the Future study, the University of Michigan.

\*Each point plotted here is the mean of the specified year and the previous year.

\*\*Due to a coding error, previously released versions of this figure contained values that were slightly off for the measure of five or more drinks in a row for 2005 and 2006. These have been corrected here.

**FIGURE 5-13c**  
**Inhalants and LSD: Trends in Annual Prevalence in Grade 12**  
**by Race/Ethnicity**  
**(Two-year moving average.\*)**



Source. The Monitoring the Future study, the University of Michigan.  
 \*Each point plotted here is the mean of the specified year and the previous year.



## **Chapter 6**

### **INITIATION RATES AND TRENDS IN INITIATION RATES IN LOWER GRADES**

Knowing when young people begin to use various drugs helps us better understand the etiology of substance use and provides a guide to the timing and nature of various interventions, which are most effective when administered immediately before the grades of peak initiation. We know that grades of peak initiation vary according to drug and tend to progress from drugs perceived as the least risky, deviant, or illegal toward those that are more so.

One way to estimate when use of a particular drug is initiated is to ask respondents to self-report at what age, or in what grade, they first used a drug. In this study we chose to ask about initiation in terms of grade levels rather than age, because we believe that adolescents' memories are more likely to be organized in those terms. It can also be argued that social experiences and risk-taking opportunities are organized more by grade than age. Given that each grade level is composed of students who are about the same age, grade can be readily translated into modal ages.

MTF has been collecting grade of initiation data for 12th graders since 1975. The results reported in this series of monographs provide a retrospective view of trends in lifetime prevalence of use at earlier grade levels. Because the retrospective trends span a much longer time period than the study itself, we continue to include here the series of figures based on 12th graders' responses, even though we now measure drug usage rates directly from 8th and 10th graders. We have also included retrospective figures for 8th graders' reported grade of first use.

One would not necessarily expect a particular year's 8th, 10th, and 12th graders to give the same retrospective prevalence rate for a drug, even for a given grade level, because the three groups differ in a number of important ways:

- The lower grades include eventual school dropouts, whereas the 12th-grade survey conducted late in the school year includes almost none. The lower grades also have lower absentee rates. For any given year, both of these factors should cause the prevalence-of-use rates derived contemporaneously from a particular class cohort of 8th graders to be higher (for any specified grade level up through 8th grade) than the retrospectively reported prevalence rates derived from that same class cohort of young people who are still in school in 10th or 12th grades.
- Because each class cohort experienced 8th grade in a different year, any broad historical or secular trend in the use of a drug could contribute to differences in respondents' reports of their experiences when they were in 8th grade.
- Because 8th, 10th, and 12th graders are in three different class cohorts, any lasting differences among cohorts ("cohort effects") could contribute to a difference at any grade level, including 8th grade.

Two types of method artifacts could also explain observed differences:

- Memory errors are more likely to occur for older respondents (who are, of course, further removed from the ages/events). They may forget that an event ever occurred (although this may be unlikely for use of drugs), or they may not accurately remember *when* an event occurred. For example, an event may be remembered as having occurred more recently than it actually did—a kind of forward telescoping of the recalled timing of events.<sup>64</sup>
- The definition of the eligible event may change as a respondent gets older. Thus, an older student may be less likely to include an occasion of taking a sip from someone’s beer as an alcohol use event, or an older student may be more likely to appropriately exclude an over-the-counter stimulant when asked about amphetamine use. While we attempt to ask the questions as clearly as possible, some of these drug definitions are fairly subtle and likely to be more difficult for younger respondents. Indeed, we have omitted from this report 8th and 10th graders’ data on their use of sedatives (barbiturates) and narcotics other than heroin precisely because we judged them to contain erroneous information.<sup>65</sup>

## INCIDENCE OF USE BY GRADE LEVEL

Tables 6-1 through 6-3 provide retrospective initiation rates for various types of drug use as reported by students surveyed in 8th, 10th, and 12th grades. Obviously, the older students have a longer age span over which they can report initiation. Table 6-4 shows the retrospective initiation rates from all three sets of respondents to allow comparison by grade levels.

The questions from which the data are derived have a common stem: “When (if ever) did you FIRST do each of the following things? Don’t count anything you took because a doctor told you to.” Various drug-using behaviors are asked about, for example, “smoke your first cigarette,” “smoke cigarettes on a daily basis,” “try an alcoholic beverage—more than just a few sips,” etc. The answer alternatives differentiate the grade levels at which first use occurred.

- Eighth-, 10th-, and 12th-grade respondents all retrospectively reported very low usage rates up through the end of 6th grade for **LSD, hallucinogens other than LSD, crack cocaine, cocaine powder, heroin, and steroids** (all less than 1%), as well as for **tranquilizers** (less than 1.5%). Any use of **amphetamines** by the end of 6th grade was reported by less than 2%.

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<sup>64</sup>See Bachman, J. G., & O’Malley, P. M. (1981). When four months equal a year: Inconsistencies in students’ reports of drug use. *Public Opinion Quarterly*, 45, 536–548; Jabine, T. B., Straf, M. L., Tanur, J. M., & Tourangeau, R. (Eds.). (1984). *Cognitive aspects of survey methodology: Building a bridge between disciplines*. Washington DC: National Academy Press.

<sup>65</sup>We have found that young adult follow-up surveys of 12th graders yield higher recanting rates for the psychotherapeutic drugs, in contrast to the illegal drugs. We interpret this discrepancy as reflecting, in part, a better understanding of the distinctions between prescription and nonprescription drugs in young adulthood. See Johnston, L. D., & O’Malley, P. M. (1997). The recanting of earlier reported drug use by young adults. In L. Harrison & A. Hughes (Eds.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (pp. 59–80) (NIDA Research Monograph No. 167). Rockville, MD: National Institute on Drug Abuse.

- Among 8th-grade respondents in 2008, 4.6% said they had tried *marijuana* by the end of 6th grade. In 2008, the older respondents give lower retrospective estimates of their marijuana use by 6th grade: 3.5% among 10th-grade respondents and 2.4% among 12th-grade respondents.
- In general, *alcohol* and *tobacco* are the most likely to have been initiated at an early age, with *inhalants* and *marijuana* coming next.
- Cigarette smoking tends to be initiated particularly early. Based on data from the 2008 eighth graders (Table 6-1), their peak years for initiation of *cigarette* smoking appear to have been in the 6th and 7th grades (10.0%)—between ages 11 and 13—but a considerable number initiated smoking even earlier. Indeed, 7.8% of the 2008 eighth-grade respondents reported having had their first cigarette by 5th grade.

Note that the 8th graders' reports of smoking initiation by grade 6 are much higher (12% reporting in 2008 on their behavior two or more years earlier) compared with 12th graders (7.6% reporting in 2008 on behaviors six or more years earlier). Several factors noted earlier in this chapter could have contributed to this difference; however, it seems likely that most of the difference relates to the differential inclusion of eventual dropouts, as educational attainment is highly correlated with cigarette smoking.<sup>66</sup>

- *Smokeless tobacco* use also tends to be initiated quite early, as Tables 6-1 through 6-3 illustrate, with grades 7 through 11 tending to show the highest rates of initiation. Of the 8th-grade respondents in 2008, 4.6% reported trying smokeless tobacco by 6th grade, and another 5.2% by 8th grade. Of course, these averages are based on the entire sample—rates are substantially higher among boys.
- *Inhalant* use tends to occur early; peak initiation rates generally occur in grades 6 through 10. Indeed, among 8th-grade respondents in 2008, 5.8%—more than 1 in 20—had already tried inhalants by the end of 5th grade (reports from later grades are lower, as discussed below).

Of the illicit drugs, only inhalants show very large differences in the incidence rates reported by the three grade levels. Among 2008 respondents, only 1.5% of 12th graders compared to 9.0% of 8th graders reported using inhalants by the end of 6th grade. Although any of the explanations offered earlier might help to explain these differences, we believe that early inhalant use may be particularly associated with dropping out. In addition, use of nonnitrite inhalants such as glues, aerosols, and butane had been increasing for some time (up to 1995, and again in 2003 and 2004), and these types of inhalants tend to be used at younger ages.

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<sup>66</sup>For MTF panel analyses showing sharply higher smoking rates among high school dropouts, see Bachman, J. G., O'Malley, P. M., Schulenberg, J. E., Johnston, L. D., Freedman-Doan, P., & Messersmith, E. E. (2008). *The education–drug use connection: How successes and failures in school relate to adolescent smoking, drug use, and delinquency*. New York: Lawrence Erlbaum Associates/Taylor & Francis Group.

- Like cigarette use, *alcohol* use shows a pattern of early initiation. Alcohol use by the end of 6th grade is reported by 19.1% of the 2008 eighth-grade respondents, but by only 5.5% of the 2008 twelfth-grade respondents (see Table 6-4). Several factors may contribute to this difference. One is that eventual dropouts are much more likely than average to drink at an early age.<sup>67</sup> Another is related to the issue of what is meant by “first use.” The questions for all grades refer specifically to the first use of “an alcoholic beverage—more than just a few sips,” but we believe that the older students (12th graders) are more likely to report only use that is *not* adult-approved, and not count having a small amount (more than a few sips, less than a glass) with parents or for religious purposes. Younger students (8th graders) are probably less likely to have had a full drink or more, but more likely to report first use of a limited amount. Thus, the 8th-grade data probably exaggerate the incidence of having “more than a few sips,” whereas the 12th-grade data may understate it. Note that data from the three groups of respondents tend to converge as we ask about lifetime alcohol use by the time they reach higher grade levels.

For these reasons, we rely more on 12th-grade data for purposes of examining changes in initiation of alcohol use across age, and these data suggest that the peak years of alcohol initiation are 7th through 11th grades. While the first occasion of *drunkenness* is also most likely to occur in grades 7 through 11, 5.1% of the 2008 eighth graders reported first having been drunk by the end of 6th grade.

- The *illicit drugs other than marijuana* generally do not reach peak initiation rates until the high school years (grades 9 through 11 for most drugs, but 10 through 12 for *cocaine powder*, *LSD*, and *hallucinogens other than LSD*, consistent with the progression model noted earlier).

Of all 12th graders who reported prior use of any drug, the proportion reporting an initial use of that drug *by the end of grade 9* is presented here. This listing is a good indicator of the order of age (grade level) initiation (with some exceptions):<sup>68</sup>

*cigarettes* (64%)  
*inhalants* (64%)  
*PCP* (61%)  
*alcohol* (53%)  
*crack* (50%)  
*marijuana* (49%)  
*sedatives (barbiturates)* (46%)  
*been drunk* (46%)  
*smokeless tobacco* (46%)  
*daily cigarette smoking* (43%)  
*amphetamines* (36%)  
*tranquilizers* (35%)

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<sup>67</sup>See Bachman et al. (2008) cited above.

<sup>68</sup>Note that such an ordering can be influenced by secular trends in use. Also, confidence intervals can be relatively large because the data are based only on those who had tried each drug by end of 12th grade.

*narcotics other than heroin* (35%)  
*LSD* (33%)  
*other forms of cocaine* (32%)  
*heroin* (31%)  
*cocaine* (31%)  
*hallucinogens* (29%)  
*hallucinogens other than LSD* (27%)

## TRENDS IN LIFETIME PREVALENCE AT EARLIER GRADE LEVELS

Using the retrospective data provided by members of each 12th-grade class concerning their grade of first use, it has been possible to reconstruct lifetime prevalence-of-use trend curves for lower grade levels over many earlier years. Obviously, data from school dropouts are not included. Figures 6-1 through 6-25 present the reconstructed lifetime prevalence curves for most drugs. Starting with Figure 6-4, retrospective prevalence curves are also presented for 8th graders, who have been included in the annual surveys since 1991. These curves *should* include data from nearly all the eventual dropouts.

When comparing the retrospective prevalence curves for 12th-grade respondents versus 8th-grade respondents, the reader should keep in mind that the curves are often plotted on different scales to improve the clarity of each figure.

We have chosen to speak here about changes in lifetime prevalence for each class at the various grade levels rather than changes in “average age of initiation.” Although average age of initiation is another way to discuss this type of data, we think it has the potential to be misleading. For example, the average age of initiation could be lower in more recent classes because fewer students are initiating use at *later* ages (perhaps due to a recent downward secular trend) rather than because more students are starting at younger ages. Yet many readers may interpret a decline in average age of initiation as reflecting a downward shift in the propensity to use at younger ages, independent of any secular trends, and therein lies the potential confusion. For this reason, we have chosen to talk in terms of trends in lifetime prevalence attained by each class of students as they reach different grade levels.

- Based on retrospective data provided by successive 12th-grade classes, Figure 6-1 shows trends at each grade level for lifetime use of *any illicit drug*. All grade levels had a continuous increase in illicit drug involvement through the 1970s. Fortunately, the increase in use below 7th grade was quite small. The retrospective rate in 1969 (based on the high school class of 1975) for 6th grade or below was 1.1%, a percentage that increased modestly through 1978, leveled for a time, and then declined in the late 1980s, from 3.5% in 1986 to 2.1% in 1989. The lines for other grade levels all show much steeper upward slopes, followed by earlier and longer declines. For example, about 37% of 10th graders in 1973 had initiated the use of some illicit drug, compared with 52% of 10th graders in 1980. This proportion fell to 28% by 1991, increased from 1993 to 1997, and then showed very gradual decline from 1997 through 2005.

- Most of the early increase in *any illicit drug use* was due to increasing proportions using marijuana. This can be seen in Figure 6-2, which shows trends for each grade level in the proportion having used *any illicit drug other than marijuana* in their lifetime. Compared with Figure 6-4 for marijuana use, these trend lines are relatively flat throughout the 1970s. The biggest cause of increases in these curves from 1978 to 1981 was the rise in reports of *amphetamine* use. As noted earlier, we suspect that at least some of that rise was an artifact of the improper inclusion by some respondents of nonprescription stimulants. As shown in Figure 6-3, we see even greater stability in the proportion using illicit drugs when both marijuana and amphetamines are excluded from the calculations.

Similarly, much of the increase in illicit drug use in the early 1990s was due to increases in marijuana use. The upturns for this period are far sharper in Figure 6-1 than in Figure 6-2.

- As the top panel of Figure 6-4 shows, throughout the 1970s lifetime prevalence of *marijuana* use as reported by 12th-grade respondents rose steadily at all grade levels down through the 7th and 8th grades. Beginning in 1980, lifetime prevalence of marijuana use began to decline in grades 9 through 12. Declines in grades 7 and 8 began a year later, in 1981.

There was also some small increase in marijuana use during the 1970s at the elementary school level (below 7th grade). Based on the retrospective data from 12th graders, we know that by 6th grade or lower their use rose gradually from 0.6% for the class of 1975 (who were 6th graders in 1968–1969) to a peak of 4.3% for the class of 1984 (who were 6th graders in 1977–1978). Use began dropping thereafter, and for the 12th-grade class of 1999 (who were 6th graders in 1992–1993) it was down to 1.1%. (The most up-to-date data from the 2008 eighth graders, which are slightly incomparable due to the inclusion of eventual dropouts among 8th graders, yield a prevalence estimate of 4.6% for these students when they were 6th graders in 2006.) The retrospective data from 8th graders (see bottom panel of Figure 6-4) clearly indicate that marijuana use among 6th graders increased a little after 1991, but then leveled by the mid-1990s before showing a decline in use from 2003–2006.

Both the top and bottom panels of Figure 6-4 show the accelerating increase in lifetime prevalence of marijuana use that began after 1991 in grades 6 through 11 (after 1992 in grade 12). The upturn in the index of any illicit drug use during the early 1990s (Figure 6-1) was due to the sharp increase in marijuana use (Figure 6-4), although the proportions using any illicit drug other than marijuana (Figure 6-2) rose modestly. The data from 8th graders suggest that the increase in marijuana use leveled off a little earlier in the lower grades (by 1995 in grade 6 and by 1996 in grade 7) in what appears to have been a cohort effect (i.e., where specific cohorts had lower use rates in 8th grade, and these lower rates stayed with them as they progressed through high school).

- Questions about grade of first use for *inhalants* (unadjusted for nitrites) were introduced in 1978. The retrospective trend curves for 12th graders (top panel of Figure 6-5) show that use of inhalants generally increased throughout the 1980s. Initiation of use rose

almost continually in the upper grade levels, peaking with the classes of 1989 and 1990. Lifetime prevalence showed some decline in the early 1990s, but then a resurgence into the mid-1990s in a number of lower grades. For more recent graduating classes, lifetime prevalence leveled as they passed through the earlier grades, and then showed some further decline.

- Retrospective data are available for *nitrites* since 1980 (Figure 6-6). These do not show the long-term increase during the 1980s observed for the overall inhalant category, but they do show a substantial decline during the 1990s. Many nitrite users fail to include their nitrite use when responding to general questions about inhalant use. However, since nitrite use has dropped to a very low level, respondents' omission of nitrites has had much less effect on the adjusted inhalants statistics (not shown here) in recent years than it did when nitrite use was much more common.
- Lifetime prevalence of *hallucinogen* use (unadjusted for underreporting of PCP) began declining among students at most grade levels in the mid-1970s (see Figure 6-7), and this gradual decline continued through most of the 1980s. Recent years have shown some fluctuations, with an increase in lifetime prevalence between roughly 1992 and 1996. The classes of 1998–2005 showed some decline in their initiation rates, particularly during their later years in high school, but the classes of 2006–2008 have shown a leveling off. The retrospective data collected from 8th graders showed some decline in lifetime prevalence after 1996. The apparent upturn in 2001 is an artifact from a change in question wording; when the term “shrooms” (a commonly used term for hallucinogenic mushrooms) was added to the list of examples for “other hallucinogens” in 2001, the absolute level of reported hallucinogen use increased somewhat, but the trend lines continued to show declines.
- Trend curves for *LSD* (Figure 6-8) are similar in shape (though at lower rates, of course) to the ones just discussed. The very sharp decline in LSD use after 2001 in both the 12th- and 8th-grade figures is noteworthy. Unlike LSD, the lifetime prevalence rates for *hallucinogens other than LSD* (Figure 6-9) declined rather sharply from the mid-1970s through the late 1980s—particularly in the upper grades—before leveling. After 1991, use increased through about 1996; thereafter, use tended to decline somewhat unevenly. As mentioned above, the inclusion of “shrooms” in the example list beginning in 2001 resulted in higher prevalence rates, but the overall declines mostly continued.
- We have fewer trend data for *PCP*, since retrospective questions about grade of first use for this drug were not added until 1980 and no questions on this drug were asked of 8th graders. However, some interesting results have emerged (see Figure 6-10). A sharp downturn began around 1979, with use declining substantially in all grade levels in which there had been appreciable use, until 1987. Through 1993 or 1994, the overall lifetime prevalence rates remained very low. The early 1990s saw a brief period of increase in PCP use, followed by another leveling and then further decline.
- The trends in lifetime prevalence of *cocaine* use at various grade levels, as estimated from the retrospective grade of initiation data, are displayed in Figure 6-11. For the 12th-

grade classes, it is clear that more than half of cocaine initiation takes place in grades 10 through 12 rather than in earlier grades, in contrast to the pattern for marijuana in most years. Further, most of the increase in cocaine use between 1976 and 1980 occurred in grades 11 and 12, not in lower grades. After 1980, lifetime prevalence of cocaine generally remained level through 1986, after which it showed a significant decline among 11th and 12th graders, with less of a decline in the lower grades. Lifetime prevalence rates leveled briefly after 1992 in the upper grades, but began to rise in grades 6, 7, and 8 after 1990 (see lower panel, Figure 6-11). In the upper grades, lifetime prevalence of use began to rise after 1994 or 1995, but declined in recent years—at least until the class of 2003—before leveling. As seems to be true for a number of drugs, the increase that occurred in the early and mid-1990s suggests a cohort effect for cocaine use, following a long period of what could best be described as secular trends.

- Questions on grade of initial use for **crack** were first asked of the class of 1987. The retrospective data show the lifetime prevalence of crack falling after 1986 at all grade levels in which there was any appreciable use, stabilizing, then inching up in the mid-1990s (see Figure 6-12). Rates reported by 8th graders showed a sharper rise in the 7th and 8th grades in the 1990s, beginning after 1992, before leveling in the late 1990s (see lower panel, Figure 6-12). More recent classes have shown a gradual decrease in crack initiation at various grades. Again, the pattern of change seems to be a cohort effect, with changes first occurring at earlier ages and then echoing in subsequent years up the age spectrum.
- The use of **powdered cocaine** fell more sharply than crack in the late 1980s (see Figure 6-13), again with the decline occurring mostly in grades 11 and 12. Cocaine powder also showed a sharper increase in use than crack during the 1990s among 12th graders, before leveling after 1998. Eighth-grade use also rose sharply in the 1990s, and then showed some declines in the more recent classes.
- Though somewhat difficult to discern in Figure 6-14, the **heroin** lifetime prevalence figures for grades 9 through 12 began declining in the mid-1970s, leveled by 1979, and showed no clear evidence of reversal until the 1990s. After about 1991, lifetime prevalence of use increased at all grade levels above 6th grade. Beginning in 1996 or 1997, however, use leveled or declined in all grades for which data are available. Seventh and 8th graders were the first to show the most recent decline.
- The lifetime prevalence of use of **narcotics other than heroin** remained relatively flat at all grade levels from the mid-1970s through 1990, with the class of 1991 showing the first evidence of a decline when they reached the upper grades (see Figure 6-15). Rates then leveled briefly before showing some increase in the mid-1990s, particularly in the upper grades. The class of 1998 was the first to show a leveling for this class of drugs, as well as a number of the other drugs, as they passed through the various grade levels. Little change has been observed in the initiation of narcotics other than heroin until the class of 2002 showed a slight upturn. (Note that the dashed lines beginning in 2002 are based on data from a modified question that continued to ask about the use of “any narcotics other than heroin,” but with the additional examples of Vicodin and OxyContin.

This wording change had the effect of shifting self-reported use up some in the upper grades.) Since the class of 2003, initiation rates have remained fairly stable.

- The lifetime prevalence statistics for *amphetamines* showed a sharp rise in the late 1970s at virtually all grade levels (see Figure 6-16). As stated earlier, we believe that some, perhaps most, of this upturn was artifactual in the sense that the inappropriate inclusion of nonprescription amphetamines by 12th-grade respondents accounted for much of it. However, regardless of the cause, beginning about 1979 a clear upward secular trend was observed across all cohorts and grade levels. The data from revised questions showed the class of 1983 as the first to give an indication of a reversal of this trend. The data from the classes of 1982–1992, based on an improved wording of the question, suggest that the use of amphetamines leveled around 1982 and thereafter fell appreciably in grades 9 through 12. The classes of 1993 and 1994 showed a slight upturn in use in the upper grades as amphetamine use, along with the use of a number of other illicit drugs, increased. Since then the initiation rates of amphetamine use have fluctuated, but have not risen overall—in fact, they have declined, particularly after the class of 2002 passed through secondary school. The recent surveys of 8th and 10th graders show that some upturn also occurred after 1992. The lower panel of Figure 6-16 shows an increase in grade 7, as well, which began after 1991 and lasted through 1995 (and 1996 for grade 8). Once again, the pattern of change in the 1990s is consistent with a cohort-related change. Eighth graders have shown a gradual decline in initiation for some years, reflected primarily in their 7th- and 8th-grade retrospective lifetime prevalence rates. Again, cohort effects seem to be at work here.
- As shown in the figures for the two subclasses of sedatives—methaqualone versus most other sedatives (including barbiturates)—their trend stories have been quite different (see Figures 6-17 and 6-18). Lifetime prevalence of most *sedative (barbiturate)* use fell sharply for the upper grade levels for all classes from 1974 or 1975 until the late 1970s; the lower grade levels showed some increase in the late 1970s (perhaps reflecting the advent of some look-alike, barbiturate-type drugs); in the mid-1980s, most grade levels resumed the decline in barbiturate (sedative) initiation. In the late 1980s there was a leveling of the rates, followed by an upturn by the mid-1990s at all grade levels. This upturn seems to have leveled off with the class of 2005 as they passed through the different grades. (A slightly revised question wording was introduced in 2004, making a 2003-to-2004 comparison difficult.) Since the class of 2005, some decline has been observed in the upper three grades as subsequent cohorts have passed through them. Despite the long-term increase in initiation rates for what we now call sedatives (barbiturates) (because a number of nonbarbiturate sedatives are now in use), the rates attained are not as high as they were in the mid-1970s (Figure 6-17).
- During the mid-1970s, *methaqualone* use started to fall off at about the same time as barbiturate use in nearly all grade levels, but it dropped rather little and then flattened (see Figure 6-18). Between 1978 and 1981, there was a moderate resurgence in methaqualone use at all grade levels; but after 1982 there emerged a sharp decline at all grade levels to near zero by the early 1990s. Only a very slight increase in initiation occurred in the mid-1990s, and use has fallen back some since then.

- Lifetime prevalence of *tranquilizer* use (Figure 6-19) also began to decline at all grade levels in the mid-1970s. It is noteworthy that, as with sedatives (barbiturates), the overall decline in tranquilizer use has been considerably greater in the upper grade levels. Overall, it would appear that the tranquilizer trend lines have been following a course similar to those of sedatives (barbiturates). So far, the curves are different only in that tranquilizer use continued a steady decline among 11th and 12th graders after 1977 (at least through the class of 1990), while the decline in sedative (barbiturate) use was interrupted in the early 1980s. After 1992, lifetime prevalence of tranquilizer use rose slightly in grades 8 and above; then the classes of 2000 and 2001 reported slightly decreased initiation rates, and those rates have been fairly level since then. Retrospective data reported by 8th graders show little in the way of clear or consistent changes. In 2001, when Xanax was added to the list of examples in the question text, reported use in all grades increased. Since the class of 2001, tranquilizer use (based on the modified question) has shown little systematic change among 12th- and 8th-grade classes.
- The trend lines for lifetime prevalence of *alcohol* use (Figure 6-20) were mostly flat from the early 1970s to the late 1980s, reflecting little change over more than a decade. Subsequent classes (1989–1993) tended to show slight declines in their initiation rates as they passed through grades 8 and up. Because the results from the classes of 1993 through 2007 are based on the revised question about alcohol use—which qualifies the question with the phrase “more than just a few sips”—these data are not strictly comparable to earlier trend data. These more recent classes of 12th graders continued to show a very gradual decline in initiation rates through 2006. The lower panel of Figure 6-20, based on data from 8th-grade respondents, also shows a gradual, steady decline in lifetime prevalence of use from the late 1980s through 2008 for most grades.

In 1986, we began asking 12th graders about the first time they drank “enough to feel drunk or very high.” Figure 6-21, which presents trends in the lifetime prevalence of having *been drunk*, shows patterns fairly similar to those for lifetime prevalence of alcohol use. The classes of 1990 through 1993 showed modest declines in this behavior at all grade levels above 6th grade for a few years, before leveling. Further gradual decline across grades 9 through 12 has been seen beginning with the class of 2002. Responses from 8th graders reveal a gradual decline in lifetime incidence of drunkenness in the lower grades throughout most of the 1990s and into the early 2000s, consistent with their gradually increasing rate of abstention mentioned previously.

- In 1986 we began asking 12th graders: “When did you smoke your first cigarette?” (A question about daily smoking has been included since the beginning of the study in 1975.) Figure 6-22 shows that, for the class of 1986, the rate of *cigarette smoking* initiation was quite high (20%) by grade 6 (i.e., in 1980).<sup>69</sup> In subsequent classes, this measure fell gradually but substantially; only 8% of the class of 2008 reported having

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<sup>69</sup>Because of the predominance of cohort effects in the trends in cigarette use, we discuss the findings here mostly in terms of graduating classes instead of calendar years.

initiated cigarette smoking by the end of 6th grade (i.e., in 2002)—less than half the proportion observed in 1980.

Substantial additional initiation occurs in grades 7 and 8, as can be seen in the wide gap between the bottom two lines in the upper panel of Figure 6-22. Over 40% of the class of 1986 had smoked a cigarette by the end of 8th grade, compared to 20% of the class of 2008 (i.e., by 2004). Initiation rates declined very gradually in the classes of 1986 through 1992 from grade 6 onward. The classes of 1994 through 1999 showed some increase in initiation rates when these students were in grades 10 through 12, but only the classes of 1997 through 1999 showed an increase in the lower grades. This altered pattern is suggestive of a change in the underlying phenomenon, from the traditional cohort effect for cigarettes to some secular trending, as well. The data gathered from 8th-grade respondents also show some increase in lifetime prevalence from when they were first surveyed in 1991 through 1996; again, this increase was not observable when they were at lower grade levels—in fact, the lower grades showed some fall-off in initiation rates in the late 1980s and early 1990s.

The important decline in teen smoking that began in the mid-1990s can be seen in the lower panel of Figure 6-22, which is based on responses from 8th-grade students. This figure also shows evidence of a secular trend, in that the sharp decline since 1996 at 8th grade is not much reflected in the retrospective data for earlier grades until the 8th-grade class of 2002. After a sharp drop, the rate of decline in smoking initiation has decelerated in 8th grade over the past five classes.

- Figure 6-23 presents the other smoking measure contained in the study, one included since the study's inception in 1975: lifetime prevalence of cigarette smoking “on a daily basis.” It shows that lifetime initiation rates for *daily smoking* began to peak at the lower grade levels in the early to mid-1970s. This peaking did not become apparent among 12th graders until some years later. In essence, these changes largely represent cohort effects. Differences between cohorts in smoking at early ages tend to endure in later life, most likely due to the addictive properties of nicotine. The decline seen in the early 1970s among younger teens may well have reflected the effects of the Federal Communications Commission's fairness doctrine, which had the effect of greatly diminishing cigarette advertising on television for some while, followed by the Congressional ban on all cigarette advertising on television and radio starting in January, 1971.

The classes of 1982 and 1983 showed some leveling of the previous decline in daily smoking, but the classes of 1984 through 1986 resumed the decline for the earlier grade levels. The data from the classes of 1987 and 1988 showed another pause in the decline. As we have said, from the class of 1975 through the class of 1992, the predominant pattern of change observed was that of a cohort effect.<sup>70</sup> Each peak or valley in the prevalence-of-use rate at a lower grade was echoed at higher grades as the class cohorts

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<sup>70</sup>This interpretation has been documented through multivariate analyses designed to separate and quantify secular trends, age effects, and cohort effects. See O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1988). Period, age, and cohort effects on substance use among young Americans: A decade of change, 1976–1986. *American Journal of Public Health*, 78, 1315–1321.

passed through them. After 1992, however, a somewhat different pattern emerged—one more akin to a secular trend—in which all of these age groups moved in parallel during the same historical period. Figure 6-23 shows that all grade levels above 6th grade displayed a sharp increase in initiation rates from 1991 or 1992 through 1995 or 1996. The lower grades seem to be exhibiting the resumption of a cohort-effect pattern starting with the 8th-grade class of 1997. It should be noted that the presence of a secular trend effect does not necessarily negate the presence of a cohort effect; the two can co-occur. The class of 1998 was the first to show a leveling, when they were in the lower grades, and then a decline by the time they reached the upper grades. In the past few years, a downward secular trend has been observed in all grades, though a decelerating one, with 8th graders in 2007 showing a sharper decline. We stated last year that this greater drop would need to be confirmed in the 2008 class of 8th graders, because we were somewhat skeptical of its validity. The 2008 data did, indeed, show some further drop among 8th graders, though the decline appears to be decelerating again.

- Questions about the initiation of *smokeless tobacco* use (Figure 6-24) were first asked of 12th graders in the class of 1986. These prevalence questions were dropped from the 1990 and 1991 surveys of 12th graders, but reinstated in 1992. The 1986–1989 survey questions were located near the end of one questionnaire form; the questions since 1992 have been relocated so they appear early in the form. As a result, estimates based on two versions are not strictly comparable, and it may be misleading, therefore, to connect the two trend lines. Both sets of trend lines, however, clearly demonstrate that smokeless tobacco use, like cigarette use, also shows strong evidence of enduring cohort effects.

Smokeless tobacco use appears to have increased prior to the class of 1986, but the trend reversed in the 12th-grade classes following 1987 (see Figure 6-24). The decline seemed to continue in the classes of 1992 through 2004. The lower panel in Figure 6-24 generally shows a pattern of continuing decline for 8th graders at the lower grade levels in more recent years, although the curve shows a pause in the decline among the 8th-grade classes of 1993 to 1996, as occurred among cohorts of 12th graders in those years, suggesting that an upward secular trend may have been occurring during that period, parallel to the one for cigarettes. In the 12th-grade cohorts of 2001 through 2004, a sharp decline in smokeless tobacco initiation is observed in all grades as these students progressed through them; that decline continued, albeit less sharply, until the class of 2007, which showed a leveling. Unfortunately, the data from the 2008 eighth and 12th graders both show some increase in use.

- Because data on grade of first use for *steroids* were not gathered prior to 1989, the trend information is relatively limited (Figure 6-25). However, the data do show some of the pattern characteristics of cohort change predominating over secular trends. Initiation of use declined some between the classes of 1989 and 1991, followed by a leveling.<sup>71</sup> Only a small amount of variation in initiation occurred at 8th and 10th grades. The data from both 8th- and 12th-grade students, however, show an increase in use in the late 1990s—an increase that looks more like a secular trend than a cohort effect. This would be

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<sup>71</sup>Note that the scale in Figure 6-25 has been enlarged considerably because the rates are so low. This has the effect of making small variations look larger.

consistent with our interpretation that knowledge that a famous baseball player had used androstenedione became widespread in 1998 and served to stimulate steroid use among 8th and 10th graders. The data from 8th graders generally show declines in use, at least in grades 7 and 8, since the 8th-grade class of 2000 passed through these grades. Twelfth-grade classes since the class of 2002 likewise have shown a fairly steady decline in initiation following a prior period of increase.

**TABLE 6-1**  
**Incidence of Use of Various Drugs by Grade**  
**8th Graders, 2008**  
 (Entries are percentages.)

Grade in which drug was first used:	Marijuana	Inhalants	Hallucinogens	LSD	Hallucinogens other than LSD	Cocaine	Crack	Cocaine Powder	Heroin	Amphetamines	Tanquilizers	Alcohol	Beer Drunk	Cigarettes	Cigarettes (Daily) <sup>a</sup>	Smokeless Tobacco	Steroids
4th (or below)	1.0	3.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.5	0.4	5.7	1.1	4.4	0.2	1.6	0.2
5th	1.1	2.6	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	4.8	1.2	3.4	0.4	1.1	0.1
6th	2.6	3.2	0.6	0.3	0.4	0.5	0.3	0.4	0.3	1.1	0.8	8.6	2.9	4.4	0.8	1.9	0.2
7th	5.1	3.9	1.2	0.6	0.9	1.0	0.7	0.8	0.4	2.8	1.0	12.1	6.5	5.6	1.4	2.9	0.4
8th	4.8	2.8	1.1	0.8	0.9	1.1	0.7	0.9	0.3	2.3	1.5	7.7	6.3	2.7	1.1	2.3	0.5
Never used	85.4	84.3	96.7	98.1	97.5	97.0	98.0	97.6	98.6	93.2	96.1	61.1	82.0	79.5	96.0	90.2	98.6

Source. The Monitoring the Future study, the University of Michigan.

Notes. All drugs were asked about in all four forms except for the following: hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco, which were asked about in two forms only. The approximate *N* for all forms was 15,700.

<sup>a</sup>Data based on the percentage of regular smokers (ever).

**TABLE 6-2**  
**Incidence of Use of Various Drugs by Grade**  
**10th Graders, 2008**

(Entries are percentages.)

Grade in which drug was first used:	Marijuana	Inhalants	Hallucinogens	LSD	Hallucinogens other than LSD	Crack	Cocaine	Cocaine Powder	Heroin	Amphetamines	Tanquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) <sup>a</sup>	Smokeless Tobacco	Steroids
4th (or below)	0.7	1.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	3.6	0.7	3.6	0.2	1.0	0.1
5th	0.8	0.9	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	2.3	0.6	2.2	0.2	0.5	0.0
6th	2.0	1.9	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	5.1	1.8	3.3	0.6	0.8	0.1
7th	3.9	2.4	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.7	0.3	9.1	3.9	5.2	0.9	1.3	0.1
8th	6.6	2.6	1.2	0.5	0.9	0.7	0.6	0.1	1.4	1.4	1.2	14.5	8.6	6.1	1.4	2.2	0.3
9th	9.8	2.4	2.2	1.0	2.0	1.8	0.9	1.6	0.4	4.1	2.8	16.6	13.7	7.7	2.7	4.0	0.4
10th	6.0	1.1	1.4	0.7	1.3	1.4	0.4	1.3	0.3	2.2	2.0	7.1	7.9	3.6	1.8	2.4	0.4
Never used	70.1	87.2	94.5	97.4	95.2	98.0	96.0	98.8	98.8	91.0	93.2	41.7	62.8	68.3	92.2	87.8	98.6

Source: The Monitoring the Future study, the University of Michigan.

Notes: All drugs were asked about in all four forms except for the following: hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco, which were asked about in two forms only. The approximate *N* for all forms was 15,100.

<sup>a</sup>Data based on the percentage of regular smokers (ever).

**TABLE 6-3**  
**Incidence of Use of Various Drugs by Grade**  
**12th Graders, 2008**  
 (Entries are percentages.)

Grade in which drug was first used:	Any Illicit Drug	Any Illicit Drug other than Marijuana	Marijuana	Inhalants <sup>a</sup>	Amyl/Butyl Nitrites	Halucinogens <sup>b</sup>	LSD	Halucinogens other than LSD	Cocaine	Crack	Other Forms of Cocaine	Narcotics other than Heroin	Amphetamines <sup>b</sup>	Sedatives (Barbiturates)	Methaqualone	Tanquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) <sup>c</sup>	Smokeless Tobacco	Steroids		
6th (or below)	2.9	1.3	2.4	1.5	0.1	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.6	0.5	0.8	0.2	0.4	5.5	2.1	7.6	0.7	1.7	0.2	
7th-8th <sup>d</sup>	10.5	3.2	9.2	3.2	0.1	1.1	0.6	0.9	0.5	0.6	0.8	0.0	1.1	1.2	1.4	0.1	1.1	16.8	9.8	12.1	2.3	2.4	0.1	
9th	10.5	4.6	9.4	1.6	0.0	1.1	0.5	1.0	0.4	1.0	0.5	1.1	0.2	2.9	2.1	1.7	0.1	1.6	16.0	13.1	8.9	2.9	3.0	0.3
10th	9.8	4.9	9.2	1.7	0.1	1.5	0.7	1.3	0.2	1.7	0.5	2.0	0.2	2.2	2.0	1.6	0.1	2.2	14.8	12.6	6.4	2.8	3.4	0.2
11th	8.1	6.1	7.3	0.7	0.1	2.6	1.0	2.4	0.2	1.9	0.5	1.2	0.3	3.8	3.0	1.4	0.0	1.9	11.6	10.7	5.9	2.8	2.7	0.5
12th	5.6	4.7	5.1	1.2	0.1	2.1	1.0	1.9	0.3	1.5	0.4	1.0	0.2	2.5	1.8	1.7	0.2	1.7	7.3	6.4	3.7	2.1	2.3	0.8
Never used	52.6	75.1	57.4	90.1	99.4	91.3	96.0	92.2	98.2	92.8	97.2	93.5	98.7	86.8	89.5	91.5	99.2	91.1	28.1	45.3	55.3	86.4	84.4	97.8

Source. The Monitoring the Future study, the University of Michigan.

Notes. Percentages are based on two of the six forms (N = approximately 4,700) except for cocaine, crack, and cigarettes, for which percentages are based on three of the six forms (N = approximately 7,000); and inhalan forms of cocaine, and steroids, for which percentages are based on one of the six forms (N = approximately 2,300).

<sup>a</sup>Unadjusted for known underreporting of certain drugs. See text for details.

<sup>b</sup>Based on the data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

<sup>c</sup>Data based on the percentage of regular smokers (ever).

<sup>d</sup>For 12th graders, the question about grade of initiation of use originally asked about initiation in "grade 7 or grade 8." In later years, the question asked about initiation in each grade separately. In Figures 6-1 through 6-25, it contain data for the initiation of use in 7th and 8th grades combined.

**TABLE 6-4**  
**Incidence of Use of Various Drugs: A Comparison of Responses**  
**from 8th, 10th, and 12th Graders, 2008**

Grade level of respondents:	Percentage who used by end of 6th grade																
	Marijuana <sup>a</sup>	Inhalants <sup>a</sup>	Hallucinogens <sup>a</sup>	LSD	Hallucinogens other than LSD	Cocaine	Crack	Other Cocaine	Heroin	Amphetamines <sup>b</sup>	Tranquilizers	Alcohol	Been Drunk	Cigarettes	Cigarettes (Daily) <sup>c</sup>	Smokeless Tobacco	Steroids
8th	4.6	9.0	1.0	0.6	0.7	0.9	0.6	0.7	0.6	1.8	1.3	19.1	5.1	12.2	1.4	4.6	0.5
10th	3.5	4.3	0.4	0.2	0.4	0.3	0.2	0.2	0.1	0.5	0.4	11.0	3.1	9.1	0.9	2.3	0.2
12th	2.4	1.5	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.5	0.4	5.5	2.1	7.6	0.7	1.7	0.2
	Percentage who used by end of 8th grade																
8th	14.6	15.7	3.3	1.9	2.5	3.0	2.0	2.4	1.4	6.8	3.9	38.9	18.0	20.5	4.0	9.8	1.4
10th	14.0	9.3	1.9	0.9	1.5	1.3	0.7	1.1	0.4	2.6	2.0	34.6	15.6	20.5	3.3	5.8	0.6
12th	11.6	4.7	1.4	0.8	1.1	1.2	0.9	1.0	0.3	1.6	1.5	22.3	11.9	19.7	3.0	4.2	0.3
	Percentage who used by end of 10th grade																
10th	29.9	12.8	5.5	2.6	4.8	4.5	2.0	4.0	1.2	9.0	6.8	58.3	37.2	31.7	7.8	12.2	1.4
12th	30.2	8.0	4.0	2.0	3.4	3.9	1.9	4.2	0.7	5.8	5.4	53.0	37.7	35.0	8.7	10.6	0.8

Source. The Monitoring the Future study, the University of Michigan.

Notes. For 8th and 10th graders, all drugs were asked about in all four forms except for the following: hallucinogens, LSD, hallucinogens other than LSD, heroin, amphetamines, tranquilizers, and smokeless tobacco, which were asked about in two forms only. The approximate *N* for all forms for 8th graders was 15,700 and for 10th graders was 15,100.

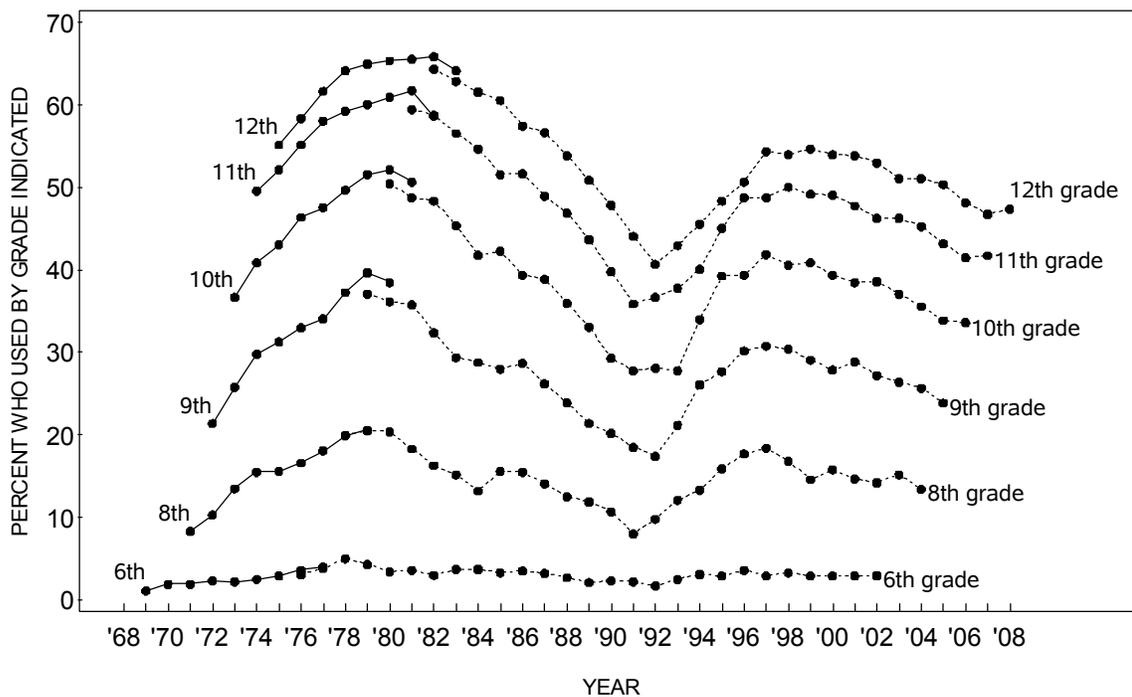
For 12th graders, percentages are based on two of six forms (*N* = approximately 4,700) except for cocaine, crack, and cigarettes, for which percentages are based on three of six forms (*N* = approximately 7,000); and inhalants, nitrites, PCP, other forms of cocaine, and steroids, for which percentages are based on one of six forms (*N* = approximately 2,300).

<sup>a</sup>Unadjusted for underreporting of certain drugs. See text for details.

<sup>b</sup>Based on the data from the revised question, which attempts to exclude the inappropriate reporting of nonprescription amphetamines.

<sup>c</sup>Data based on the percentage of regular smokers (ever).

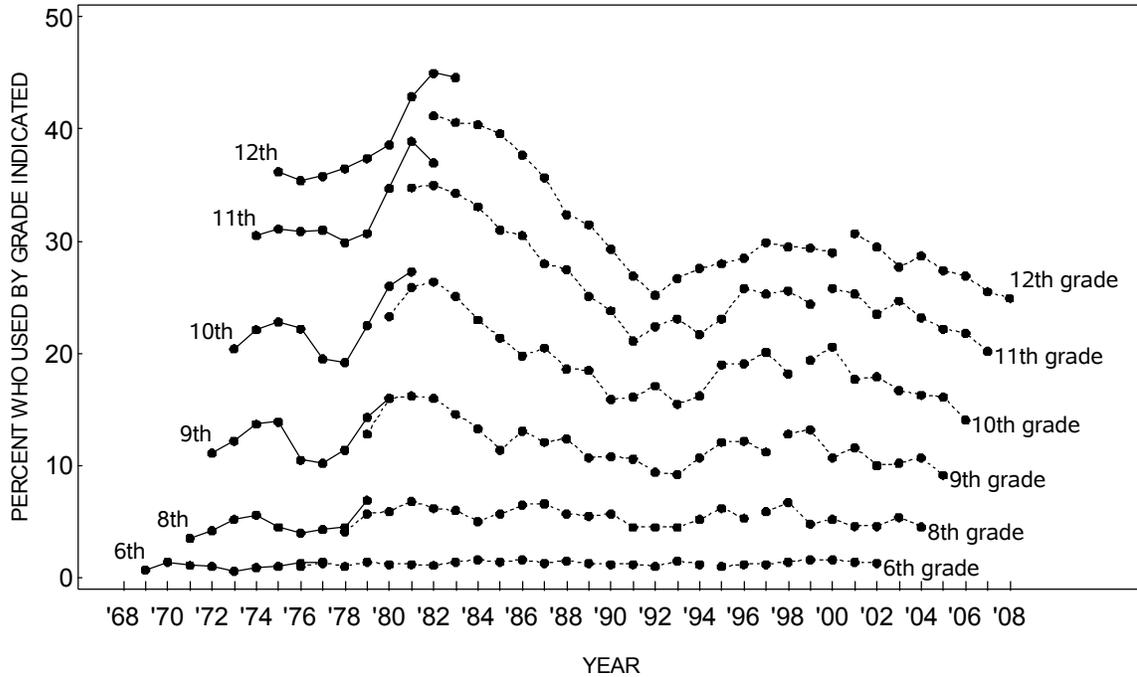
**FIGURE 6-1**  
**Use of Any Illicit Drug: Trends in Lifetime**  
**Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



Source: The Monitoring the Future study, the University of Michigan.

Note: The dashed lines connect percentages that result if nonprescription stimulants are excluded.

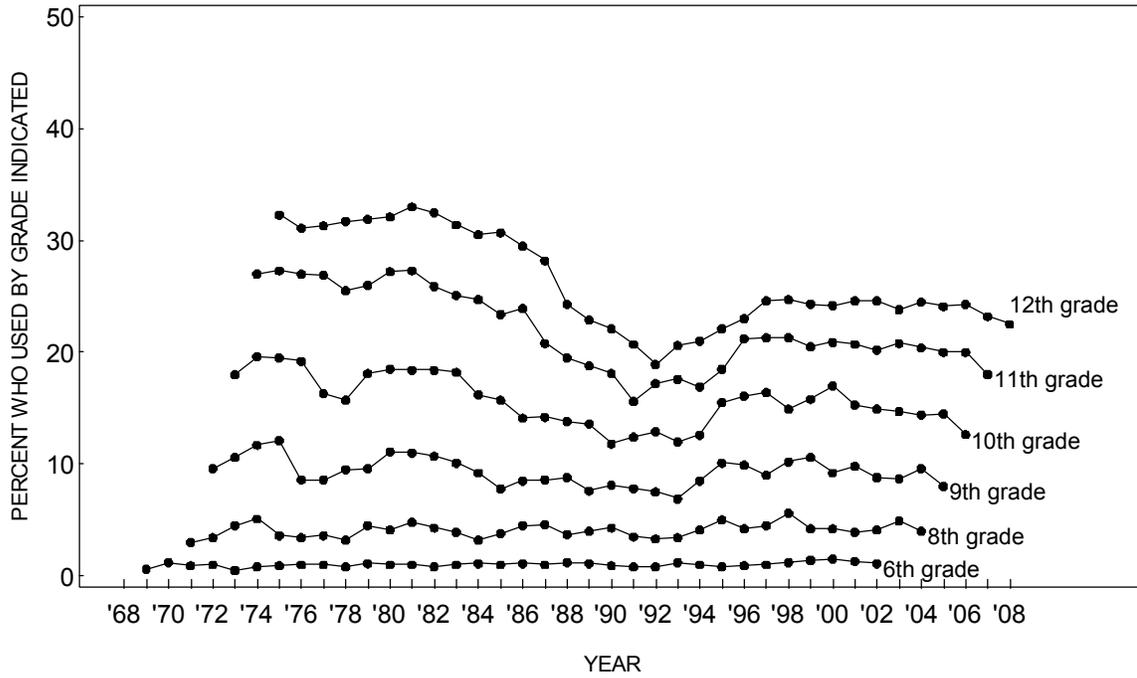
**FIGURE 6-2**  
**Use of Any Illicit Drug other than Marijuana:**  
**Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



*Source.* The Monitoring the Future study, the University of Michigan.

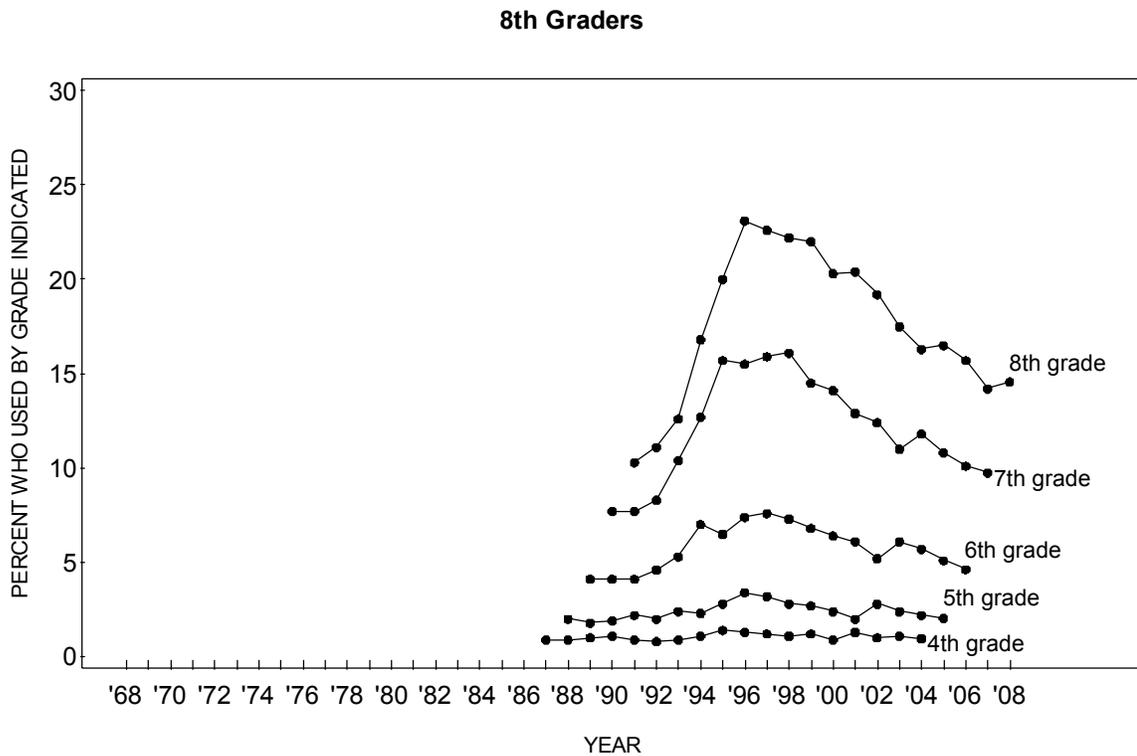
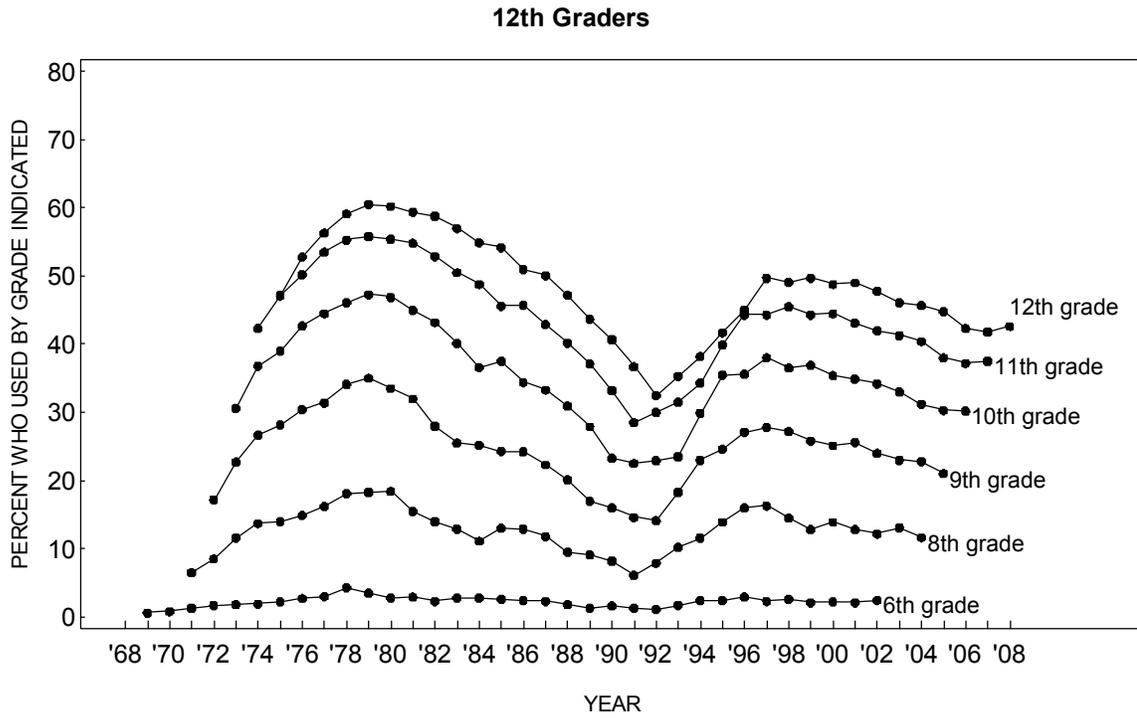
*Notes.* The dashed lines connect percentages that result if nonprescription stimulants are excluded. Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are affected by these changes. Beginning in 2001, the dashed lines also connect percentages that are based on data from the revised questions.

**FIGURE 6-3**  
**Use of Any Illicit Drug other than Marijuana or Amphetamines:**  
**Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



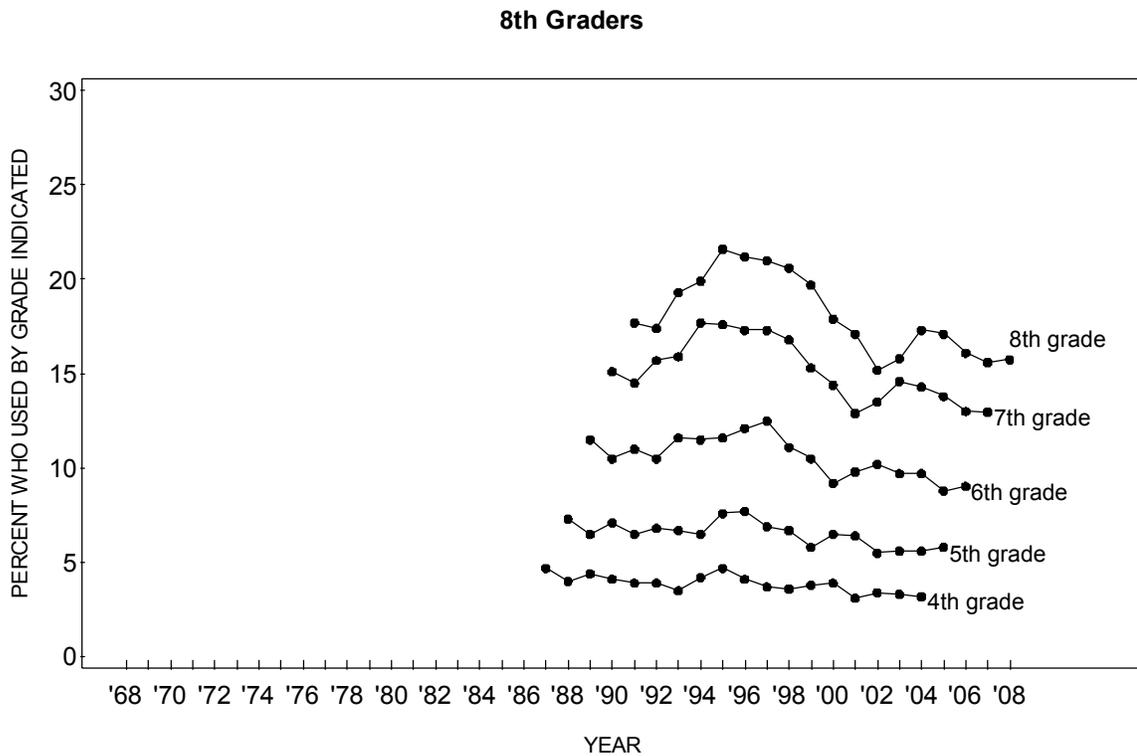
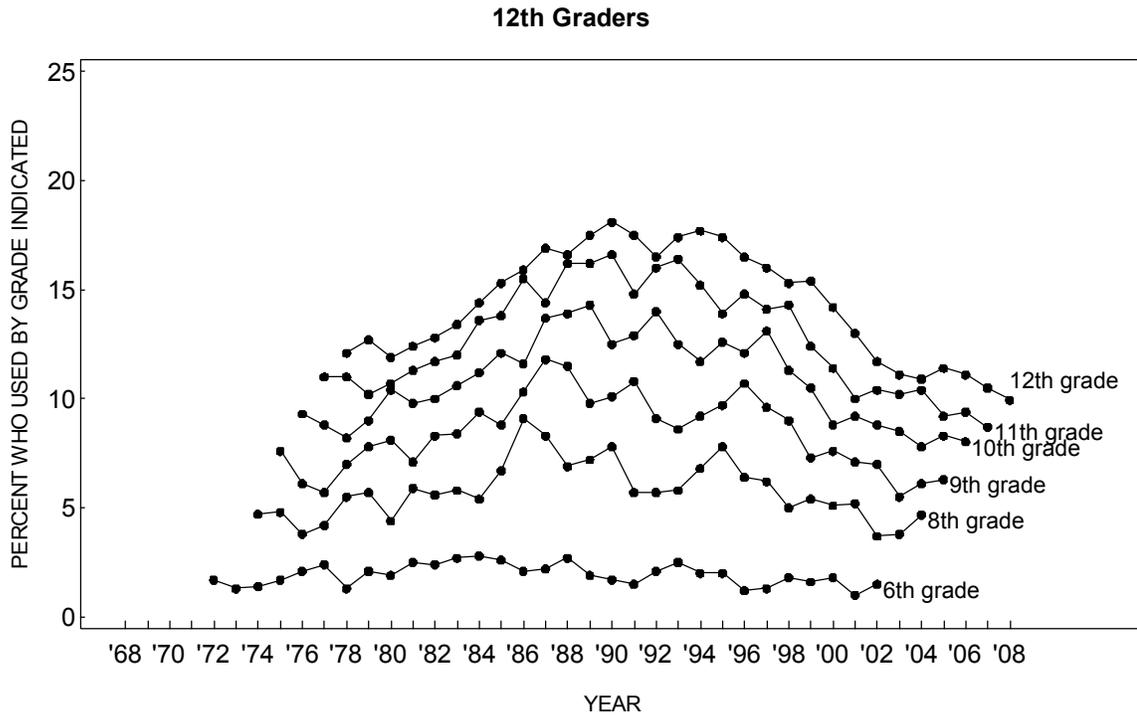
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-4**  
**Marijuana: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



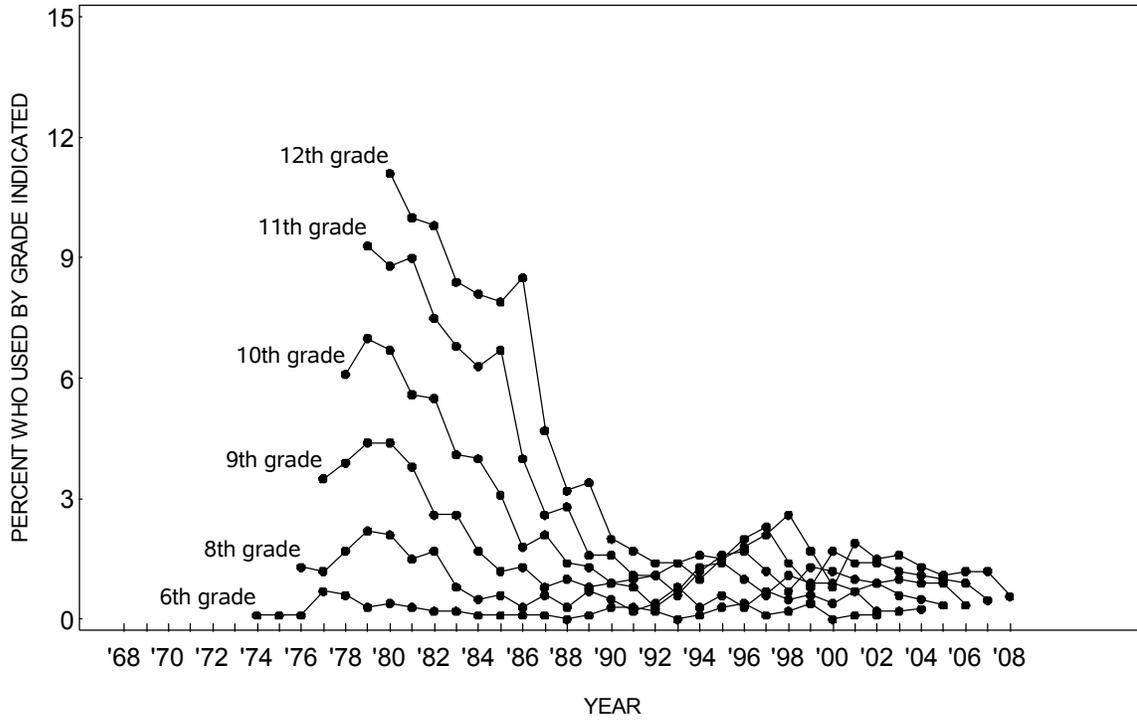
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-5**  
**Inhalants: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



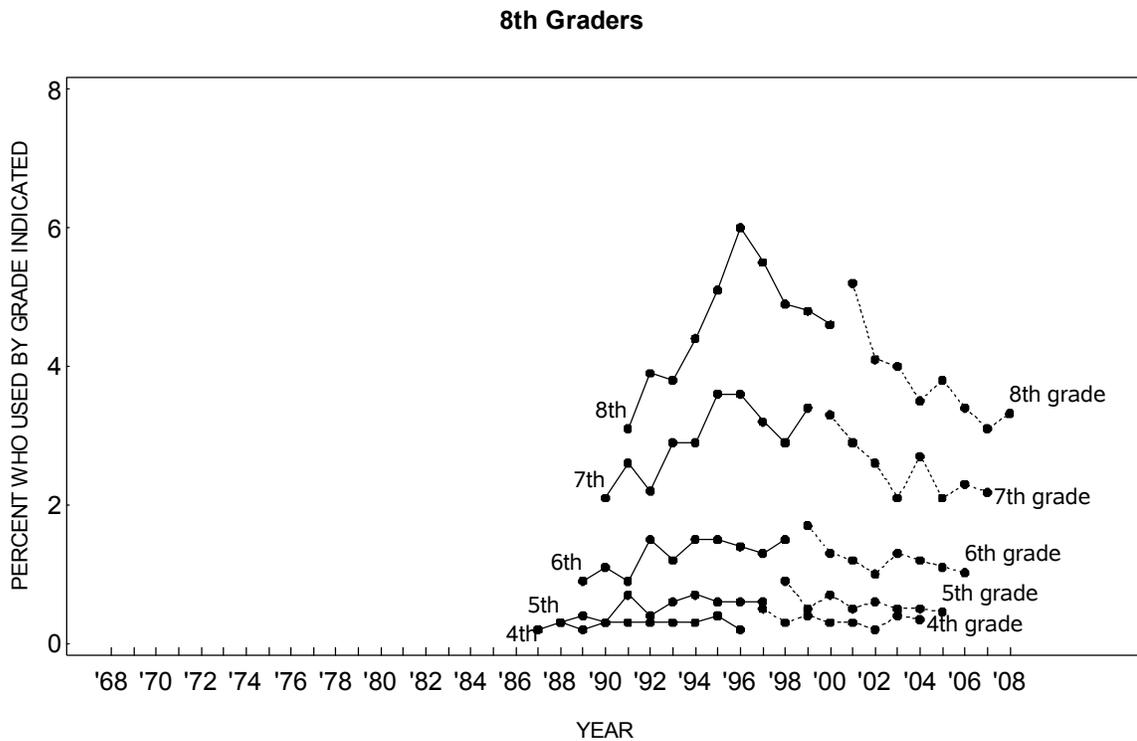
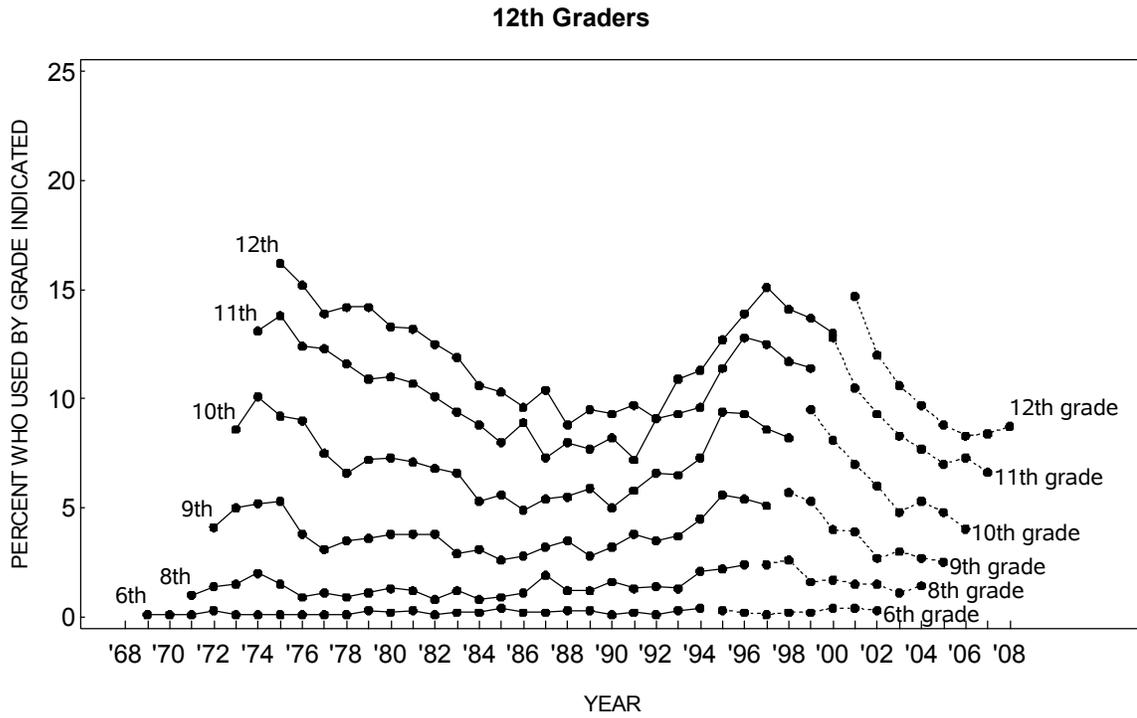
Source: The Monitoring the Future study, the University of Michigan.

**FIGURE 6-6**  
**Nitrites: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



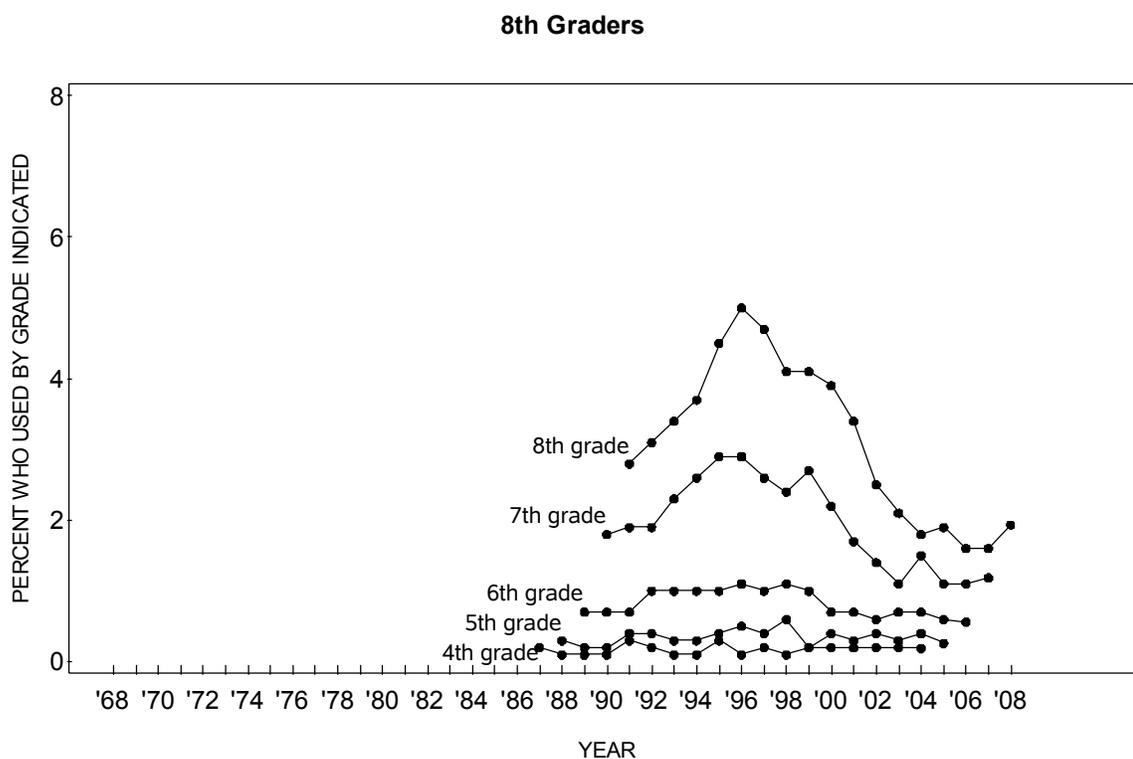
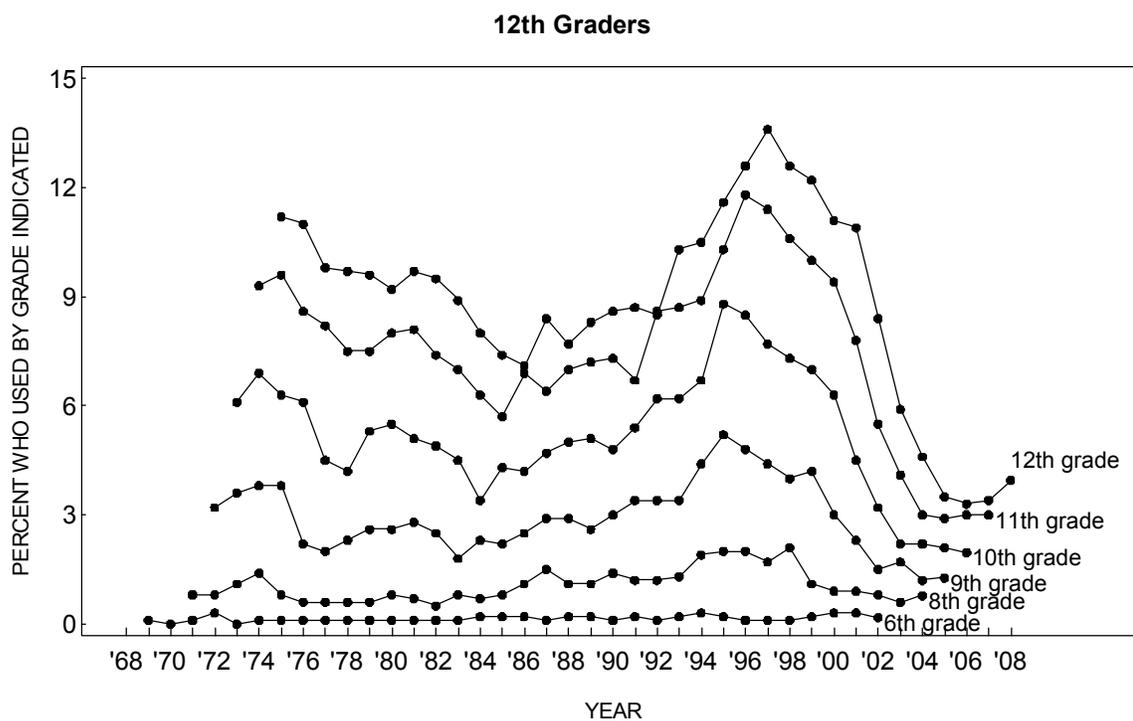
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-7**  
**Hallucinogens: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



*Source.* The Monitoring the Future study, the University of Michigan.  
*Notes.* Hallucinogens unadjusted for any underreporting of PCP are graphed here. Beginning in 2001, revised sets of questions on other hallucinogen use were introduced. Data for hallucinogens are affected by these changes. The dashed lines connect percentages that are based on data from the revised questions.

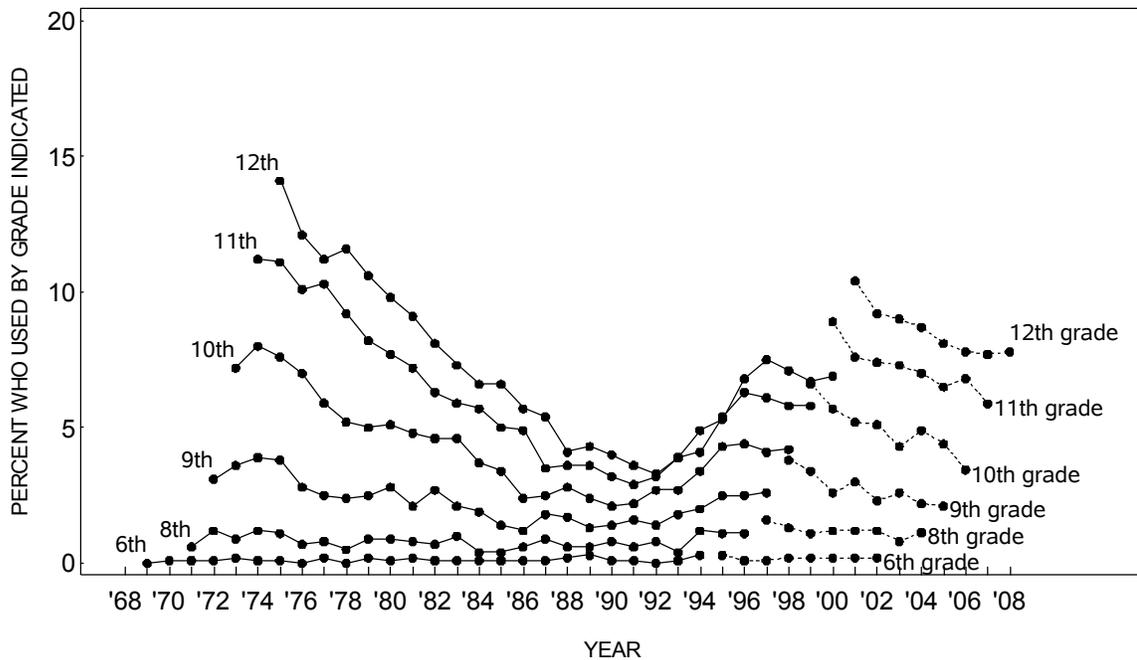
**FIGURE 6-8**  
**LSD: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



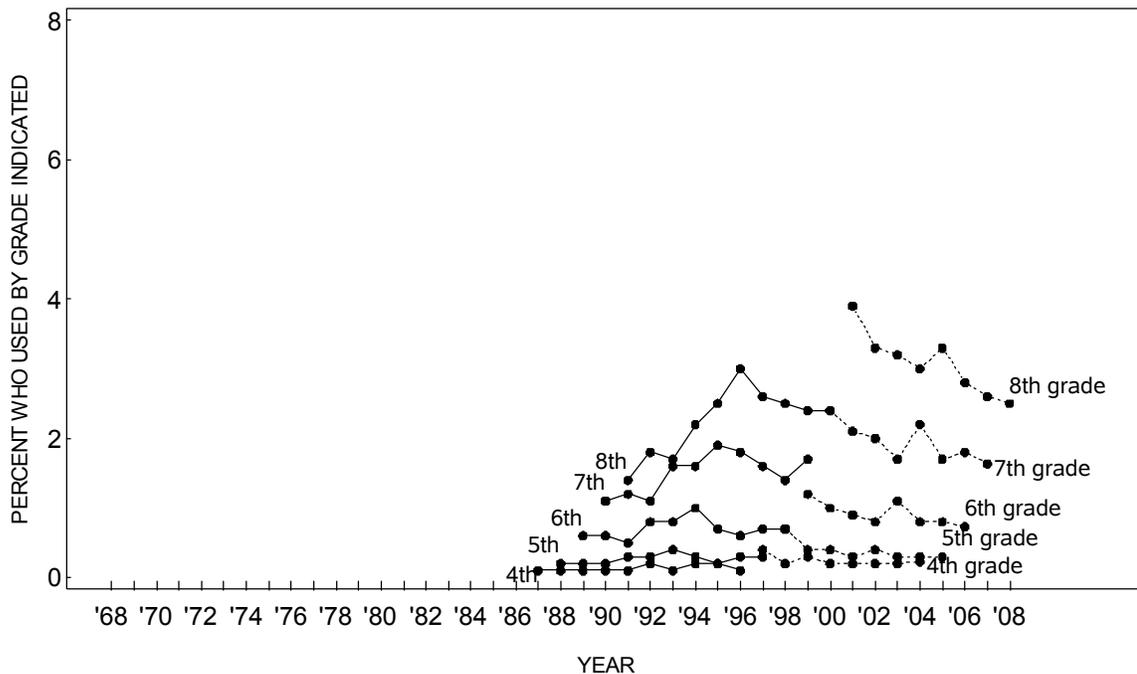
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-9**  
**Hallucinogens other than LSD: Trends in Lifetime Prevalence**  
**at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**

**12th Graders**



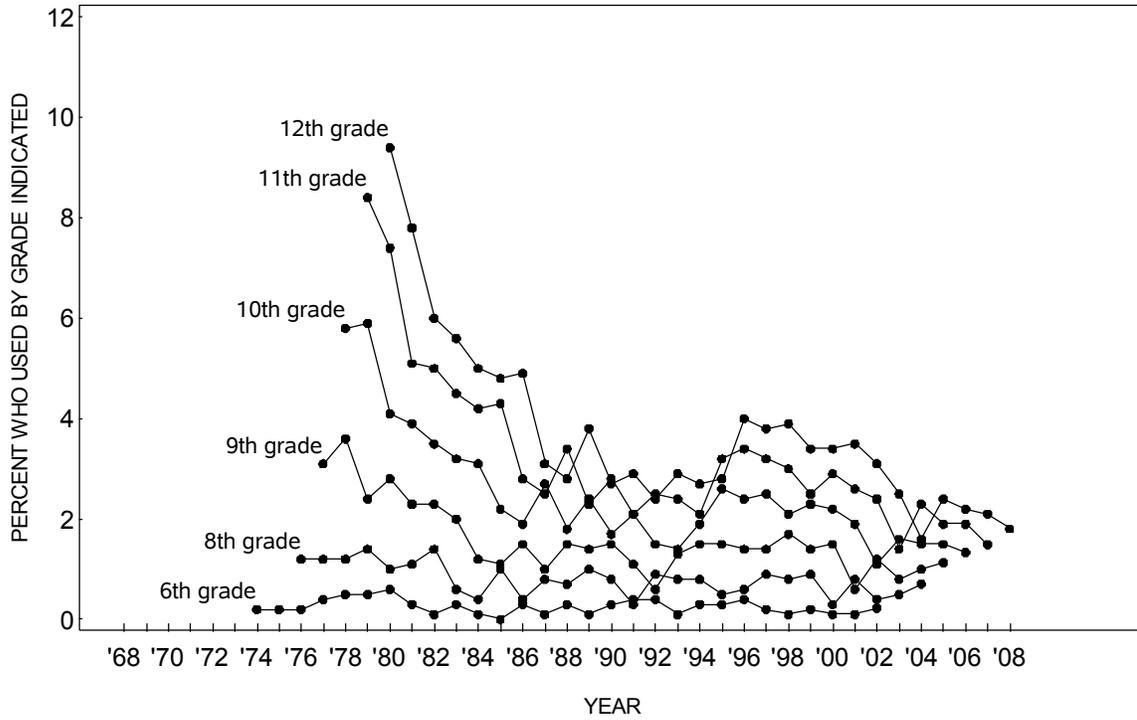
**8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

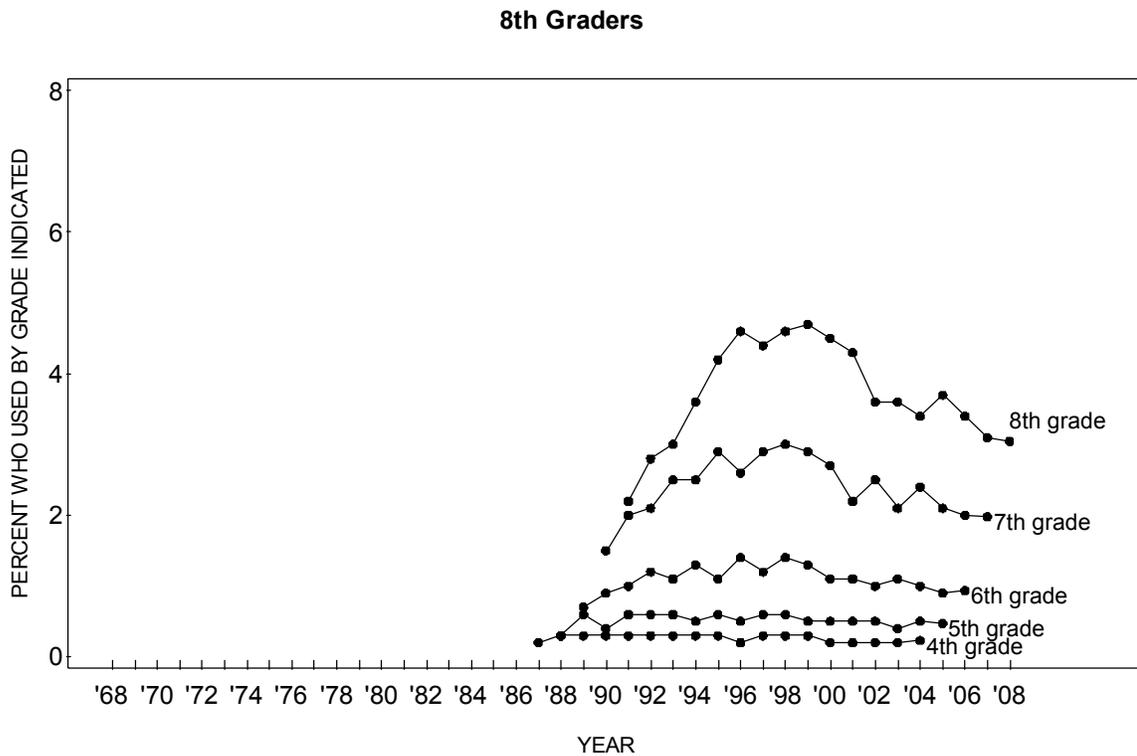
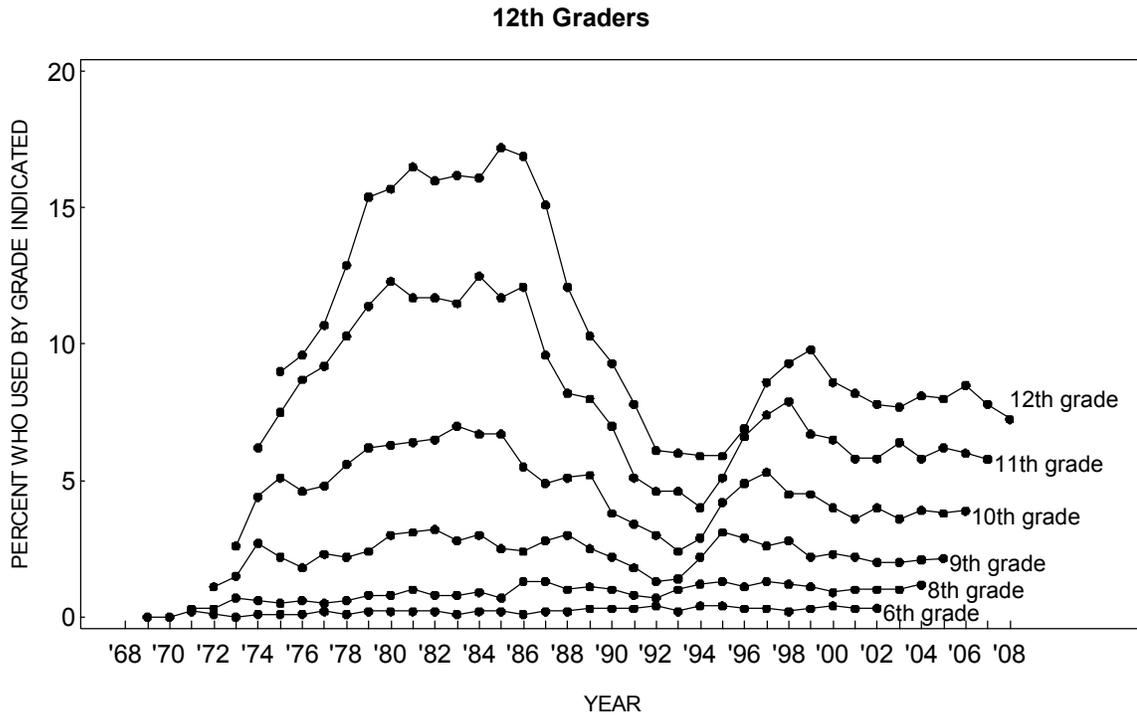
Notes: Beginning in 2001, revised sets of questions on "hallucinogens other than LSD" was introduced, in which "other psychedelics" was changed to "other hallucinogens" and "shrooms" was added to the list of examples. The dashed lines connect percentages based on data from the revised questions.

**FIGURE 6-10**  
**PCP: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



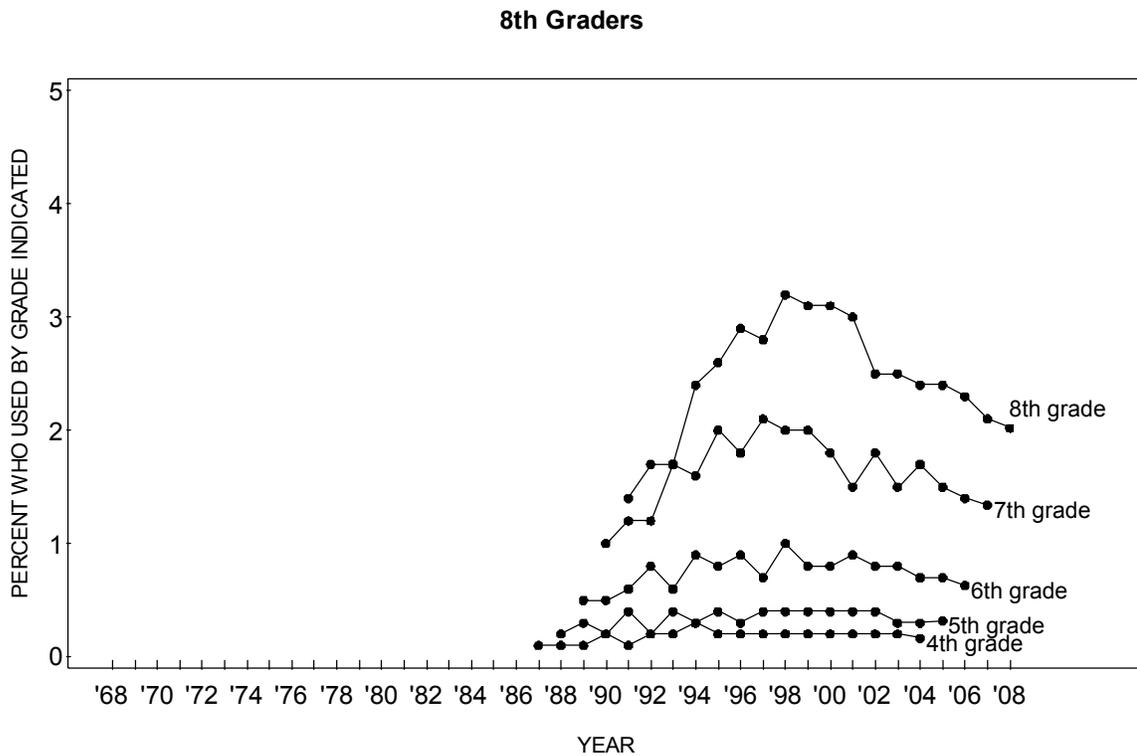
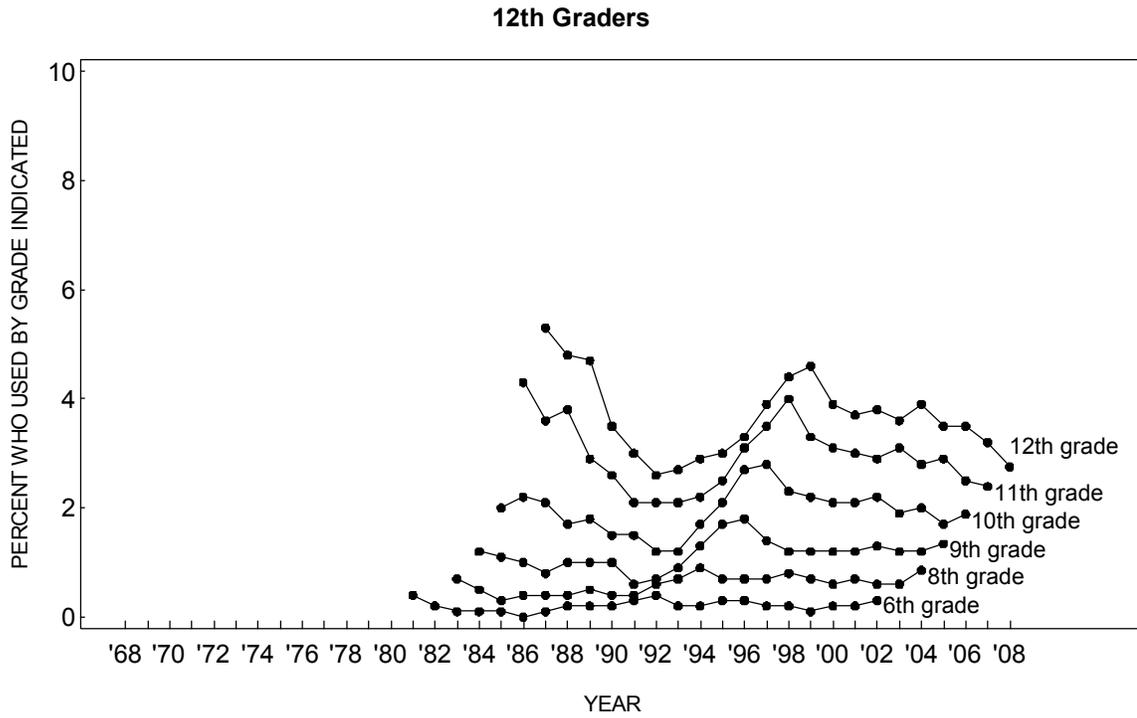
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-11**  
**Cocaine: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

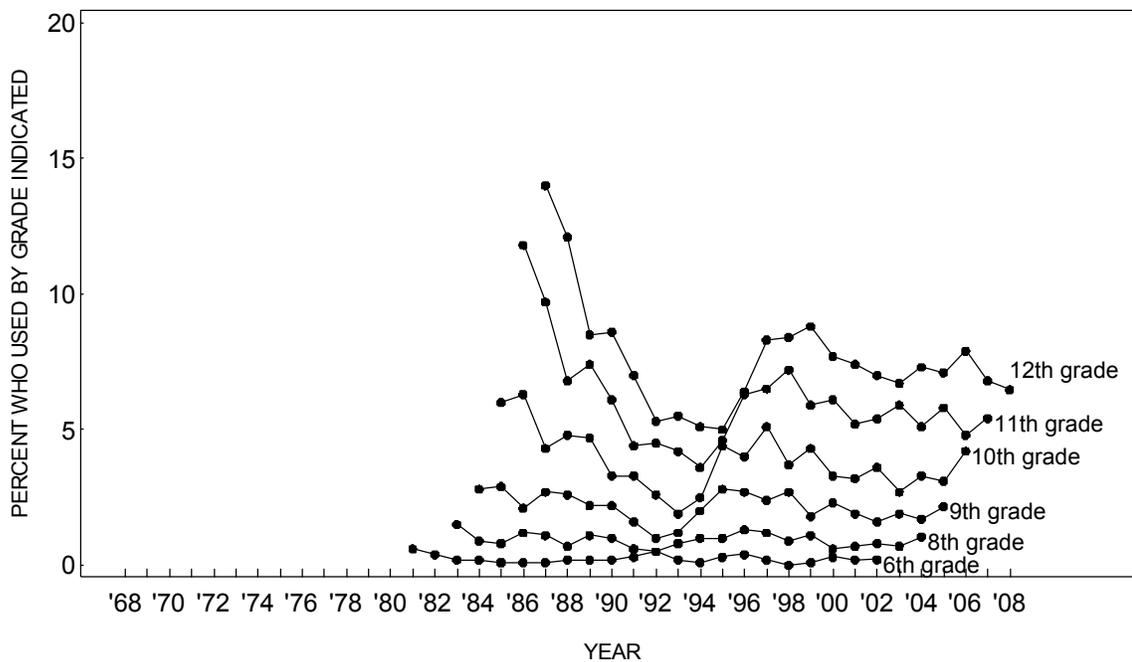
**FIGURE 6-12**  
**Crack Cocaine: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



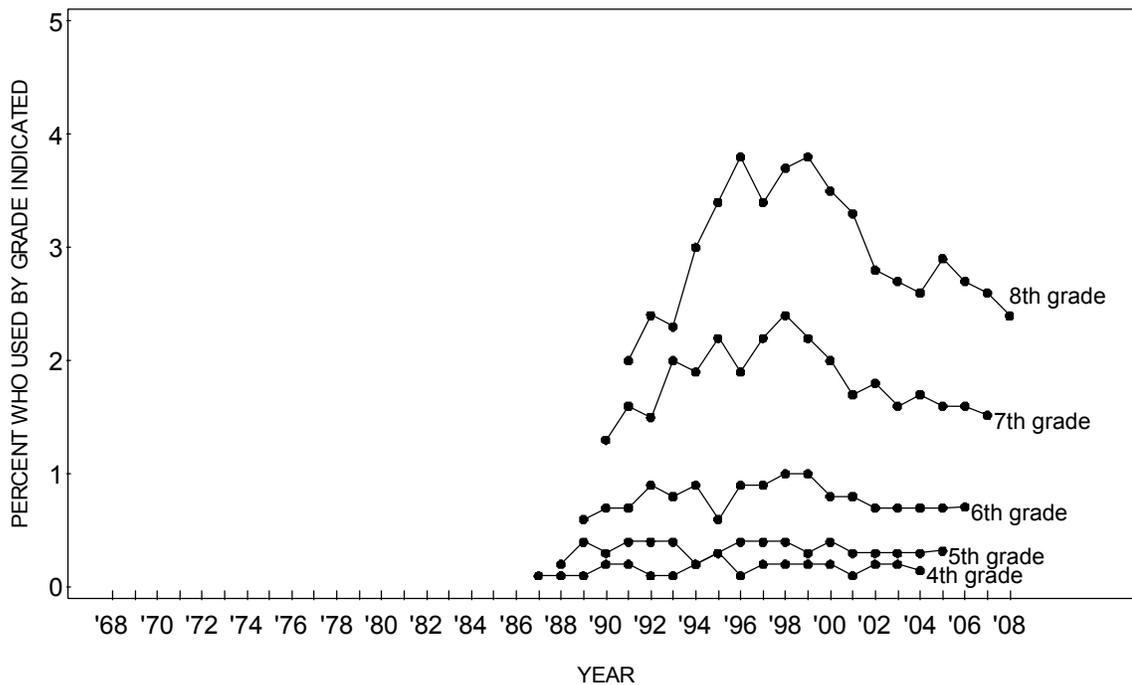
Source: The Monitoring the Future study, the University of Michigan.

**FIGURE 6-13**  
**Other Forms of Cocaine: Trends in Lifetime Prevalence**  
**at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**

**12th Graders**

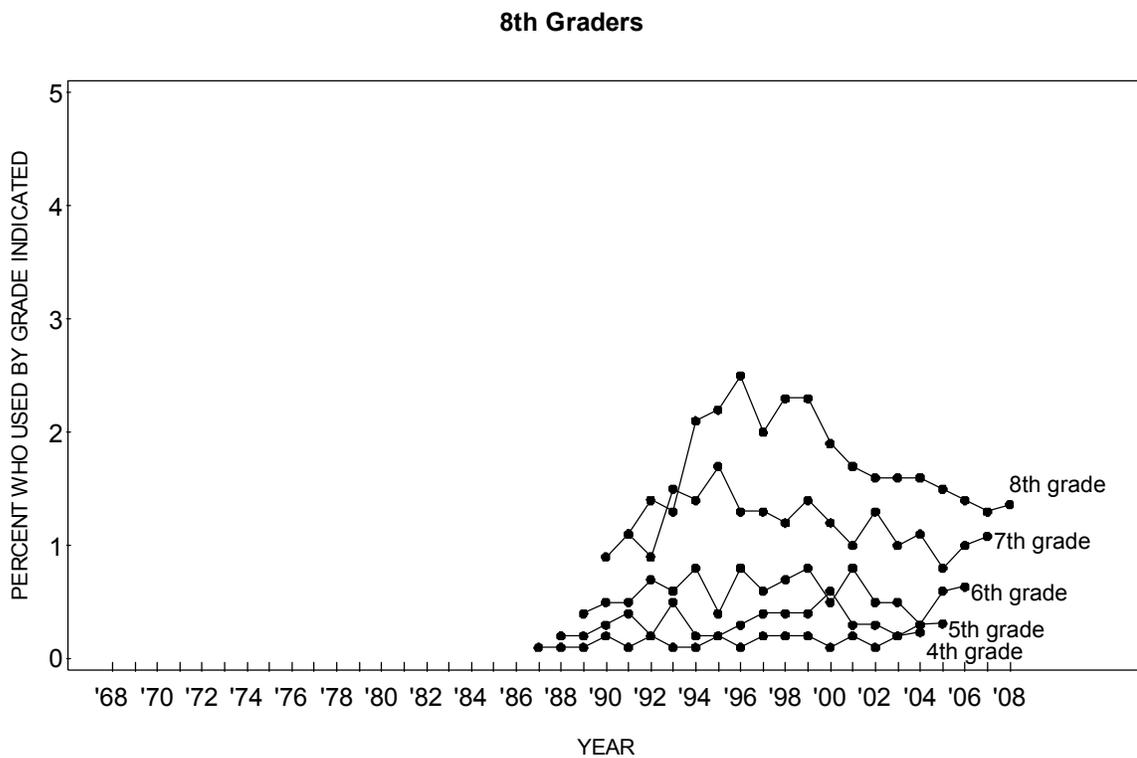
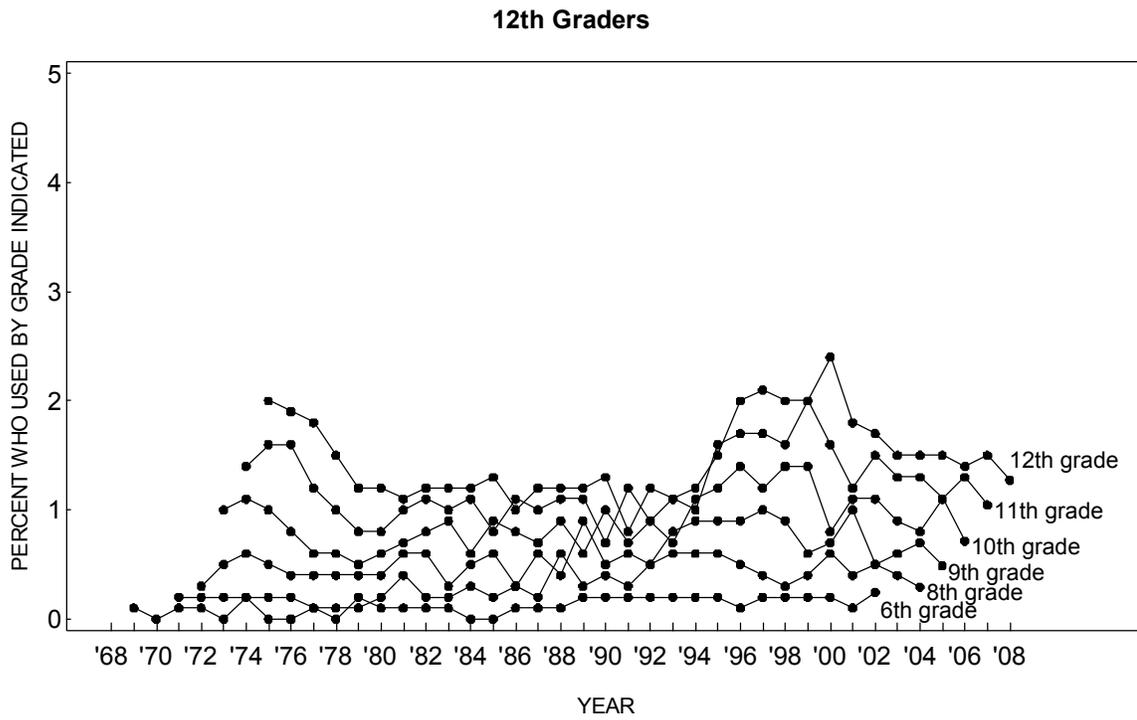


**8th Graders**



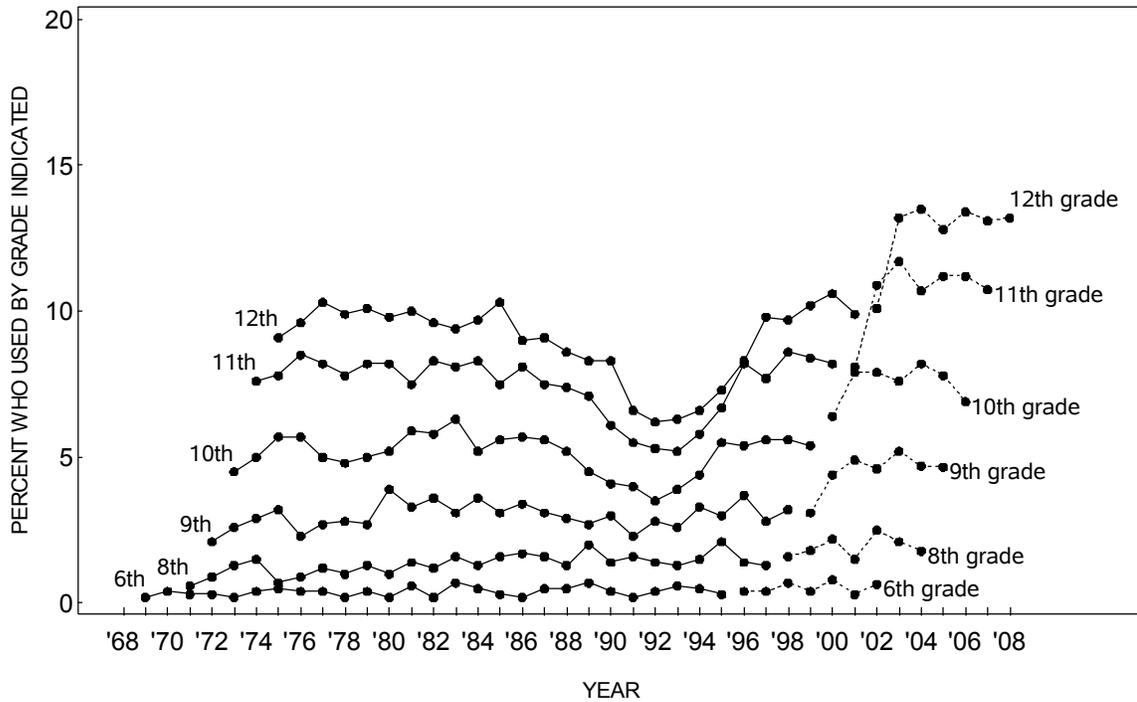
Source: The Monitoring the Future study, the University of Michigan.

**FIGURE 6-14**  
**Heroin: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

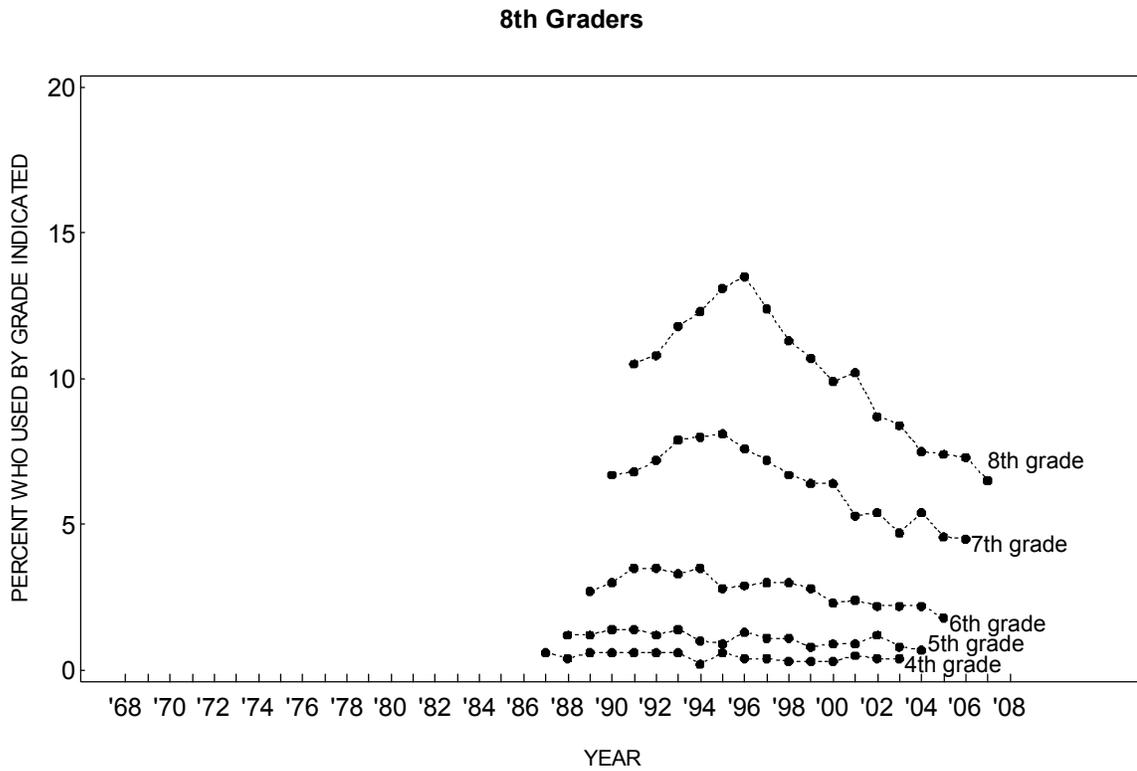
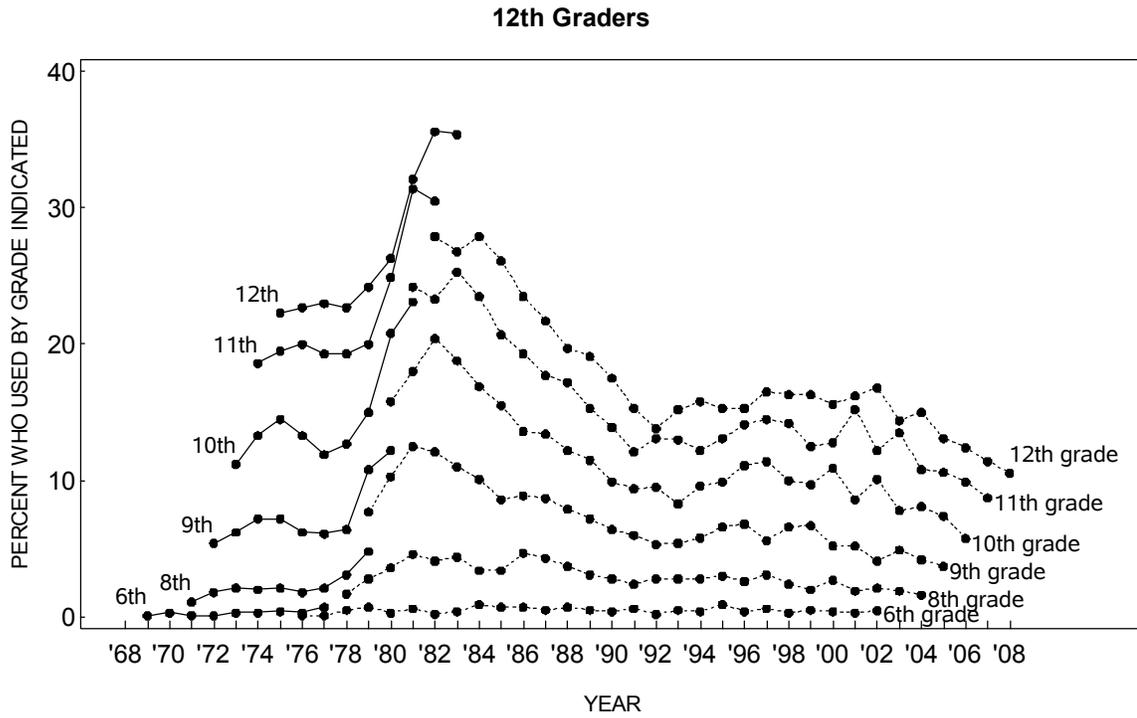
**FIGURE 6-15**  
**Narcotics other than Heroin: Trends in Lifetime Prevalence**  
**at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* Beginning in 2002, a revised set of questions on "narcotics other than heroin" was introduced. The dashed lines connect percentages that are based on data from the revised questions.

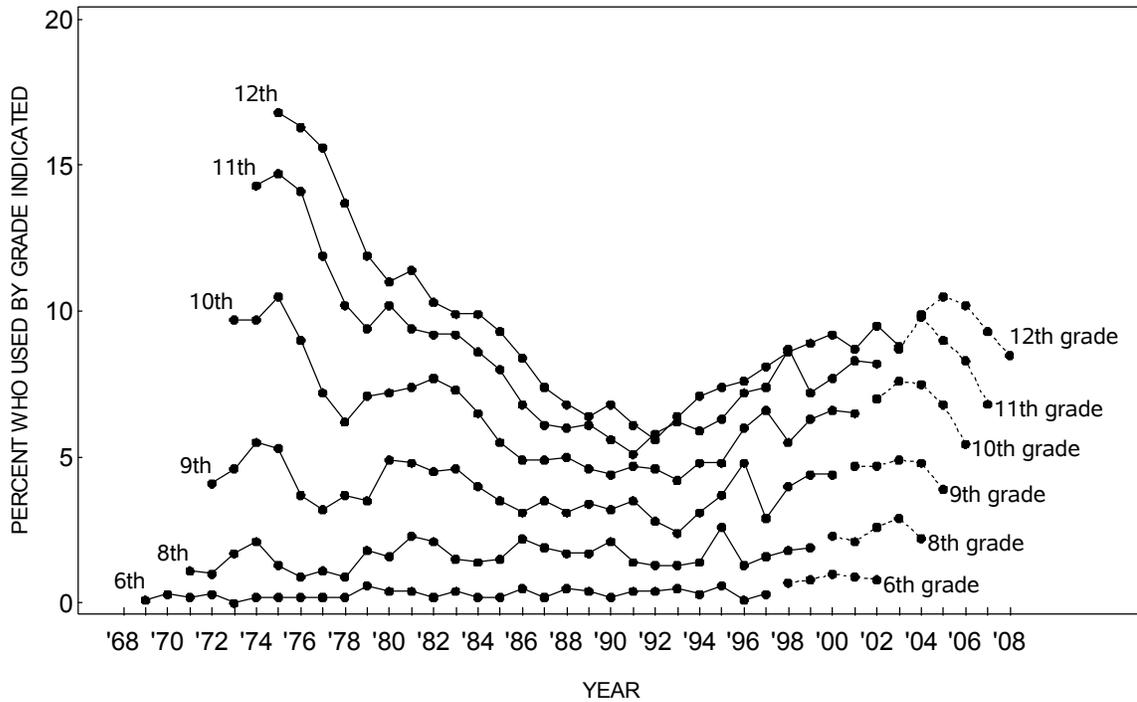
**FIGURE 6-16**  
**Amphetamines: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

Note: The dashed lines connect percentages that result if nonprescription stimulants are excluded.

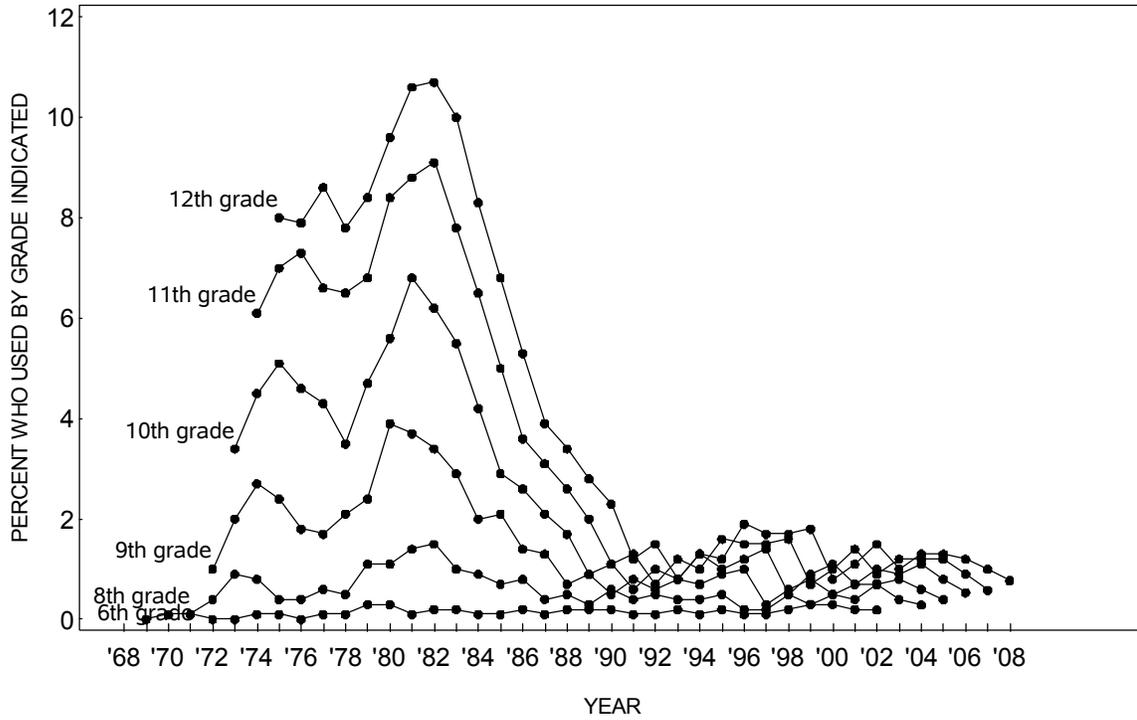
**FIGURE 6-17**  
**Sedatives (Barbiturates): Trends in Lifetime Prevalence**  
**at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



*Source.* The Monitoring the Future study, the University of Michigan.

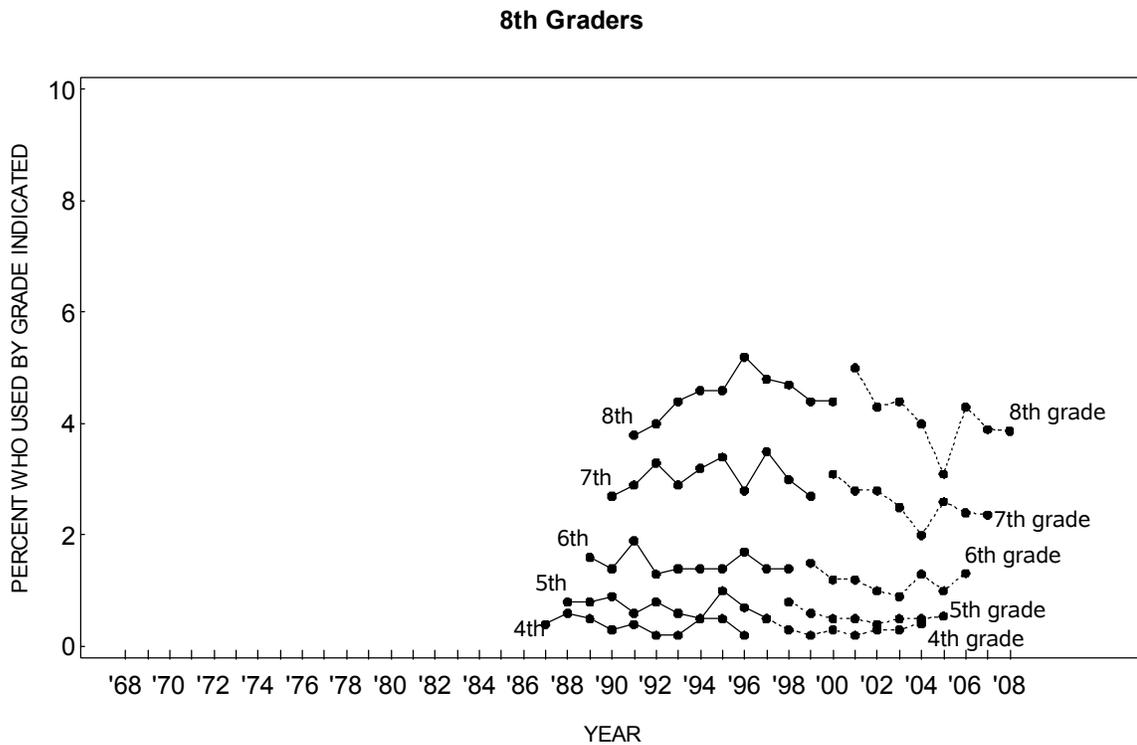
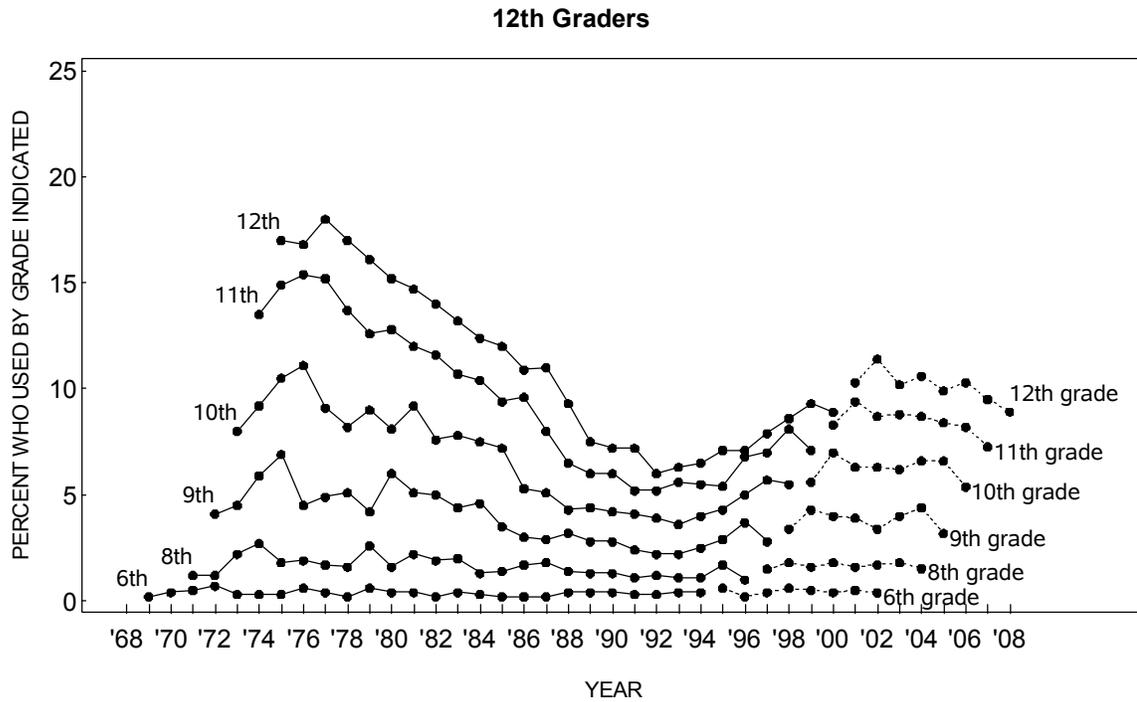
*Note.* Beginning in 2004, a revised set of questions on sedatives (barbiturates) was introduced. The dashed lines connect percentages that are based on data from the revised questions.

**FIGURE 6-18**  
**Methaqualone: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th Graders**



Source. The Monitoring the Future study, the University of Michigan.

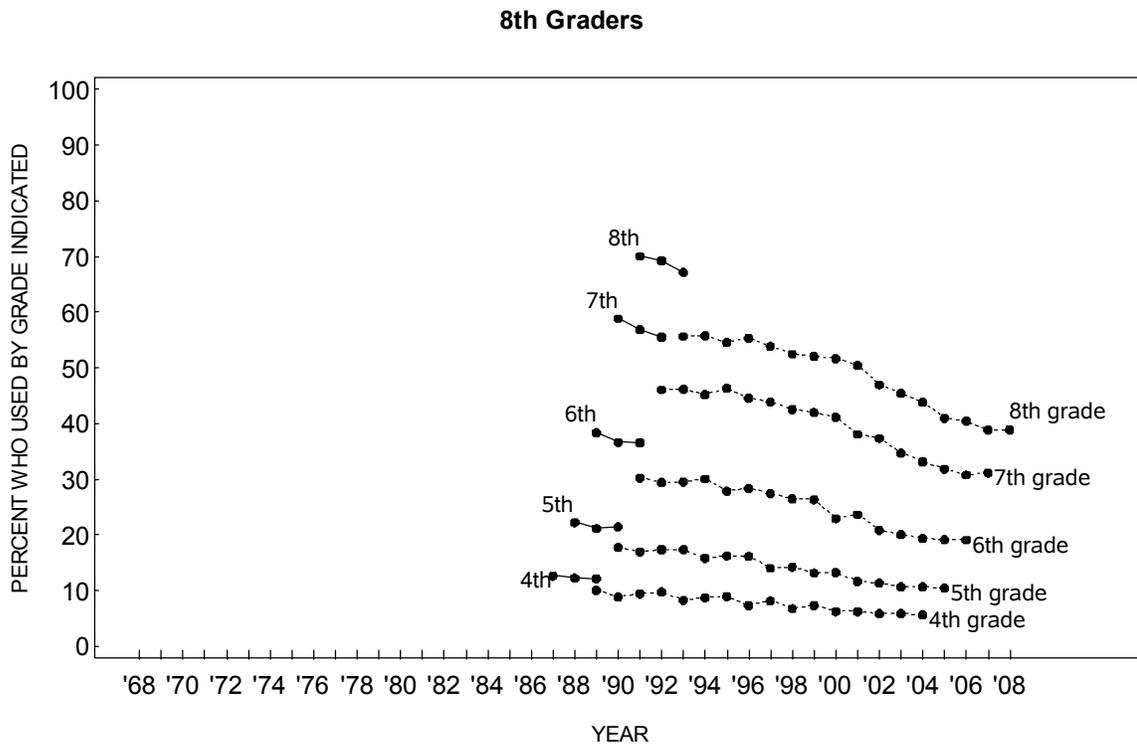
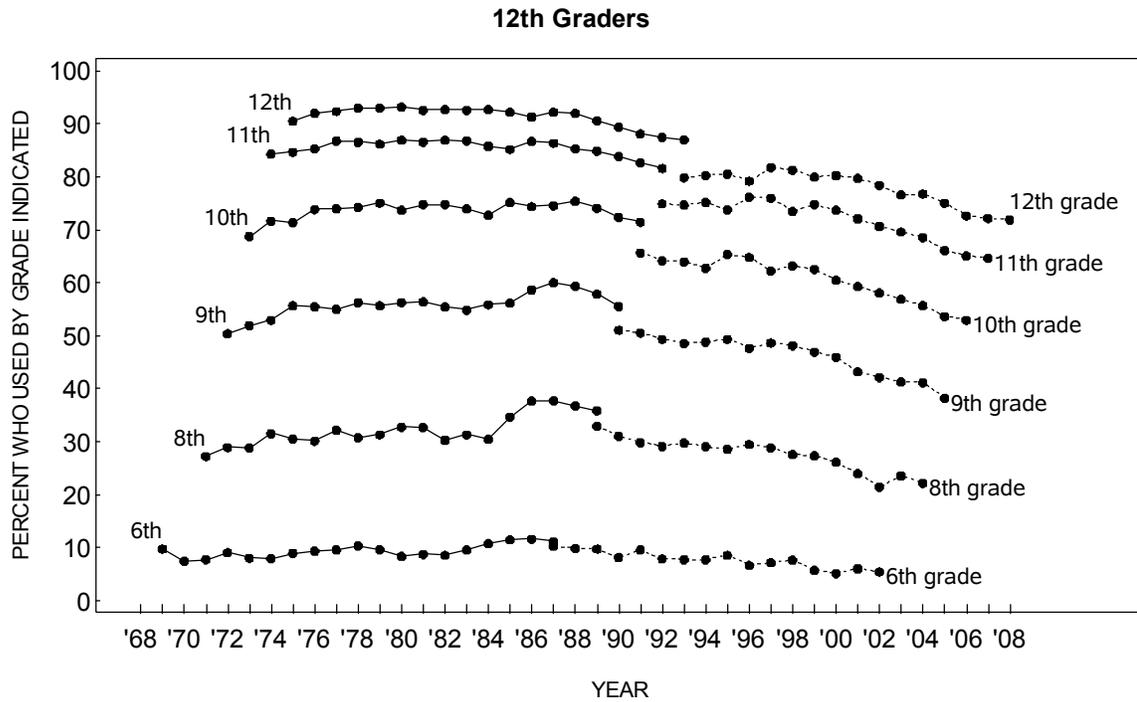
**FIGURE 6-19**  
**Tranquilizers: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

Note: Beginning in 2001, a revised set of questions on tranquilizer use was introduced, in which Xanax replaced Miltown in the list of examples. The dashed lines connect percentages that are based on data from the revised questions.

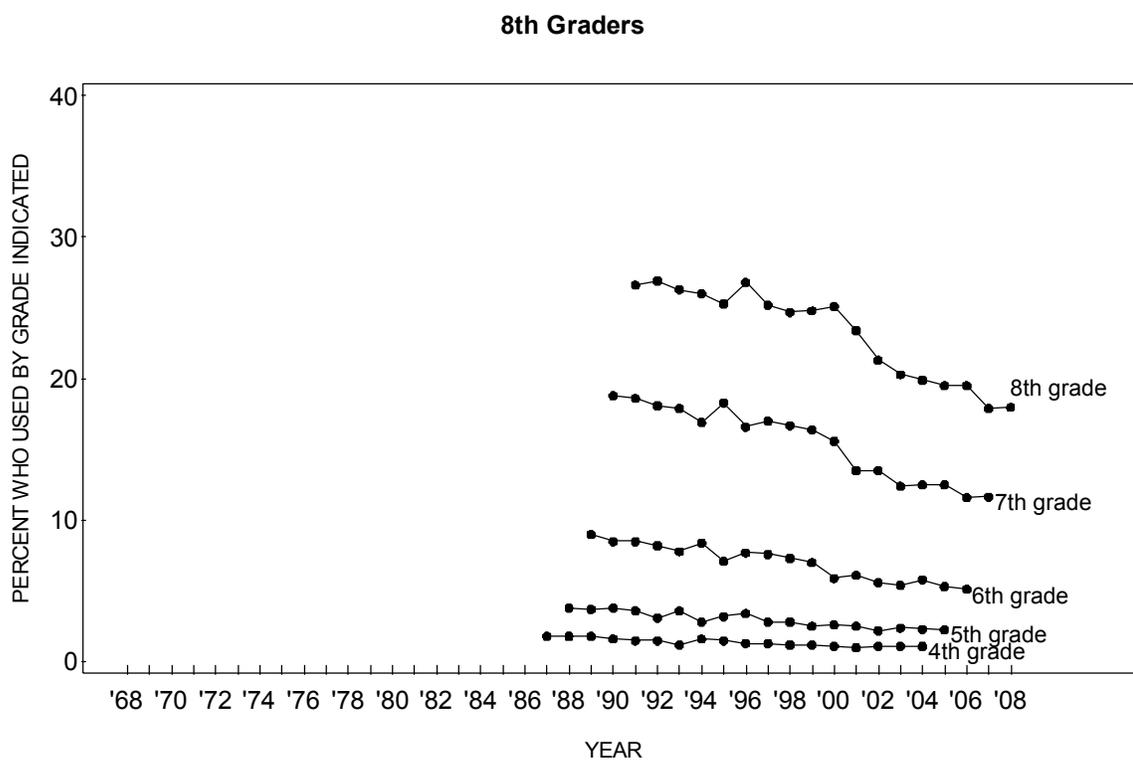
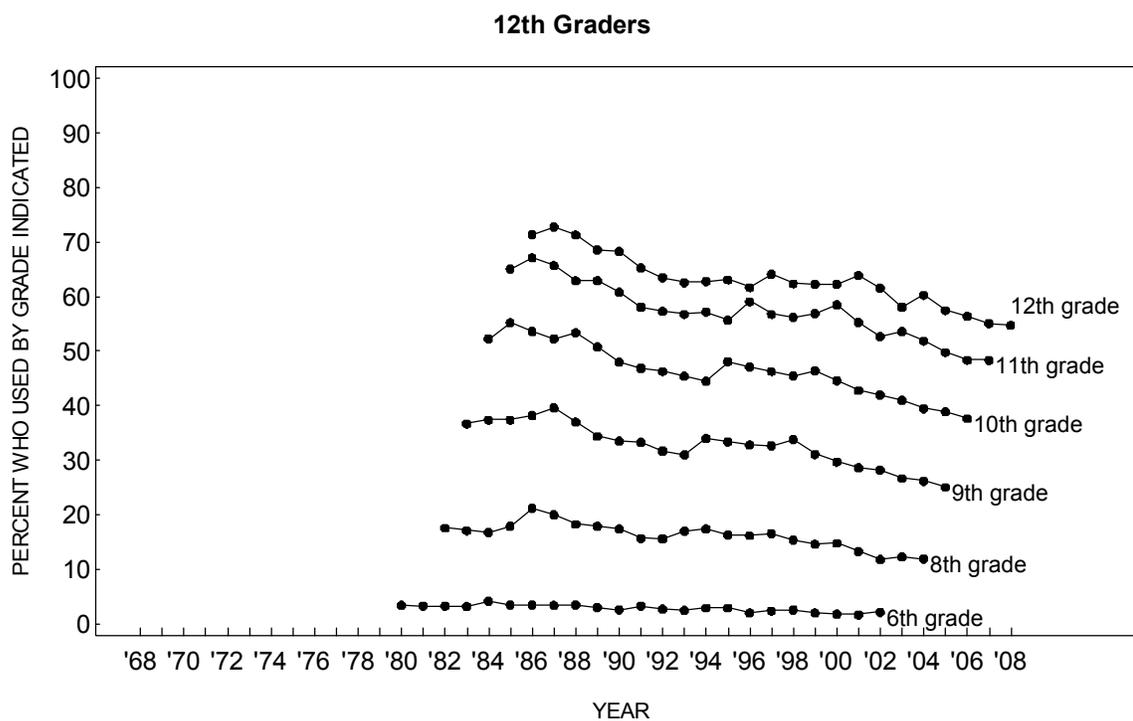
**FIGURE 6-20**  
**Alcohol: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

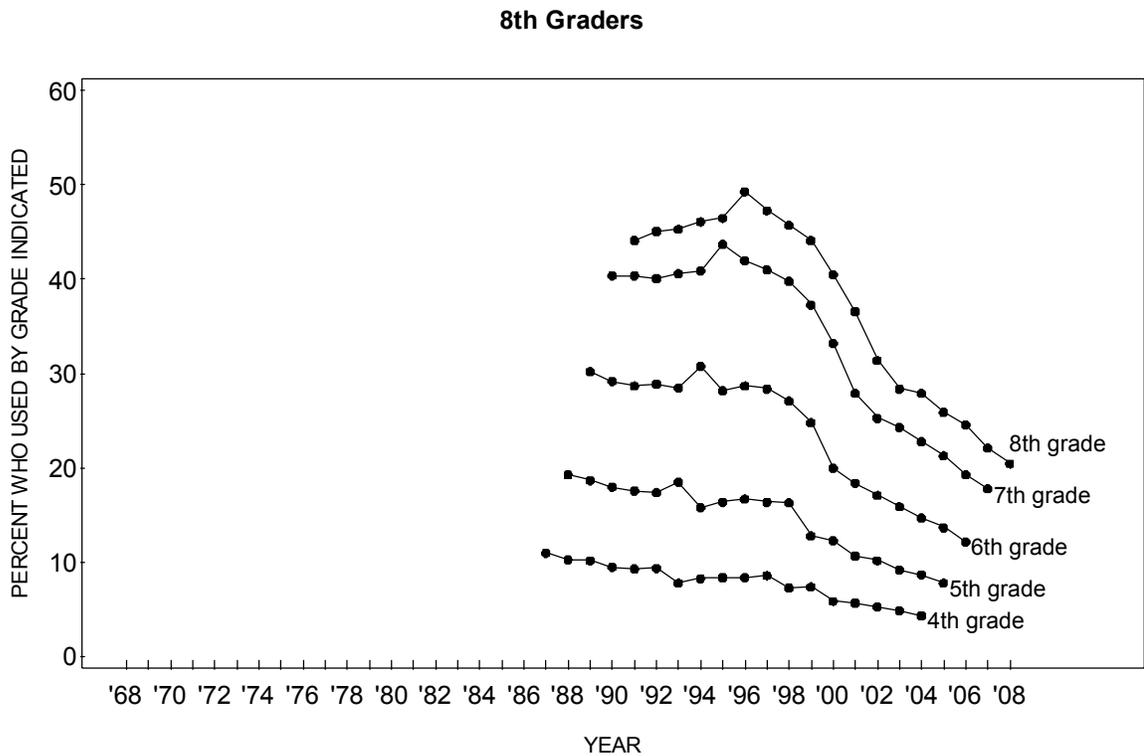
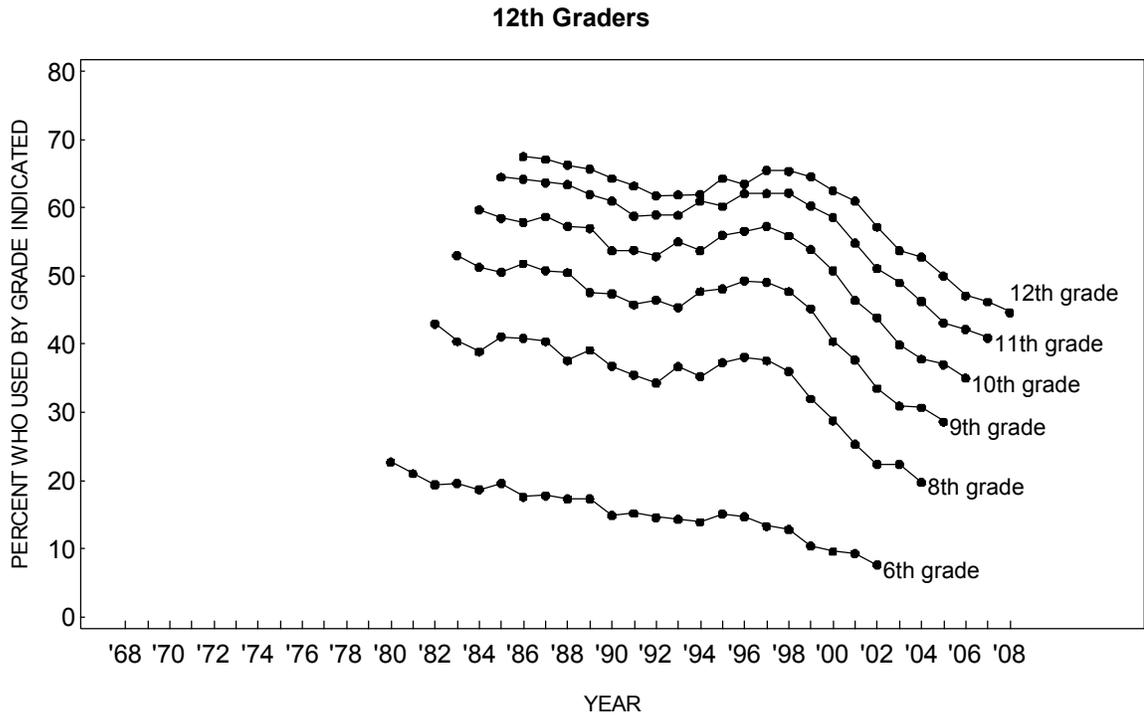
Note. Beginning in 1993, a revised set of questions on alcohol use was introduced, in which respondents were told that an occasion of use meant "more than just a few sips." The dashed lines connect percentages that are based on data from the revised questions. See text for details.

**FIGURE 6-21**  
**Been Drunk: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

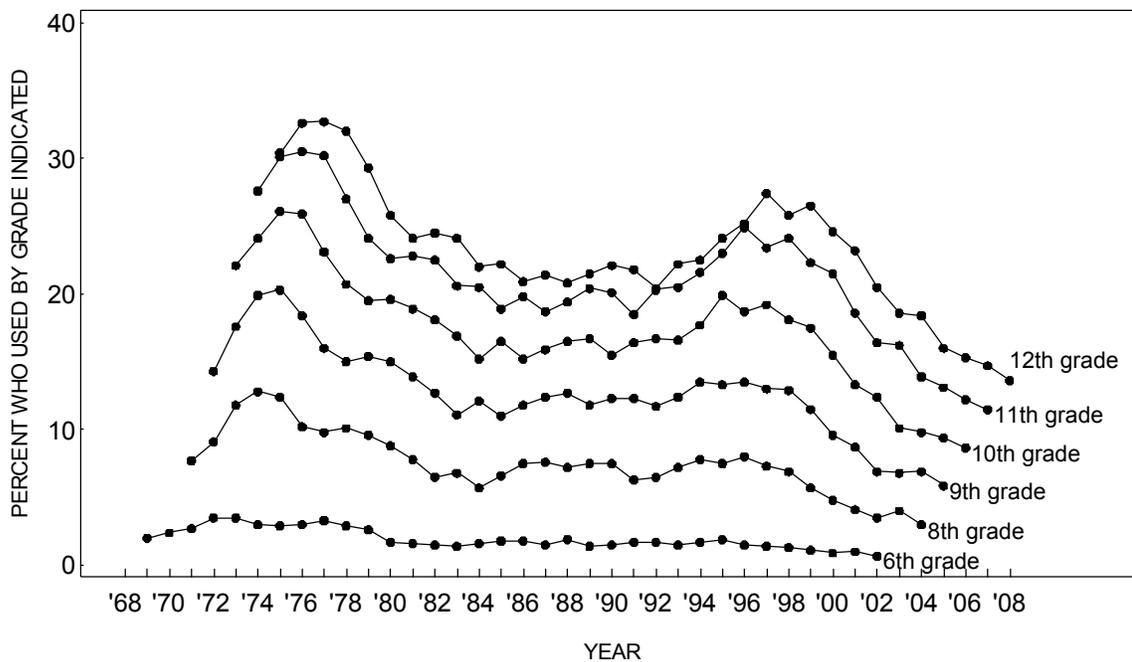
**FIGURE 6-22**  
**Cigarettes: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



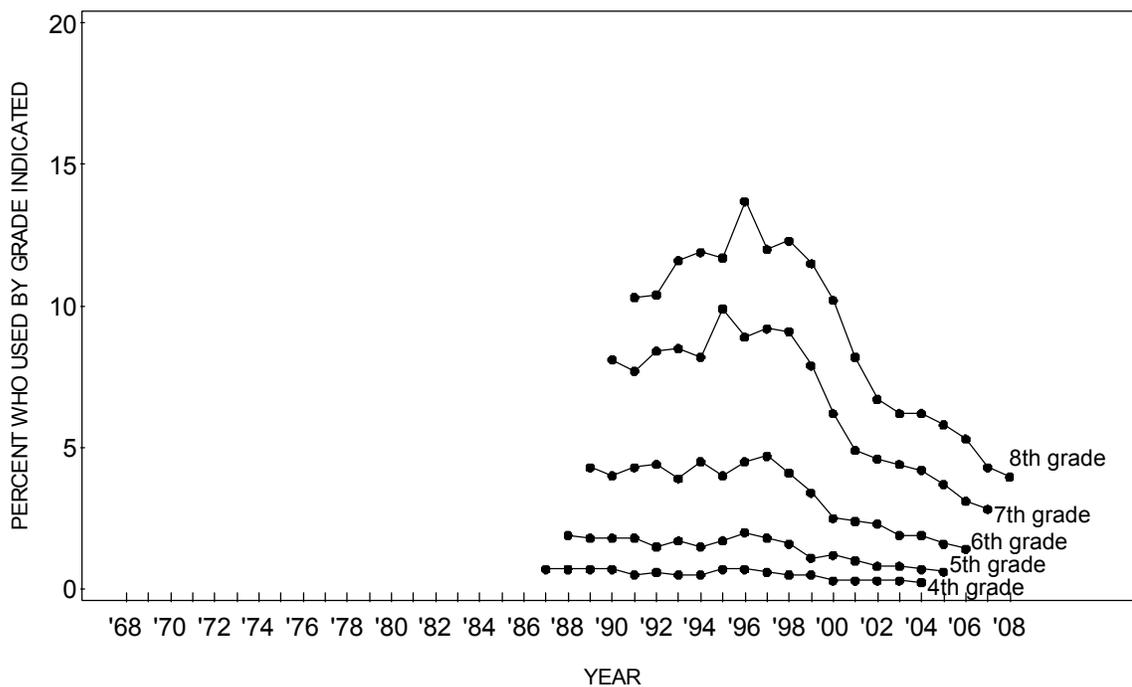
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 6-23**  
**Cigarette Smoking on a Daily Basis:**  
**Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**

**12th Graders**

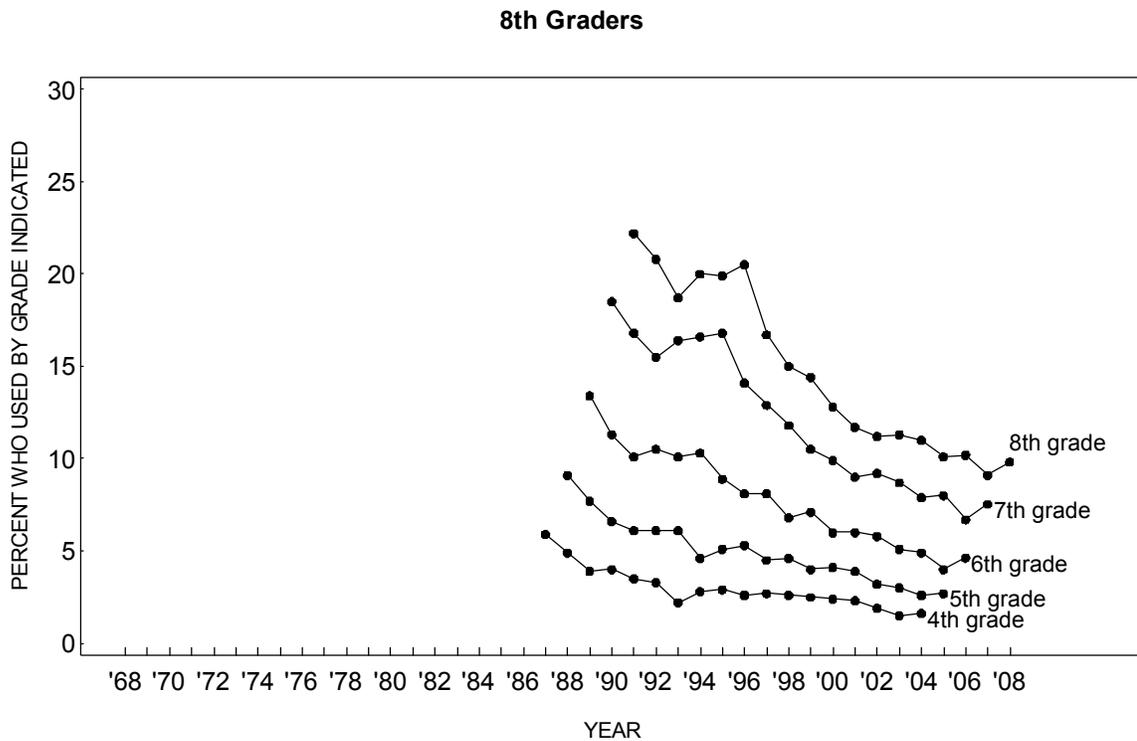
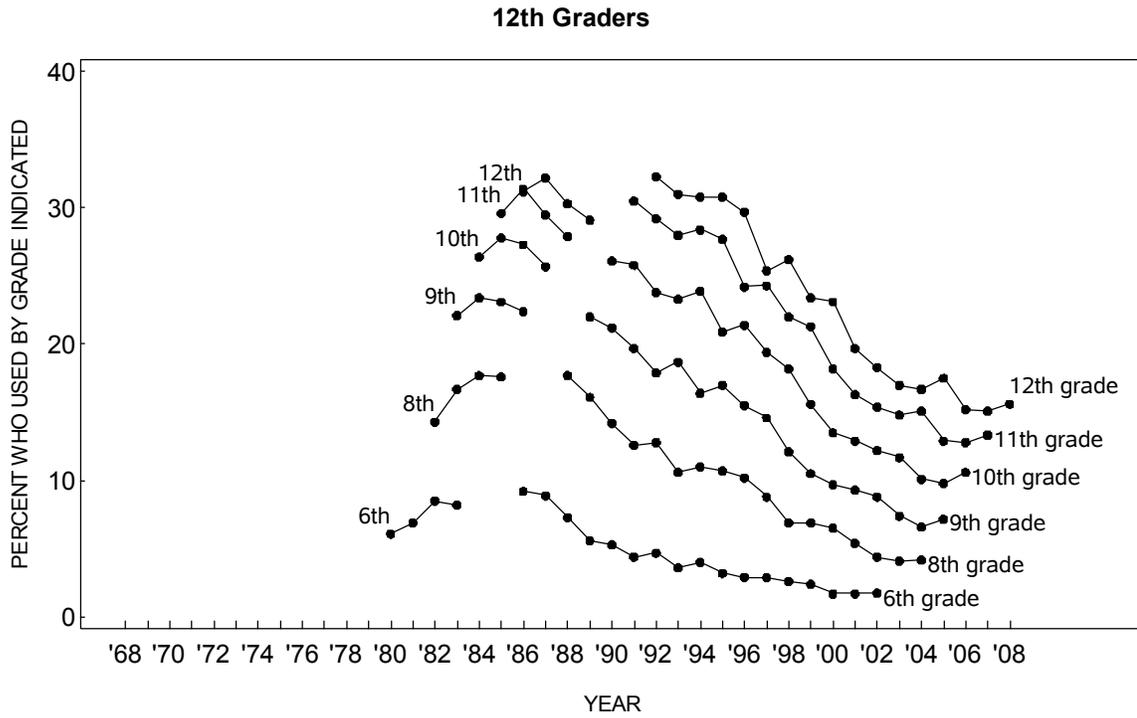


**8th Graders**



Source: The Monitoring the Future study, the University of Michigan.

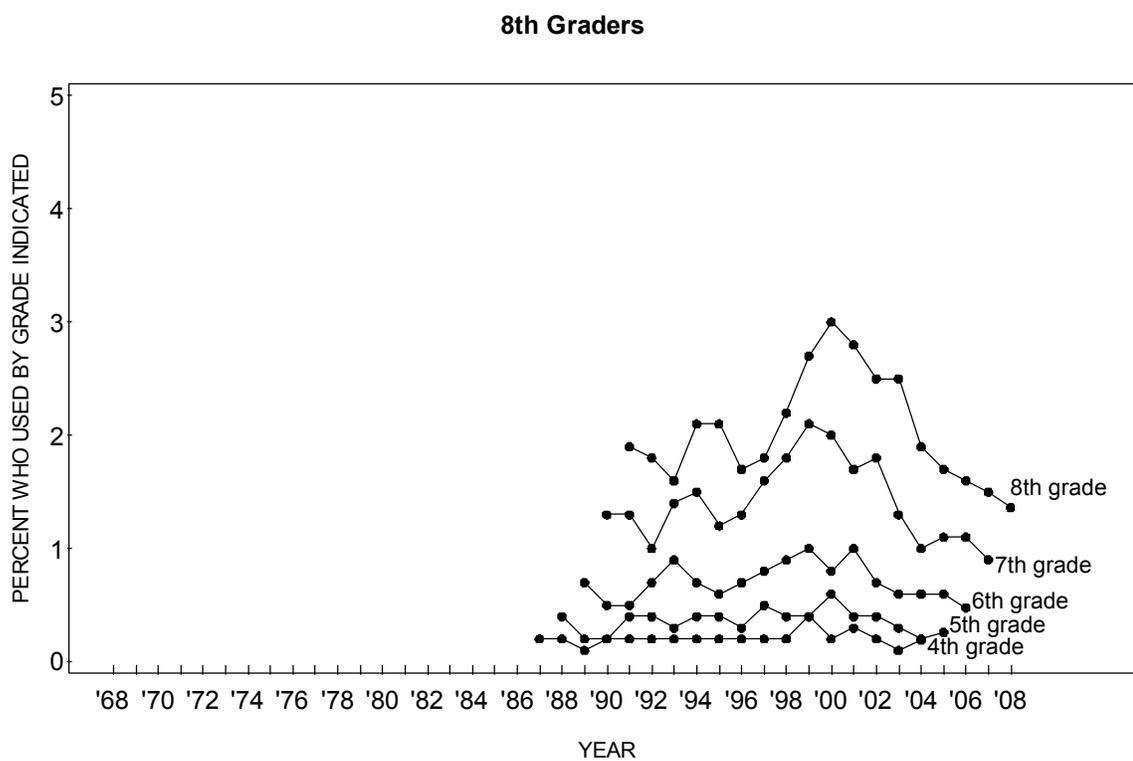
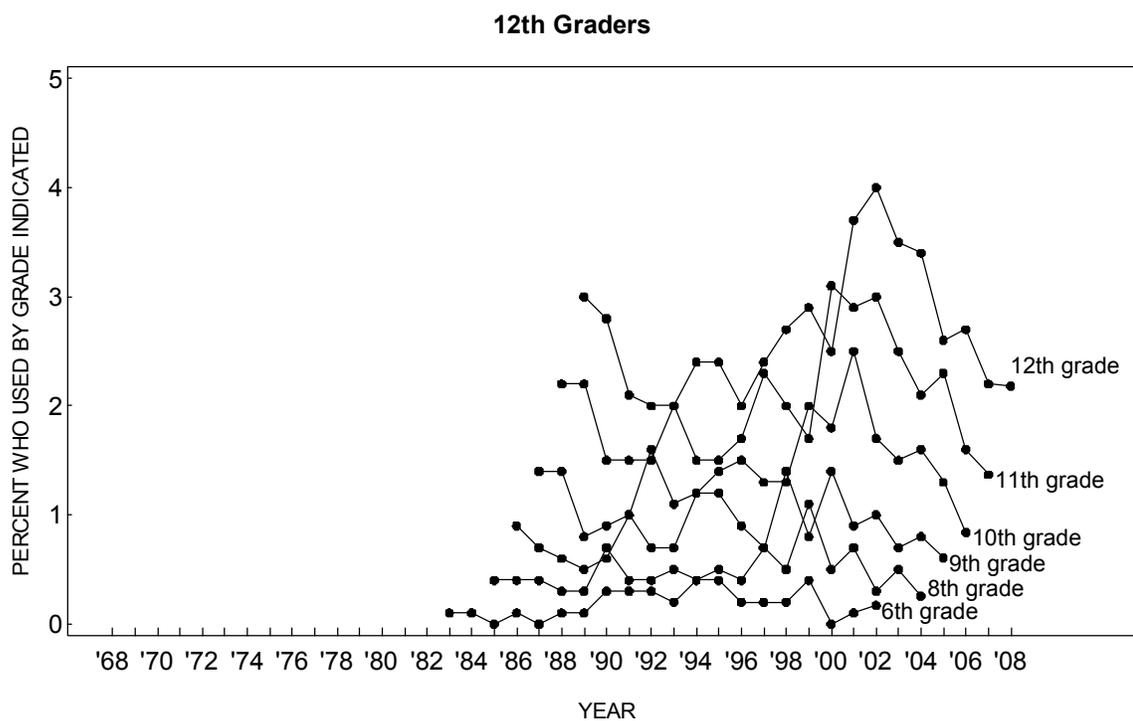
**FIGURE 6-24**  
**Smokeless Tobacco: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* Prevalence of smokeless tobacco was not asked of 12th graders in 1990 and 1991. Prior to 1990, the prevalence question on smokeless tobacco was located near the end of one 12th-grade questionnaire form, whereas after 1991 the question was placed earlier and in a different form. This shift could explain the discontinuity between the corresponding lines for each grade.

**FIGURE 6-25**  
**Steroids: Trends in Lifetime Prevalence at Earlier Grade Levels**  
**based on Retrospective Reports from 12th and 8th Graders**



Source. The Monitoring the Future study, the University of Michigan.

## Chapter 7

### DEGREE AND DURATION OF DRUG HIGHS

Achieving an altered state of consciousness, or getting “high,” is a primary reason for using illicit drugs for many users. While laboratory and clinical studies can assess the various differences in subjective experiences associated with using specific drugs, they cannot ascertain trends at the population level, nor drug-to-drug variations in the degree or duration of highs experienced. Measuring these subjective experiences and monitoring changes in them over time can be helpful from both an epidemiological and policy point of view. For many years Monitoring the Future has asked drug users to report on the intensity and duration of the highs they experience, recognizing that the subjective experience of being “high” varies from drug to drug. Although these data do not address the many qualitative differences in the experience of being high, they provide a useful description of two important dimensions. Twelfth-grade respondents are asked in one of the six questionnaire forms to indicate—for each drug that they report having used in the prior 12 months—how high they usually get and how long they usually stay high (these questions are not asked of 8th and 10th graders). The 2008 results from those measures are discussed in this chapter, along with trends since 1975.

#### DEGREE AND DURATION OF HIGHS AMONG TWELFTH GRADERS IN 2008

Figure 7-1 shows the proportion of 2008 twelfth graders who said that they *usually* get “very” high, “moderately” high, “a little” high, or “not at all” high when they use a given type of drug. The percentages are based on all respondents who reported use of the given drug class in the previous 12 months, and each bar cumulates to 100%. The order of the drugs from left to right is based on the percentage of users of each drug who reported that they usually get “very” high. The numbers of cases are sometimes comparatively small because the statistics are based on self-reported users in only one of the six randomly assigned 12th-grade questionnaire forms. The reader is advised to note the sample sizes, provided in the tables in this chapter. To illustrate, in 2008 the number reporting use of hallucinogens other than LSD was 106; for LSD, 67; for cocaine, 107; for marijuana, 740; for narcotics other than heroin, 174; for amphetamines, 124; for tranquilizers, 115; and for alcohol, 1,608. When percentages are based on very small numbers, the fluctuation from year to year due to random sample differences is much larger than occurs in most of the tables presented in this volume.

- **Hallucinogens** (LSD and hallucinogens other than LSD) and **heroin** usually produce the most intense highs. Beginning in 1982, this question was omitted for heroin because of the small number of cases available each year. An averaging across earlier years indicated that it would rank very close to LSD, with a substantial majority of past-year users saying they usually get very high when they use it.

- **Marijuana** and **cocaine** are next in intensity of highs produced. About three quarters of marijuana users and two thirds of cocaine users said they usually get moderately or very high.
- A lower proportion of the users of three psychotherapeutic drug classes—**narcotics other than heroin**, **amphetamines**, and **tranquilizers**—say that they use them to get high; still, substantial proportions of users (51% for narcotics other than heroin, 45% for amphetamines, and 57% for tranquilizers) said they usually get moderately or very high after taking these drugs.
- Relatively few of the large proportion of 12th graders using **alcohol** said that they usually get very high when drinking, although over two fifths (43%) said they usually get at least moderately high. For a given individual, we would expect more variability in the degree of intoxication achieved with alcohol from occasion to occasion than with most other drugs. Therefore, many drinkers probably get very high at least sometimes, even if that is not “usually” the case, which is what the question asks. Certainly the prevalence of occasional heavy drinking (having five or more drinks in a row) and self-reported drunkenness would suggest that to be the case.

Figure 7-2 presents data on the *duration* of the highs usually experienced, as reported by past-year users of each drug class. The drugs are arranged in the same order as in Figure 7-1 (intensity of highs) to permit an examination of the amount of correspondence between the degree and duration of highs.

- As can be seen in Figure 7-2, drugs that result in the most intense highs generally result in the longest highs as well. For example, **LSD** and **hallucinogens other than LSD** hold the top two positions on both dimensions.
- The correspondence between degree and duration of highs is not perfect. For example, the highs obtained with **marijuana** tend to be relatively intense in degree but not long in duration compared to many other drugs. About half of marijuana users (48%) said they usually stay high only one to two hours. Still, more than one third of users (38%) reported usually staying high three to six hours, and another 7% usually stay high for seven hours or more.
- **Cocaine** users also report staying high for shorter periods, despite having more intense highs relative to users of many other drugs. Over half (53%) report staying high only one to two hours, 21% say they usually stay high three to six hours, and 12% stay high seven hours or more.

In sum, drugs vary considerably in both degree and duration of highs obtained. Sizeable proportions of users of all these drugs responded that they usually get high for at least three hours per occasion. For a number of drugs—particularly **LSD** and **hallucinogens other than LSD**, but also **amphetamines** and to a lesser extent **cocaine**, **narcotics other than heroin**, and **tranquilizers**—appreciable proportions usually stay high for seven hours or more.

## TRENDS IN DEGREE AND DURATION OF DRUG HIGHS

Since 1975, when the study began, many important shifts have occurred in the degree and duration of highs usually experienced by young people. Recall that only 12th-grade students who reported using drugs in the prior 12 months answered these questions.

In Tables 7-1 through 7-8, we have presented trends in two ways. First, the results are shown as a percentage of past-year users of each drug, in order to indicate any changes in the experiences among recent users and to provide some indication of changes in the quantity of the active ingredient consumed by users. They are also displayed as a percentage of *all* respondents, thereby indicating experiences of drug-induced highs as proportions of the entire age group. Most of the following discussion concentrates on changes in proportions among recent users.

- Between 1978 and 1983—a period of considerable decline in *marijuana* use—there was a modest downward trend in the degree of highs usually attained by marijuana users (see Table 7-1). To illustrate, in 1978, 73% of marijuana users said they usually get “moderately high” or “very high,” but by 1983 only 64% said so. Later, from about 1988 through 1996, there was a fairly steady increase observed in the degree of highs attained. The latter half of this interval overlapped the period of steadily increasing prevalence of marijuana use. (See Figure 7-3 for a charting of the cross-time trends in degree and duration of highs reported by past-year users.) From 1997 to 2007, there was little change in the degree of highs and only a very gradual decline in use. Overall, the proportion of marijuana users usually getting “moderately high” or “very high” has increased from around 65% in the early 1980s to around 75% in the early 2000s, which is about where it remains today.

Some interesting changes also took place in the average duration of marijuana highs between 1978 and 1983. Most marijuana users said they usually stay high either one to two hours *or* three to six hours. Between 1975 and 1983 there was a steady decline in the proportion of users saying they stay high three or more hours (from 52% in 1975 to 35% in 1983). Until 1979, the downward shift could have been due almost entirely to the increasing number of 12th graders using marijuana; the users in later classes, who might *not* have been users if they had been in earlier classes, probably tended to be relatively light users. We deduce this from the fact that the percentage of *all* 12th graders reporting three- to six-hour highs remained relatively unchanged from 1975 to 1979, while the percentage of *all* 12th graders reporting only one- to two-hour highs increased steadily—from 16% in 1975 to 25% in 1979.

After 1979, however, the prevalence of marijuana use began to decline substantially, but the shift toward shorter average highs still continued through 1983. Thus, we must attribute this shift to another factor, and the one that seems most likely is a general shift toward a less frequent (or less intense) use of the drug, even among the most marijuana-prone segment. The drop in the prevalence of *daily* marijuana use after 1979, disproportionately large relative to the drop in overall prevalence, is consistent with this interpretation. Also consistent is the drop in the average number of joints smoked per day during the prior month (among those reporting any use in the prior 12 months). In 1976,

65% of the past-year marijuana users indicated they averaged *less* than one joint per day in the prior 30 days; by 1988 this proportion had risen to 83%. In sum, not only were fewer high school students using marijuana than in the early years of this study, but those who were seemed to be using less frequently and in smaller amounts per occasion, at least through 1988.

The lower intensity of marijuana highs through the 1980s is of particular interest in light of evidence from other sources that the THC content of marijuana had increased substantially since the late 1970s. The evidence here suggests that users titrated their intake—smoking less marijuana as measured by volume—to achieve a certain (possibly declining) level of high.

After 1988 the proportion of users saying they smoked less than one joint per day held fairly steady through 1992, after which there was a substantial increase in annual prevalence. That rise in prevalence was accompanied by a decline in the proportion of marijuana users saying that they used less than one joint per day. Also, increased proportions of users reported getting “very high” and staying high longer.<sup>72</sup> So, during this relapse phase in the larger epidemic (in the 1990s), marijuana users were consuming *more* of the drug on average.

- No clearly discernible long-term pattern has emerged in the intensity of highs being reported by *LSD* users—substantial proportions in every class reported intense highs—but the average duration of highs has declined considerably since the late 1990s (see Table 7-2). For *hallucinogens other than LSD*, the duration of highs has not varied much, whereas the degree of highs increased some after the early 1990s (see Table 7-3).
- The degree of high obtained from *cocaine* showed some decline between 1975 and 1981 as prevalence increased, and has remained fairly stable since (see Table 7-4). At the onset phase of the cocaine epidemic (1976–1979), the average duration of highs also shortened as the proportion of past-year users reporting highs of two hours or less rose from 30% to 49%, perhaps reflecting that many of the additional users were less committed. The proportion reporting these short highs continued to rise through 1989 to 64%, revealing that during the early part of the decline phase of the epidemic (1986–1992), the average duration of cocaine highs continued to decrease, just as it had during the rise of the epidemic. This may reflect the fact that, as concerns about the dangers of cocaine use grew, even those who decided to use cocaine became more moderate in their use for fear of it leading to addiction.
- For *narcotics other than heroin*, a general decline occurred between 1975 and 1992 in both the intensity and duration of highs (see Table 7-5). In 1975, 39% of past-year users said they usually got “very high” compared to only 12% in 1992. The proportion usually staying high for seven or more hours dropped from 28% in 1975 to 11% in 1992. This

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<sup>72</sup> The proportion saying less than one joint per day decreased to 73% by 1997. There was not much change from 1997 to 2006, after which there was some decline.

shift was due, in part, to a substantial increase in the proportion of users who said they do not take these drugs “to get high” (4% in 1975, increasing to 28% by 1992). Because the actual prevalence of narcotic use dropped only modestly over that interval, these findings suggest that an increasing use for self-medication may have masked a larger decrease in recreational use than is apparent from the prevalence data. Since the early 1990s, considerably fewer users of narcotics other than heroin say that they “usually don’t get high” (down from 39% in 1990 to 19% in 2008), but somewhat more say that they get high for one to two hours, as well as for three to six hours.

- Between 1975 and 1981, as *amphetamine* use increased among 12th graders, the average degree of high decreased (see Table 7-6), much as occurred with cocaine. The proportion of recent users who said they usually got “very high” or “moderately high” fell from 60% in 1975 to 37% in 1981. Consistent with this change, the proportion of users saying they simply “don’t take them to get high” increased from 9.3% in 1975 to 20.2% by 1981, (and remained roughly at that level through 1990). The average reported *duration* of amphetamine highs also declined during this period: 41% of the 1975 users said they usually stayed high seven or more hours compared to only 17% of 1981 users.<sup>73</sup> As use rose some in the 1990s, the numbers on degree and duration of highs fluctuated and did not show any consistent trends. The proportion indicating that they “don’t take them to get high” has also been erratic, averaging about 20% of amphetamine users in recent years.

The substantial decreases in both the degree and duration of highs between 1975 and 1981 strongly suggest a shift in the purposes for amphetamine use. An examination of data on self-reported reasons for use tends to confirm this conclusion. Between the mid-1970s and mid-1980s, there was a decline in the frequency with which recent users mentioned social/recreational reasons for use and an increase in mentions of use for instrumental purposes (“to stay awake,” “to get more energy,” “to get through the day”).<sup>74</sup> The late 1980s saw some decline in the instrumental purposes and a leveling in the mentions of social/recreational reasons. In the 1990s, as use rose a bit, there was only a very slight upturn in mentions of social/recreational reasons for use, followed by a leveling by the late 1990s.

With respect to the social/recreational shifts, the percentage of all recent users reporting they used amphetamines “to feel good or get high” declined from 58% in 1979 to 45% in 1984, rose to 52% in 2005, and now stands at 50% in 2008. Similarly, “to have a good time with my friends” declined from 38% to 30% between 1979 and 1984 and increased again to 38% in 2005; it was 37% in 2007 and 22% in 2008. The low numbers of users in these years make the estimates somewhat unstable. Reports of instrumental amphetamine

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<sup>73</sup>In 1982, the questionnaire form containing the questions on degree and duration of highs clarified the amphetamine usage questions in order to eliminate the inappropriate inclusion of nonprescription amphetamines. One might have expected this change to have increased the degree and duration of highs reported, given that real amphetamines would be expected to have greater psychological impact on average; but the trends still continued downward that year.

<sup>74</sup>Johnston, L. D., & O’Malley, P. M. (1986). Why do the nation’s students use drugs and alcohol? Self-reported reasons from nine national surveys. *Journal of Drug Issues*, 16, 29–66.

use increased between 1976 and 1984: “to lose weight” increased by 15 percentage points (to 41%); “to get more energy” increased by 14 percentage points (to 69%); “to stay awake” increased by 10 percentage points (to 62%); and “to get through the day” increased by 10 percentage points (to 32%). Beginning in about 1988 and continuing through the 2000s, these instrumental objectives have been mentioned somewhat less often by users. In 2008, “to lose weight” was mentioned by 32% of recent users, “to get more energy” by 37%, “to stay awake” by 37%, and “to get through the day” by 32%.

Despite the earlier relative decline in recreational reasons for use of amphetamines, it appears that the absolute level of recreational use increased somewhat, though clearly not as steeply as the trends through 1981 in overall use might have suggested. The percentage of 12th graders reporting exposure to people using amphetamines “to get high or for kicks,” discussed further in chapter 9, showed a definite increase between 1976 and 1981. The lack of further increase in exposure in 1982 suggests that recreational use, as well as overall use, had leveled off. Since then, such exposure has decreased considerably (from 50% in 1982 to 23% of all 12th graders in 2008), suggesting a substantial drop in the total number of people using amphetamines for recreational purposes.

- The degree and duration of highs achieved by *tranquilizer* users decreased in the 1980s (see Table 7-7). An average of about 20% of 12th-grade users in 1976–1980 said they did *not* take them to get high, compared with roughly 35% of 1986–1990 users. However, as use rose during the 1990s, the proportion of users saying they do not use tranquilizers to get high declined to between 9% and 20% in recent years (1996–2008), indicating that recreational use played an important role in this rise.
- Data are not collected for highs experienced in the use of *inhalants* (including amyl and butyl nitrites), *PCP*, *ecstasy*, or *heroin*.
- The intensity and duration of highs associated with *alcohol* use have generally been stable throughout the study (see Table 7-8), with the following exceptions: (a) the proportion of *all* 12th graders who reported getting “very high” rose some in the 1990s (from 5.6% in 1993 to 9.0% in 1998), leveled until 2004, and has declined some since then (6.8% in 2008); and (b) the proportion of *all* 12th graders saying they usually stay high on alcohol for seven hours or more was fairly stable at between 2% and 4% from 1975 through 1994, then increased slightly and has generally been between 4% and 5% since then (4.5% in 2008).

**TABLE 7-1**  
**Marijuana: Trends in Degree and Duration of Feeling High in Grade 12**  
 (Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you use marijuana or hashish how high do you usually get?<sup>a</sup></i>																		
% of Recent Users																		
Not at all high	6.9	5.7	7.5	6.3	6.0	6.3	4.9	4.6	6.6	6.8	7.2	5.1	6.8	6.6	7.6	5.8	7.2	
A little high	22.1	20.9	22.5	20.3	22.5	23.5	29.0	26.3	29.4	29.0	27.2	27.6	29.5	30.2	22.8	23.2	21.6	
Moderately high	45.5	47.7	43.5	46.8	47.5	47.7	45.7	45.6	41.9	36.9	41.8	43.8	40.9	40.3	44.1	40.8	42.8	
Very high	25.5	25.7	26.5	26.6	24.0	22.6	20.4	23.5	22.0	27.4	23.8	23.5	22.9	22.9	25.5	30.3	28.4	
Approximate weighted N =	1,142	1,266	1,448	1,873	1,606	1,495	1,607	1,588	1,366	1,264	1,298	1,177	1,174	1,142	782	694	591	
% of All Respondents																		
No use in last 12 months	60.0	55.5	52.4	49.8	49.4	52.4	53.2	54.7	58.2	59.9	59.0	61.2	63.5	64.9	71.6	72.7	76.2	
Not at all high	2.8	2.5	3.6	3.2	3.0	3.0	2.3	2.1	2.8	2.7	2.9	2.0	2.5	2.3	2.2	1.6	1.7	
A little high	8.8	9.3	10.7	10.2	11.4	11.2	13.6	11.9	12.3	11.6	11.2	10.7	10.7	10.6	6.5	6.3	5.1	
Moderately high	18.2	21.2	20.7	23.5	24.0	22.7	21.4	20.6	17.5	14.8	17.2	17.0	14.9	14.1	12.5	11.1	10.2	
Very high	10.2	11.4	12.6	13.4	12.2	10.8	9.6	10.6	9.2	11.0	9.8	9.1	8.4	8.1	7.2	8.3	6.7	
Approximate weighted N =	2,855	2,845	3,042	3,731	3,175	3,143	3,437	3,506	3,268	3,154	3,163	3,033	3,219	3,250	2,755	2,542	2,487	
<i>When you use marijuana or hashish how long do you usually stay high?<sup>a</sup></i>																		
% of Recent Users																		
Usually don't get high	8.5	8.0	9.5	8.0	8.4	8.5	7.6	7.0	9.9	9.6	9.3	8.2	11.1	9.6	10.8	7.8	8.5	
One to two hours	39.7	43.2	42.6	47.4	48.7	51.7	52.5	53.8	55.6	51.7	52.4	55.0	52.9	56.0	51.9	53.3	49.5	
Three to six hours	45.4	43.7	42.7	39.0	37.4	35.0	35.7	34.2	30.4	33.1	34.0	32.9	32.2	30.2	33.3	33.1	34.4	
Seven to 24 hours	5.9	4.9	4.7	5.1	5.0	4.1	4.0	4.5	3.5	5.0	3.9	3.3	3.7	3.8	3.3	5.4	6.9	
More than 24 hours	0.5	0.2	0.6	0.5	0.5	0.7	0.2	0.5	0.6	0.7	0.4	0.6	0.1	0.4	0.8	0.4	0.8	
Approximate weighted N =	1,141	1,261	1,449	1,873	1,619	1,500	1,607	1,593	1,357	1,268	1,295	1,176	1,172	1,147	787	694	589	
% of All Respondents																		
No use in last 12 months	60.0	55.5	52.4	49.8	49.2	52.3	53.2	54.6	58.4	59.9	59.0	61.2	63.6	64.8	71.5	72.7	76.3	
Usually don't get high	3.4	3.6	4.5	4.0	4.3	4.0	3.6	3.2	4.1	3.8	3.8	3.2	4.0	3.4	3.1	2.1	2.0	
One to two hours	15.9	19.2	20.3	23.8	24.7	24.6	24.5	24.4	23.1	20.7	21.5	21.3	19.3	19.7	14.8	14.6	11.7	
Three to six hours	18.2	19.4	20.3	19.6	19.0	16.7	16.7	15.5	12.7	13.3	13.9	12.8	11.7	10.7	9.5	9.0	8.1	
Seven to 24 hours	2.4	2.2	2.2	2.6	2.5	2.0	1.9	2.0	1.4	2.0	1.6	1.3	1.3	1.3	0.9	1.5	1.6	
More than 24 hours	0.2	0.1	0.3	0.3	0.2	0.3	0.1	0.2	0.3	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.2	
Approximate weighted N =	2,853	2,834	3,044	3,731	3,188	3,149	3,437	3,511	3,259	3,158	3,160	3,032	3,218	3,255	2,760	2,542	2,485	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-1 (cont.)**  
**Marijuana: Trends in Degree and Duration of Feeling High in Grade 12**  
 (Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you use marijuana or hashish</i>																	
<i>how high do you usually get?<sup>a</sup></i>																	
% of Recent Users																	
Not at all high	7.8	9.0	7.0	8.1	5.7	5.4	6.1	6.8	6.3	5.4	5.4	5.1	5.4	6.4	5.2	5.7	4.6
A little high	25.9	19.4	21.7	22.3	17.9	18.6	22.0	19.8	22.6	18.7	23.2	17.7	19.2	21.1	18.8	21.8	20.9
Moderately high	39.3	45.9	40.6	40.8	47.5	45.1	43.6	43.7	39.6	42.8	41.7	44.6	42.6	42.7	44.3	42.8	44.7
Very high	27.0	25.8	30.7	28.8	28.9	30.9	28.4	29.8	31.4	33.1	29.7	32.7	32.8	29.9	31.8	29.7	29.8
Approximate weighted N =	605	669	779	916	788	998	944	812	809	776	713	809	851	811	772	737	740
% of All Respondents																	
No use in last 12 months	76.8	74.8	69.6	64.1	66.5	61.2	62.6	63.6	61.8	63.0	66.3	66.6	65.2	66.7	66.9	69.3	67.7
Not at all high	1.8	2.3	2.1	2.9	1.9	2.1	2.3	2.5	2.4	2.0	1.8	1.7	1.9	2.1	1.7	1.8	1.5
A little high	6.0	4.9	6.6	8.0	6.0	7.2	8.2	7.2	8.6	6.9	7.8	5.9	6.7	7.0	6.2	6.7	6.8
Moderately high	9.1	11.6	12.4	14.7	15.9	17.5	16.3	15.9	15.1	15.8	14.1	14.9	14.8	14.2	14.7	13.1	14.4
Very high	6.3	6.5	9.3	10.4	9.7	12.0	10.6	10.8	12.0	12.2	10.0	10.9	11.4	9.9	10.5	9.1	9.6
Approximate weighted N =	2,614	2,655	2,558	2,549	2,355	2,570	2,526	2,231	2,121	2,098	2,114	2,423	2,447	2,440	2,333	2,403	2,291
<i>When you use marijuana or hashish</i>																	
<i>how long do you usually stay high?<sup>a</sup></i>																	
% of Recent Users																	
Usually don't get high	9.5	10.9	9.5	8.7	6.4	6.1	7.4	7.6	8.7	5.8	6.9	6.3	6.1	7.6	6.3	7.3	6.7
One to two hours	47.2	48.6	47.4	46.0	46.9	49.6	51.4	51.8	52.0	48.3	55.5	51.2	52.5	52.6	49.2	50.5	48.3
Three to six hours	37.7	36.8	36.1	37.6	39.3	37.1	35.7	33.5	34.9	38.2	32.4	37.2	35.3	34.7	37.3	37.3	38.2
Seven to 24 hours	4.9	3.2	5.5	6.7	6.2	6.0	5.1	5.9	3.6	6.0	5.1	4.8	4.3	3.7	6.2	4.3	5.7
More than 24 hours	0.8	0.4	1.4	1.0	1.2	1.1	0.4	1.2	0.9	1.6	0.1	0.6	1.9	1.3	1.0	0.7	1.1
Approximate weighted N =	602	666	774	911	789	996	945	814	807	781	713	812	848	814	772	732	750
% of All Respondents																	
No use in last 12 months	76.9	74.9	69.7	64.2	66.5	61.2	62.6	63.6	61.9	62.9	66.3	66.5	65.3	66.7	66.9	69.5	67.4
Usually don't get high	2.2	2.7	2.9	3.1	2.1	2.4	2.8	2.8	3.3	2.2	2.3	2.1	2.1	2.5	2.1	2.2	2.2
One to two hours	10.9	12.2	14.4	16.5	15.7	19.3	19.2	18.9	19.8	17.9	18.7	17.1	18.2	17.5	16.3	15.4	15.8
Three to six hours	8.7	9.2	11.0	13.5	13.2	14.4	13.4	12.2	13.3	14.2	10.9	12.5	12.2	11.6	12.4	11.4	12.5
Seven to 24 hours	1.1	0.8	1.7	2.4	2.1	2.3	1.9	2.1	1.4	2.2	1.7	1.6	1.5	1.2	2.1	1.3	1.9
More than 24 hours	0.2	0.1	0.4	0.4	0.4	0.4	0.2	0.4	0.3	0.6	0.1	0.2	0.6	0.4	0.3	0.2	0.4
Approximate weighted N =	2,611	2,652	2,553	2,544	2,356	2,568	2,527	2,233	2,119	2,103	2,114	2,426	2,444	2,442	2,334	2,398	2,302

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-2**  
**LSD: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<i>When you take LSD</i>																	
<i>how high do you usually get?</i> <sup>a</sup>																	
% of Recent Users																	
Not at all high	0.2	1.7	1.6	0.5	2.8	2.0	1.6	2.7	0.0	2.5	1.2	3.3	2.5	1.3	4.9	0.6	4.0
A little high	4.8	1.9	7.4	4.9	8.4	5.0	9.6	4.1	4.2	5.6	3.7	4.1	4.3	4.1	6.6	2.0	6.9
Moderately high	16.2	22.4	19.3	24.7	14.9	23.4	23.3	26.4	26.9	24.8	16.2	23.3	21.9	20.4	17.4	33.8	23.0
Very high	78.8	73.9	71.7	69.9	73.9	69.5	65.5	66.8	68.9	67.1	78.9	69.3	71.4	74.2	71.1	63.6	66.2
Approximate weighted N =	213	193	183	223	228	228	236	249	200	168	151	168	192	175	133	138	140
% of All Respondents																	
No use in last 12 months	92.5	93.6	94.4	93.7	92.9	92.8	93.2	92.9	93.9	94.7	95.3	94.5	94.0	94.6	95.2	94.5	94.4
Not at all high	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.2
A little high	0.4	0.1	0.4	0.3	0.6	0.4	0.6	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.1	0.4
Moderately high	1.2	1.4	1.1	1.6	1.1	1.7	1.6	1.9	1.6	1.3	0.8	1.3	1.3	1.1	0.8	1.9	1.3
Very high	5.9	4.7	4.0	4.4	5.2	5.0	4.4	4.7	4.2	3.5	3.7	3.8	4.3	4.0	3.4	3.5	3.7
Approximate weighted N =	2,840	3,016	3,268	3,540	3,228	3,182	3,488	3,506	3,277	3,166	3,179	3,060	3,214	3,271	2,763	2,527	2,494
<i>When you take LSD</i>																	
<i>how long do you usually stay high?</i> <sup>a</sup>																	
% of Recent Users																	
Usually don't get high	1.6	2.3	2.5	0.5	3.4	2.3	1.6	1.5	0.0	3.2	1.2	3.3	2.5	1.0	6.1	0.6	3.5
One to two hours	1.3	1.7	3.8	3.9	4.0	2.5	5.4	3.6	2.6	2.5	3.3	2.0	4.9	2.0	4.1	6.7	4.5
Three to six hours	22.7	30.7	30.5	31.9	33.1	34.6	35.5	30.7	43.6	29.4	32.4	32.8	27.6	28.2	19.2	24.4	16.0
Seven to 24 hours	69.8	59.9	59.8	58.5	52.1	55.4	54.6	62.5	49.3	60.9	60.3	59.8	59.4	64.3	65.9	63.1	73.8
More than 24 hours	4.6	5.5	3.4	5.3	7.4	5.2	2.9	1.7	4.6	4.0	2.8	2.2	5.6	4.5	4.7	5.2	2.2
Approximate weighted N =	215	193	182	224	228	226	236	252	199	168	153	168	191	178	133	137	141
% of All Respondents																	
No use in last 12 months	92.5	93.6	94.4	93.7	92.9	92.9	93.2	92.8	93.9	94.7	95.2	94.5	94.1	94.6	95.2	94.6	94.4
Usually don't get high	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.1	0.3	0.0	0.2
One to two hours	0.1	0.1	0.2	0.3	0.3	0.2	0.4	0.3	0.2	0.1	0.2	0.1	0.3	0.1	0.2	0.4	0.3
Three to six hours	1.7	2.0	1.7	2.0	2.3	2.5	2.4	2.2	2.6	1.6	1.6	1.8	1.6	1.5	0.9	1.3	0.9
Seven to 24 hours	5.2	3.8	3.3	3.7	3.7	3.9	3.7	4.5	3.0	3.2	2.9	3.3	3.5	3.5	3.2	3.4	4.2
More than 24 hours	0.3	0.4	0.2	0.3	0.5	0.4	0.2	0.1	0.3	0.2	0.1	0.1	0.3	0.2	0.2	0.3	0.1
Approximate weighted N =	2,867	3,016	3,250	3,556	3,227	3,180	3,487	3,509	3,276	3,166	3,181	3,060	3,214	3,274	2,763	2,526	2,495

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-2 (cont.)  
LSD: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take LSD</i>																	
<i>how high do you usually get?</i> <sup>a</sup>																	
% of Recent Users																	
Not at all high	1.7	1.8	1.1	3.0	4.0	2.3	4.3	0.0	4.8	3.3	4.7	1.9	10.3	5.5	6.2	4.3	10.7
A little high	2.9	10.8	6.3	7.4	5.2	9.2	5.5	4.6	6.7	8.2	7.0	12.7	10.5	6.7	3.1	3.7	11.3
Moderately high	32.4	30.1	29.3	21.7	20.6	21.1	31.2	19.1	22.3	28.9	22.4	16.3	18.0	13.9	27.2	27.9	18.7
Very high	63.1	57.4	63.2	67.9	70.2	67.4	59.0	76.3	66.1	59.6	66.0	69.2	61.3	74.0	63.5	64.1	59.4
Approximate weighted N =	146	209	175	205	184	250	188	176	145	144	79	42	77	52	46	63	67
<i>% of All Respondents</i>																	
No use in last 12 months	94.4	92.1	93.1	91.9	92.2	90.2	92.6	92.1	93.2	93.1	96.3	98.3	96.8	97.8	98.0	97.4	97.0
Not at all high	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.0	0.3	0.2	0.2	0.0	0.3	0.1	0.1	0.1	0.3
A little high	0.2	0.8	0.4	0.6	0.4	0.9	0.4	0.4	0.5	0.6	0.3	0.2	0.3	0.1	0.1	0.1	0.3
Moderately high	1.8	2.4	2.0	1.8	1.6	2.1	2.3	1.5	1.5	2.0	0.8	0.3	0.6	0.3	0.5	0.7	0.6
Very high	3.5	4.5	4.3	5.5	5.5	6.6	4.4	6.0	4.5	4.1	2.5	1.2	2.0	1.6	1.3	1.7	1.8
Approximate weighted N =	2,619	2,655	2,547	2,517	2,347	2,543	2,525	2,226	2,128	2,089	2,126	2,412	2,425	2,402	2,321	2,377	2,270
<i>When you take LSD</i>																	
<i>how long do you usually stay high?</i> <sup>a</sup>																	
% of Recent Users																	
Usually don't get high	1.7	3.4	0.5	3.8	2.2	2.4	3.2	0.6	3.4	3.0	1.4	2.0	7.5	2.9	1.3	2.3	8.9
One to two hours	5.5	3.8	5.7	2.5	5.0	3.9	2.6	1.9	3.7	4.0	8.2	9.3	11.3	0.9	3.4	6.6	10.4
Three to six hours	21.4	27.7	20.1	21.1	19.6	25.4	29.7	21.9	31.7	32.7	40.6	31.9	31.6	23.4	27.8	43.1	14.6
Seven to 24 hours	66.3	62.3	70.6	67.0	70.0	62.3	61.4	71.0	55.6	55.9	43.3	52.4	37.4	63.3	49.3	43.2	57.4
More than 24 hours	5.0	2.9	3.0	5.7	3.3	6.0	3.2	4.6	5.6	4.4	6.5	4.4	12.2	9.5	18.2	4.9	8.7
Approximate weighted N =	147	205	176	203	186	252	186	173	143	145	79	40	77	49	45	62	65
<i>% of All Respondents</i>																	
No use in last 12 months	94.4	92.3	93.1	91.9	92.1	90.1	92.6	92.2	93.3	93.1	96.3	98.3	96.8	98.0	98.1	97.4	97.1
Usually don't get high	0.1	0.3	0.0	0.3	0.2	0.2	0.2	0.0	0.2	0.2	0.1	0.0	0.2	0.1	0.0	0.1	0.3
One to two hours	0.3	0.3	0.4	0.2	0.4	0.4	0.2	0.1	0.3	0.3	0.3	0.2	0.4	0.0	0.1	0.2	0.3
Three to six hours	1.2	2.1	1.4	1.7	1.6	2.5	2.2	1.7	2.1	2.3	1.5	0.5	1.0	0.5	0.5	1.1	0.4
Seven to 24 hours	3.7	4.8	4.9	5.4	5.6	6.2	4.5	5.5	3.7	3.9	1.6	0.9	1.2	1.3	1.0	1.1	1.7
More than 24 hours	0.3	0.2	0.2	0.5	0.3	0.6	0.2	0.4	0.4	0.3	0.2	0.1	0.4	0.2	0.4	0.1	0.3
Approximate weighted N =	2,619	2,651	2,548	2,515	2,349	2,545	2,524	2,223	2,126	2,090	2,126	2,411	2,425	2,399	2,320	2,376	2,268

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-3**  
**Hallucinogens other than LSD: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you take hallucinogens other than LSD how high do you usually get?<sup>a</sup></i>																		
% of Recent Users																		
Not at all high	2.4	1.2	1.2	1.2	2.1	0.9	2.3	2.5	4.0	4.9	3.2	3.4	5.6	3.1	1.0	2.5	5.0	
A little high	7.9	9.6	8.4	8.3	9.6	10.4	12.9	10.3	8.2	10.8	9.5	13.6	13.6	8.8	8.2	5.8	9.9	
Moderately high	35.5	39.6	40.8	36.3	37.7	38.9	37.9	35.9	36.6	38.0	36.1	36.8	32.1	28.7	33.4	41.2	41.0	
Very high	54.1	49.7	49.6	54.3	50.6	49.9	46.9	51.3	51.2	46.3	51.3	46.3	48.6	59.5	57.4	50.5	44.1	
Approximate weighted N =	322	237	246	326	253	255	246	201	170	153	134	114	115	85	53	58	39	
<i>% of All Respondents</i>																		
No use in last 12 months	90.4	93.0	93.0	92.7	91.9	91.8	92.8	94.2	94.7	95.1	95.7	96.2	96.4	97.4	98.1	97.7	98.4	
Not at all high	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.1	
A little high	0.8	0.7	0.6	0.6	0.8	0.9	0.9	0.6	0.4	0.5	0.4	0.5	0.5	0.2	0.2	0.1	0.2	
Moderately high	3.4	2.8	2.9	2.6	3.0	3.2	2.7	2.1	1.9	1.9	1.5	1.4	1.2	0.8	0.6	1.0	0.6	
Very high	5.2	3.5	3.5	4.0	4.1	4.1	3.4	3.0	2.7	2.3	2.2	1.8	1.8	1.6	1.1	1.2	0.7	
Approximate weighted N =	3,354	3,386	3,514	4,466	3,127	3,098	3,407	3,466	3,235	3,129	3,142	3,004	3,182	3,220	2,734	2,498	2,472	
<i>When you take hallucinogens other than LSD how long do you usually stay high?<sup>a</sup></i>																		
% of Recent Users																		
Usually don't get high	2.0	1.2	1.1	1.3	2.5	1.3	2.8	3.6	4.8	4.0	0.9	5.2	7.2	3.9	4.2	2.5	7.6	
One to two hours	8.5	9.4	7.0	8.4	8.3	7.8	8.3	6.6	7.9	8.9	12.9	9.1	9.8	7.8	16.5	13.8	12.3	
Three to six hours	41.3	46.1	45.5	47.7	48.2	49.1	47.1	52.6	54.1	48.7	46.7	43.3	46.0	46.2	35.3	46.8	25.9	
Seven to 24 hours	45.6	39.9	44.1	41.1	37.2	39.6	38.7	34.4	30.5	36.0	37.1	40.6	35.8	40.5	42.1	25.8	52.4	
More than 24 hours	2.7	3.4	2.3	1.5	3.8	2.2	3.1	2.8	2.7	2.5	2.5	1.9	1.3	1.6	1.9	11.2	1.8	
Approximate weighted N =	322	238	243	326	249	254	246	203	171	153	132	115	116	84	55	60	40	
<i>% of All Respondents</i>																		
No use in last 12 months	90.4	93.0	93.0	92.7	92.0	91.8	92.8	94.1	94.7	95.1	95.8	96.2	96.4	97.4	98.0	97.6	98.4	
Usually don't get high	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.0	0.2	0.3	0.1	0.1	0.1	0.1	
One to two hours	0.8	0.7	0.5	0.6	0.7	0.6	0.6	0.4	0.4	0.4	0.5	0.3	0.4	0.2	0.3	0.3	0.2	
Three to six hours	4.0	3.2	3.2	3.5	3.8	4.0	3.4	3.1	2.9	2.4	2.0	1.7	1.7	1.2	0.7	1.1	0.4	
Seven to 24 hours	4.4	2.8	3.1	3.0	3.0	3.2	2.8	2.0	1.6	1.8	1.6	1.6	1.3	1.1	0.8	0.6	0.8	
More than 24 hours	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.0	
Approximate weighted N =	3,354	3,400	3,471	4,466	3,123	3,096	3,407	3,467	3,236	3,129	3,140	3,005	3,183	3,219	2,736	2,499	2,473	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-3 (cont.)**  
**Hallucinogens other than LSD: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take hallucinogens other than LSD how high do you usually get?<sup>a</sup></i>																	
% of Recent Users																	
Not at all high	1.0	7.6	8.8	3.1	4.0	3.1	1.9	2.8	1.7	5.1	0.6	0.9	5.0	5.2	4.1	2.2	2.0
A little high	18.2	10.8	12.6	4.4	7.9	10.7	5.3	7.2	4.5	5.6	5.4	2.8	10.0	7.9	5.3	10.9	10.6
Moderately high	32.0	37.4	25.5	24.5	26.9	20.4	38.0	16.1	26.4	31.3	39.5	25.2	31.7	16.6	22.5	28.9	35.8
Very high	48.8	44.2	53.1	68.1	61.2	65.9	54.8	73.8	67.5	58.1	54.6	71.0	53.3	70.3	68.2	58.0	51.7
Approximate weighted N =	47	62	67	86	103	120	110	98	97	126	108	129	151	132	101	121	106
<i>% of All Respondents</i>																	
No use in last 12 months	98.2	97.6	97.3	96.6	95.6	95.2	95.6	95.6	95.3	93.9	94.9	94.6	93.7	94.4	95.6	94.9	95.3
Not at all high	0.0	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.0	0.1	0.3	0.3	0.2	0.1	0.1
A little high	0.3	0.3	0.3	0.1	0.4	0.5	0.2	0.3	0.2	0.3	0.3	0.2	0.6	0.4	0.2	0.6	0.5
Moderately high	0.6	0.9	0.7	0.8	1.2	1.0	1.7	0.7	1.2	1.9	2.0	1.4	2.0	0.9	1.0	1.5	1.7
Very high	0.9	1.0	1.4	2.3	2.7	3.2	2.4	3.3	3.2	3.6	2.8	3.9	3.4	3.9	3.0	3.0	2.4
Approximate weighted N =	2,591	2,629	2,523	2,515	2,319	2,500	2,486	2,213	2,079	2,058	2,116	2,385	2,394	2,374	2,291	2,354	2,242
<i>When you take hallucinogens other than LSD how long do you usually stay high?<sup>a</sup></i>																	
% of Recent Users																	
Usually don't get high	6.1	3.6	7.2	3.1	2.4	4.3	2.1	2.8	2.1	3.8	2.0	2.1	2.3	5.3	3.6	3.0	5.6
One to two hours	15.3	6.9	11.5	6.2	8.8	5.3	2.6	7.1	10.0	8.0	7.9	3.8	14.4	3.3	6.9	8.4	16.4
Three to six hours	38.9	51.9	41.5	35.0	55.6	57.9	56.0	44.9	52.0	49.5	57.2	49.9	54.0	52.7	49.4	53.1	45.5
Seven to 24 hours	33.3	37.7	39.8	50.2	29.5	30.6	37.3	42.2	32.7	35.5	32.9	42.0	28.4	37.2	36.9	35.4	27.4
More than 24 hours	6.4	0.0	0.0	5.5	3.6	2.0	1.9	3.1	3.2	3.1	0.0	2.1	1.0	1.6	3.3	0.0	5.1
Approximate weighted N =	48	59	68	86	101	118	110	98	97	125	108	131	149	131	101	122	104
<i>% of All Respondents</i>																	
No use in last 12 months	98.1	97.8	97.3	96.6	95.6	95.3	95.6	95.6	95.3	93.9	94.9	94.5	93.8	94.5	95.6	94.8	95.4
Usually don't get high	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.3
One to two hours	0.3	0.2	0.3	0.2	0.4	0.2	0.1	0.3	0.5	0.5	0.4	0.2	0.9	0.2	0.3	0.4	0.8
Three to six hours	0.7	1.2	1.1	1.2	2.4	2.7	2.5	2.0	2.4	2.2	2.9	2.7	3.4	2.9	2.2	2.8	2.1
Seven to 24 hours	0.6	0.8	1.1	1.7	1.3	1.4	1.7	1.9	1.5	2.2	1.7	2.3	1.8	2.1	1.6	1.8	1.3
More than 24 hours	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.0	0.2
Approximate weighted N =	2,592	2,626	2,524	2,515	2,317	2,498	2,486	2,213	2,079	2,057	2,117	2,387	2,392	2,373	2,291	2,355	2,240

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-4**  
**Cocaine: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you take cocaine how high do you usually get?</i> <sup>a</sup>																		↑ Cont.
% of Recent Users																		
I don't take it to get high	1.1	0.8	0.3	0.0	2.1	1.9	0.6	2.1	1.9	2.8	3.1	4.1	3.6	4.9	4.6	3.9	2.7	
Not at all high	3.5	2.9	4.5	5.5	3.6	3.6	7.4	6.4	10.1	6.0	6.8	4.6	5.9	5.7	7.9	10.2	11.3	
A little high	18.8	11.8	17.9	17.6	19.6	22.9	22.1	22.7	25.7	23.5	24.5	24.6	18.8	19.1	12.1	18.1	13.2	
Moderately high	40.1	45.1	45.9	38.2	50.6	43.7	42.4	44.5	37.0	39.3	43.1	43.4	44.0	43.3	39.7	36.1	45.1	
Very high	36.6	39.5	31.4	38.6	24.2	27.9	27.5	24.3	25.3	28.4	22.5	23.5	27.7	27.0	35.7	31.8	27.8	
Approximate weighted N =	124	166	223	335	394	360	434	421	343	362	409	407	329	264	156	109	71	
% of All Respondents																		
No use in last 12 months	94.4	94.0	92.8	91.0	87.5	88.4	87.2	87.9	89.4	88.4	87.0	86.4	89.5	91.7	94.2	95.6	97.1	
I don't take it to get high	0.1	0.0	0.0	0.0	0.3	0.2	0.1	0.3	0.2	0.3	0.4	0.6	0.4	0.4	0.3	0.2	0.1	
Not at all high	0.2	0.2	0.3	0.5	0.5	0.4	0.9	0.8	1.1	0.7	0.9	0.6	0.6	0.5	0.5	0.5	0.3	
A little high	1.1	0.7	1.3	1.6	2.5	2.7	2.8	2.7	2.7	2.7	3.2	3.3	2.0	1.6	0.7	0.8	0.4	
Moderately high	2.2	2.7	3.3	3.4	6.3	5.1	5.4	5.4	3.9	4.6	5.6	5.9	4.6	3.6	2.3	1.6	1.3	
Very high	2.0	2.4	2.3	3.5	3.0	3.2	3.5	2.9	2.7	3.3	2.9	3.2	2.9	2.2	2.1	1.4	0.8	
Approximate weighted N =	2,214	2,767	3,097	3,722	3,142	3,105	3,400	3,473	3,235	3,114	3,142	2,992	3,130	3,179	2,685	2,480	2,420	
<i>When you take cocaine how long do you usually stay high?</i> <sup>a</sup>																		
% of Recent Users																		
Usually don't get high	3.4	2.8	3.6	5.8	5.8	7.2	8.2	8.2	14.5	9.7	9.2	8.7	9.8	12.8	11.3	11.6	21.5	
One to two hours	31.0	27.6	31.9	33.2	43.3	38.2	45.9	43.2	41.3	43.7	48.6	55.2	44.7	49.3	52.6	52.0	34.0	
Three to six hours	47.5	46.8	49.4	39.6	36.5	36.0	33.8	34.5	34.1	33.6	31.8	27.7	29.2	25.6	20.9	25.9	32.3	
Seven to 24 hours	14.4	19.6	13.1	20.9	14.1	17.3	9.8	13.3	8.7	11.8	8.5	7.1	13.0	10.1	9.8	8.1	10.4	
More than 24 hours	3.7	3.1	1.9	0.5	0.3	1.3	2.3	0.8	1.4	1.1	1.9	1.3	3.3	2.3	5.3	2.5	1.7	
Approximate weighted N =	125	165	220	331	392	357	432	419	344	360	403	408	329	262	151	108	72	
% of All Respondents																		
No use in last 12 months	94.4	94.0	92.8	91.0	87.5	88.5	87.3	87.9	89.4	88.4	87.1	86.4	89.5	91.7	94.4	95.6	97.0	
Usually don't get high	0.2	0.2	0.3	0.5	0.7	0.8	1.0	1.0	1.5	1.1	1.2	1.2	1.0	1.1	0.6	0.5	0.6	
One to two hours	1.7	1.7	2.3	3.0	5.4	4.4	5.8	5.2	4.4	5.1	6.2	7.5	4.7	4.1	3.0	2.3	1.0	
Three to six hours	2.7	2.8	3.6	3.6	4.6	4.2	4.3	4.2	3.6	3.9	4.1	3.8	3.1	2.1	1.2	1.1	1.0	
Seven to 24 hours	0.8	1.2	0.9	1.9	1.8	2.0	1.2	1.6	0.9	1.4	1.1	1.0	1.4	0.8	0.6	0.4	0.3	
More than 24 hours	0.2	0.2	0.1	0.0	0.0	0.1	0.3	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.3	0.1	0.0	
Approximate weighted N =	2,232	2,750	3,056	3,678	3,140	3,102	3,398	3,471	3,235	3,112	3,137	2,993	3,130	3,178	2,680	2,479	2,420	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-4 (cont.)**  
**Cocaine: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take cocaine</i>																	
<i>how high do you usually get?</i> <sup>a</sup>																	
% of Recent Users																	
I don't take it to get high	3.1	7.7	2.6	4.6	9.5	4.6	7.6	5.1	5.1	11.7	4.6	2.4	5.1	3.6	3.3	0.0	7.5
Not at all high	6.4	12.1	10.5	8.9	5.1	5.1	10.8	7.1	8.6	8.9	8.9	12.8	12.2	12.7	4.0	6.3	11.1
A little high	22.1	19.7	16.3	12.9	13.2	15.4	16.6	12.0	29.1	14.4	14.3	12.6	17.9	14.8	17.4	15.5	14.9
Moderately high	31.8	33.6	33.0	27.8	46.7	30.6	35.2	45.9	29.0	32.2	42.9	41.8	35.8	33.6	40.3	40.5	32.9
Very high	36.5	27.0	37.5	45.8	25.4	44.3	29.8	29.9	28.2	32.7	29.3	30.5	29.0	35.3	35.0	37.6	33.7
<i>Approximate weighted N =</i>	66	89	79	85	76	127	119	126	99	99	90	97	124	119	118	113	107
% of All Respondents																	
No use in last 12 months	97.4	96.5	96.8	96.5	96.6	94.8	95.1	94.2	95.1	95.1	95.6	95.8	94.6	94.9	94.8	95.1	95.1
I don't take it to get high	0.1	0.3	0.1	0.2	0.3	0.2	0.4	0.3	0.3	0.6	0.2	0.1	0.3	0.2	0.2	0.0	0.4
Not at all high	0.2	0.4	0.3	0.3	0.2	0.3	0.5	0.4	0.4	0.4	0.4	0.5	0.7	0.7	0.2	0.3	0.5
A little high	0.6	0.7	0.5	0.4	0.4	0.8	0.8	0.7	1.4	0.7	0.6	0.5	1.0	0.8	0.9	0.8	0.7
Moderately high	0.8	1.2	1.1	1.0	1.6	1.6	1.7	2.7	1.4	1.6	1.9	1.8	1.9	1.7	2.1	2.0	1.6
Very high	0.9	0.9	1.2	1.6	0.9	2.3	1.5	1.7	1.4	1.6	1.3	1.3	1.6	1.8	1.8	1.8	1.6
<i>Approximate weighted N =</i>	2,560	2,550	2,473	2,463	2,261	2,452	2,424	2,169	2,024	2,020	2,053	2,308	2,318	2,319	2,269	2,311	2,208
<i>When you take cocaine</i>																	
<i>how long do you usually stay high?</i> <sup>a</sup>																	
% of Recent Users																	
Usually don't get high	6.6	16.9	10.4	13.0	6.3	10.5	14.1	9.8	15.0	12.1	7.3	14.1	16.0	15.8	13.1	8.7	15.1
One to two hours	41.8	42.7	52.8	41.4	51.8	51.3	44.4	39.7	39.8	40.9	48.9	39.6	50.1	46.7	54.9	51.6	52.6
Three to six hours	25.0	24.2	20.1	18.7	22.9	24.9	29.6	36.1	28.5	25.0	29.1	32.1	22.3	22.2	22.1	26.1	20.6
Seven to 24 hours	20.2	12.9	12.8	21.1	11.5	13.2	6.7	12.9	11.4	18.2	10.8	11.0	8.8	13.0	9.1	10.7	8.5
More than 24 hours	6.5	3.3	3.9	5.7	7.5	0.0	5.2	1.5	5.3	3.9	3.9	3.3	2.9	2.4	0.8	2.9	3.3
<i>Approximate weighted N =</i>	64	92	74	83	69	128	115	126	98	99	86	93	124	116	114	111	100
% of All Respondents																	
No use in last 12 months	97.5	96.4	97.0	96.6	96.9	94.8	95.2	94.2	95.2	95.1	95.8	96.0	94.7	95.0	95.0	95.2	95.5
Usually don't get high	0.2	0.6	0.3	0.4	0.2	0.5	0.7	0.6	0.7	0.6	0.3	0.6	0.9	0.8	0.7	0.4	0.7
One to two hours	1.0	1.5	1.6	1.4	1.6	2.7	2.1	2.3	1.9	2.0	2.1	1.6	2.7	2.3	2.8	2.5	2.4
Three to six hours	0.6	0.9	0.6	0.6	0.7	1.3	1.4	2.1	1.4	1.2	1.2	1.3	1.2	1.1	1.1	1.3	0.9
Seven to 24 hours	0.5	0.5	0.4	0.7	0.4	0.7	0.3	0.7	0.6	0.9	0.5	0.4	0.5	0.7	0.5	0.5	0.4
More than 24 hours	0.2	0.1	0.1	0.2	0.2	0.0	0.2	0.1	0.3	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.2
<i>Approximate weighted N =</i>	2,559	2,553	2,468	2,461	2,254	2,453	2,421	2,168	2,022	2,020	2,048	2,305	2,317	2,315	2,266	2,310	2,200

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-5**  
**Narcotics other than Heroin: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you take narcotics other than heroin how high do you usually get?<sup>a</sup></i>																		
% of Recent Users																		
I don't take them to get high	4.1	7.6	7.8	10.4	10.0	8.6	14.5	17.8	21.9	22.5	21.3	19.6	28.8	24.5	29.6	36.6	20.5	
Not at all high	3.6	6.1	2.8	5.9	8.1	10.5	11.6	3.8	9.9	7.5	12.1	12.1	19.1	7.9	12.2	10.1	9.9	
A little high	8.8	18.3	25.9	17.5	24.3	21.6	30.0	26.6	17.9	29.4	28.5	25.2	18.7	19.3	15.1	18.5	20.6	
Moderately high	45.0	40.4	37.5	41.4	40.1	41.2	29.4	34.0	34.3	28.1	27.7	24.3	15.5	31.8	27.5	19.5	36.9	
Very high	38.5	27.5	26.0	24.8	17.5	18.2	14.5	17.7	16.0	12.5	10.4	18.8	17.8	16.6	15.6	15.3	12.1	
Approximate weighted N =	78	130	124	179	156	165	182	116	94	125	126	104	112	84	66	71	46	
% of All Respondents																		
No use in last 12 months	94.3	94.3	93.6	94.0	94.9	94.5	94.4	96.5	97.0	95.9	95.9	96.4	96.4	97.3	97.5	97.1	98.1	
I don't take them to get high	0.2	0.4	0.5	0.6	0.5	0.5	0.8	0.6	0.7	0.9	0.9	0.7	1.0	0.7	0.7	1.1	0.4	
Not at all high	0.2	0.3	0.2	0.4	0.4	0.6	0.6	0.1	0.3	0.3	0.5	0.4	0.7	0.2	0.3	0.3	0.2	
A little high	0.5	1.0	1.7	1.1	1.2	1.2	1.7	0.9	0.5	1.2	1.2	0.9	0.7	0.5	0.4	0.5	0.4	
Moderately high	2.6	2.3	2.4	2.5	2.1	2.3	1.6	1.2	1.0	1.2	1.1	0.9	0.6	0.8	0.7	0.6	0.7	
Very high	2.2	1.6	1.7	1.5	0.9	1.0	0.8	0.6	0.5	0.5	0.4	0.7	0.6	0.4	0.4	0.4	0.2	
Approximate weighted N =	1,368	2,281	1,938	2,983	3,045	2,983	3,277	3,353	3,115	3,048	3,065	2,911	3,091	3,144	2,655	2,465	2,410	
<i>When you take narcotics other than heroin how long do you usually stay high?<sup>a</sup></i>																		
% of Recent Users																		
Usually don't get high	6.8	15.4	7.4	24.6	17.8	15.7	24.2	17.0	23.9	23.2	25.1	24.7	41.4	23.7	38.8	38.5	31.3	
One to two hours	8.8	16.7	32.5	19.3	24.6	29.5	30.4	36.4	26.7	29.3	30.9	30.9	25.9	26.6	18.2	24.0	23.0	
Three to six hours	56.5	44.1	46.2	50.2	44.3	42.1	33.2	34.0	38.6	38.1	29.9	35.3	24.9	41.4	22.6	29.1	38.2	
Seven to 24 hours	24.5	20.5	11.1	15.9	12.1	12.4	9.8	12.0	8.4	8.8	13.3	9.2	5.8	7.5	15.6	5.7	7.5	
More than 24 hours	3.4	3.2	2.8	0.0	1.2	0.2	2.3	0.6	2.4	0.6	0.8	0.0	2.0	0.8	4.8	2.7	0.0	
Approximate weighted N =	78	130	124	173	151	164	180	116	94	121	128	102	112	79	65	69	49	
% of All Respondents																		
No use in last 12 months	94.3	94.3	93.6	94.0	95.0	94.5	94.5	96.5	97.0	96.0	95.8	96.5	96.4	97.5	97.5	97.2	98.0	
Usually don't get high	0.4	0.9	0.5	0.9	0.9	0.9	1.3	0.6	0.7	0.9	1.0	0.9	1.5	0.6	1.0	1.1	0.6	
One to two hours	0.5	1.0	2.1	1.2	1.2	1.6	1.7	1.3	0.8	1.2	1.3	1.1	0.9	0.7	0.4	0.7	0.5	
Three to six hours	3.2	2.5	3.0	3.0	2.2	2.3	1.8	1.2	1.2	1.5	1.2	1.2	0.9	1.0	0.6	0.8	0.8	
Seven to 24 hours	1.4	1.2	0.7	1.0	0.6	0.7	0.5	0.4	0.3	0.3	0.6	0.3	0.2	0.2	0.4	0.2	0.2	
More than 24 hours	0.2	0.2	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	
Approximate weighted N =	1,368	2,281	1,938	2,883	3,040	2,982	3,275	3,353	3,116	3,043	3,067	2,908	3,092	3,139	2,654	2,463	2,413	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-5 (cont.)**  
**Narcotics other than Heroin: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take narcotics other than heroin how high do you usually get?<sup>a</sup></i>																	
% of Recent Users																	
I don't take them to get high	27.7	25.1	22.7	13.7	23.4	12.8	12.6	14.2	19.6	18.6	15.4	19.4	7.4	15.1	10.7	15.0	15.6
Not at all high	26.7	18.0	10.8	13.0	12.3	5.0	9.8	10.6	9.0	0.0	11.6	4.6	8.9	8.5	7.2	7.7	9.6
A little high	19.2	12.8	22.8	13.9	20.0	27.4	27.5	14.7	20.8	27.8	23.0	21.2	23.9	28.4	25.9	26.3	24.1
Moderately high	14.2	27.9	29.0	34.0	23.4	43.0	26.0	38.3	30.2	31.6	35.3	40.3	42.3	34.7	37.0	39.5	37.5
Very high	12.1	16.3	14.8	25.5	20.9	11.8	24.1	22.3	20.4	21.9	14.8	14.5	17.5	13.3	19.2	11.6	13.1
Approximate weighted N =	74	56	58	51	82	96	113	89	102	82	133	158	182	168	144	186	174
<i>% of All Respondents</i>																	
No use in last 12 months	97.1	97.8	97.7	97.9	96.4	96.0	95.3	95.9	94.9	95.9	93.5	93.1	92.2	92.7	93.6	91.9	92.0
I don't take them to get high	0.8	0.6	0.5	0.3	0.8	0.5	0.6	0.6	1.0	0.8	1.0	1.3	0.6	1.1	0.7	1.2	1.3
Not at all high	0.8	0.4	0.3	0.3	0.4	0.2	0.5	0.4	0.5	0.0	0.8	0.3	0.7	0.6	0.5	0.6	0.8
A little high	0.6	0.3	0.5	0.3	0.7	1.1	1.3	0.6	1.1	1.1	1.5	1.5	1.9	2.1	1.7	2.1	1.9
Moderately high	0.4	0.6	0.7	0.7	0.9	1.7	1.2	1.6	1.5	1.3	2.3	2.8	3.3	2.5	2.4	3.2	3.0
Very high	0.4	0.4	0.3	0.5	0.8	0.5	1.1	0.9	1.0	0.9	1.0	1.0	1.4	1.0	1.2	0.9	1.1
Approximate weighted N =	2,538	2,553	2,492	2,442	2,261	2,407	2,409	2,167	2,001	1,996	2,035	2,299	2,334	2,305	2,258	2,304	2,177
<i>When you take narcotics other than heroin how long do you usually stay high?<sup>a</sup></i>																	
% of Recent Users																	
Usually don't get high	36.8	36.3	31.7	22.4	27.8	20.6	18.8	21.5	23.1	15.2	22.8	17.6	15.1	17.4	12.5	17.8	19.3
One to two hours	26.7	18.1	31.6	23.8	22.7	35.7	26.1	30.1	25.9	36.7	29.7	34.4	35.4	35.3	36.8	33.1	32.1
Three to six hours	26.0	29.9	35.2	36.2	32.5	36.1	37.8	29.2	42.9	40.2	33.0	36.8	42.0	33.3	40.1	42.1	37.3
Seven to 24 hours	5.6	13.0	0.7	15.4	14.2	7.6	14.4	17.4	3.9	7.8	14.5	10.0	6.7	11.5	9.3	6.4	9.0
More than 24 hours	5.0	2.7	0.9	2.3	2.7	0.0	2.9	1.7	4.2	0.0	0.0	1.2	0.8	2.6	1.3	0.7	2.4
Approximate weighted N =	76	57	60	49	82	96	111	89	97	84	136	156	182	166	144	185	174
<i>% of All Respondents</i>																	
No use in last 12 months	97.0	97.8	97.6	98.0	96.4	96.0	95.4	95.9	95.1	95.8	93.3	93.2	92.2	92.8	93.6	92.0	92.0
Usually don't get high	1.1	0.8	0.8	0.5	1.0	0.8	0.9	0.9	1.1	0.6	1.5	1.2	1.2	1.3	0.8	1.4	1.5
One to two hours	0.8	0.4	0.8	0.5	0.8	1.4	1.2	1.2	1.3	1.5	2.0	2.3	2.8	2.5	2.4	2.7	2.6
Three to six hours	0.8	0.7	0.8	0.7	1.2	1.4	1.7	1.2	2.1	1.7	2.2	2.5	3.3	2.4	2.6	3.4	3.0
Seven to 24 hours	0.2	0.3	0.0	0.3	0.5	0.3	0.7	0.7	0.2	0.3	1.0	0.7	0.5	0.8	0.6	0.5	0.7
More than 24 hours	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2
Approximate weighted N =	2,540	2,554	2,493	2,441	2,261	2,407	2,406	2,167	1,996	1,998	2,037	2,297	2,334	2,303	2,258	2,302	2,177

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-6**  
**Amphetamines: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you take amphetamines how high do you usually get?<sup>a</sup></i>																		
% of Recent Users																		
I don't take them to get high	9.3	10.7	15.1	14.7	16.8	17.1	20.2	21.0	24.2	22.8	20.4	18.7	20.7	23.9	19.3	15.8	24.7	
Not at all high	4.6	5.0	7.5	6.2	7.7	8.9	11.5	9.1	11.9	9.3	12.8	10.8	12.2	14.2	14.0	18.8	10.8	
A little high	26.4	26.1	24.0	25.9	26.5	34.0	31.4	36.8	33.0	34.8	36.7	42.6	40.0	29.1	30.8	30.0	35.5	
Moderately high	44.6	43.8	39.2	40.2	36.4	30.8	30.6	28.5	27.0	29.5	24.9	23.3	20.6	24.8	24.4	24.9	16.8	
Very high	15.1	14.4	14.1	13.0	12.6	9.3	6.3	4.6	3.9	3.5	5.2	4.6	6.6	8.0	11.5	10.5	12.1	
<i>Approximate weighted N =</i>	410	406	449	542	507	575	788	622	463	418	380	305	265	196	153	131	107	
% of All Respondents																		
No use in last 12 months	83.8	84.2	83.7	82.9	83.6	81.2	76.5	82.0	85.6	86.7	87.9	89.8	91.7	93.9	94.4	94.8	95.7	
I don't take them to get high	1.5	1.7	2.5	2.5	2.8	3.2	4.8	3.8	3.5	3.0	2.5	1.9	1.7	1.5	1.1	0.8	1.1	
Not at all high	0.7	0.8	1.2	1.1	1.3	1.7	2.7	1.6	1.7	1.2	1.6	1.1	1.0	0.9	0.8	1.0	0.5	
A little high	4.3	4.1	3.9	4.4	4.3	6.4	7.4	6.6	4.8	4.6	4.5	4.3	3.3	3.8	1.7	1.6	1.5	
Moderately high	7.2	6.9	6.4	6.9	6.0	5.8	7.2	5.1	3.9	3.9	3.0	2.4	1.7	1.5	1.4	1.3	0.7	
Very high	2.4	2.3	2.3	2.2	2.1	1.7	1.5	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.5	
<i>Approximate weighted N =</i>	2,531	2,570	2,755	3,170	3,098	3,055	3,354	3,455	3,211	3,129	3,131	2,994	3,170	3,217	2,741	2,513	2,473	
<i>When you take amphetamines how long do you usually stay high?<sup>a</sup></i>																		
% of Recent Users																		
Usually don't get high	10.7	11.2	11.9	14.5	15.4	17.9	24.4	17.5	22.7	25.3	26.1	21.3	24.4	29.3	25.3	30.0	38.8	
One to two hours	11.4	12.1	15.3	17.0	18.7	19.9	20.3	25.2	23.2	27.0	31.4	36.8	37.4	30.4	36.9	33.2	23.4	
Three to six hours	37.0	48.4	38.4	39.5	40.1	43.4	38.2	45.5	42.6	35.7	31.2	31.0	23.3	26.0	26.5	22.5	19.0	
Seven to 24 hours	37.0	26.1	31.6	27.1	23.8	17.7	16.3	11.0	9.7	11.9	10.8	10.1	12.9	13.1	7.2	12.9	12.8	
More than 24 hours	3.8	2.1	2.9	1.9	2.0	1.1	0.8	0.8	1.8	0.2	0.6	0.8	2.0	1.1	4.2	1.4	6.0	
<i>Approximate weighted N =</i>	412	413	446	546	521	583	810	627	478	424	392	309	267	202	154	131	109	
% of All Respondents																		
No use in last 12 months	83.8	84.2	83.7	82.9	83.3	81.0	76.0	81.9	85.2	86.5	87.5	89.7	91.6	93.7	94.4	94.8	95.6	
Usually don't get high	1.7	1.8	1.9	2.5	2.6	3.4	5.8	3.2	3.4	3.4	3.3	2.2	2.0	1.8	1.4	1.6	1.7	
One to two hours	1.8	1.9	2.5	2.9	3.1	3.8	4.9	4.6	3.4	3.7	3.9	3.8	3.1	1.9	2.1	1.7	1.0	
Three to six hours	6.0	7.6	6.3	6.7	6.7	8.3	9.2	8.2	6.3	4.8	3.9	3.2	2.0	1.6	1.5	1.2	0.8	
Seven to 24 hours	6.0	4.1	5.1	4.6	4.0	3.4	3.9	2.0	1.4	1.6	1.3	1.0	1.1	0.8	0.4	0.7	0.6	
More than 24 hours	0.6	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.3	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.3	
<i>Approximate weighted N =</i>	2,543	2,614	2,736	3,193	3,111	3,063	3,375	3,460	3,227	3,135	3,142	2,998	3,172	3,223	2,742	2,513	2,475	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-6 (cont.)**  
**Amphetamines: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take amphetamines how high do you usually get?</i> <sup>a</sup>																	
% of Recent Users																	
I don't take them to get high	15.8	18.6	19.9	16.1	30.6	18.1	18.9	19.6	17.3	22.4	27.4	20.3	18.8	18.5	12.7	18.5	18.8
Not at all high	19.2	20.5	12.0	17.0	9.3	16.0	12.4	12.9	11.4	11.8	15.3	13.7	14.2	11.4	11.4	17.0	14.5
A little high	28.6	30.6	29.1	27.5	25.4	27.3	27.3	26.9	23.5	15.9	23.9	22.6	29.4	23.7	22.7	18.9	22.0
Moderately high	23.0	19.9	26.8	28.1	18.3	23.2	25.1	25.9	28.2	27.4	18.6	29.9	24.6	31.5	35.3	33.4	30.7
Very high	13.4	10.3	12.2	11.3	16.4	15.3	16.3	14.6	19.6	22.5	14.8	13.5	13.1	14.9	17.9	12.2	14.0
<i>Approximate weighted N =</i>	105	127	144	145	138	183	198	141	126	145	146	177	206	135	147	149	124
% of All Respondents																	
No use in last 12 months	96.0	95.2	94.3	94.2	94.0	92.6	92.0	93.7	93.9	92.9	93.0	92.6	91.4	94.3	93.6	93.7	94.5
I don't take them to get high	0.6	0.9	1.1	0.9	1.8	1.3	1.5	1.2	1.1	1.6	1.9	1.5	1.6	1.1	0.8	1.2	1.0
Not at all high	0.8	1.0	0.7	1.0	0.6	1.2	1.0	0.8	0.7	0.8	1.1	1.0	1.2	0.7	0.7	1.1	0.8
A little high	1.1	1.5	1.7	1.6	1.5	2.0	2.2	1.7	1.4	1.1	1.7	1.7	2.5	1.3	1.4	1.2	1.2
Moderately high	0.9	1.0	1.5	1.6	1.1	1.7	2.0	1.6	1.7	1.9	1.3	2.2	2.1	1.8	2.2	2.1	1.7
Very high	0.5	0.5	0.7	0.6	1.0	1.1	1.3	0.9	1.2	1.6	1.0	1.0	1.1	0.8	1.1	0.8	0.8
<i>Approximate weighted N =</i>	2,609	2,634	2,538	2,514	2,300	2,490	2,482	2,233	2,058	2,053	2,101	2,383	2,404	2,381	2,313	2,374	2,253
<i>When you take amphetamines how long do you usually stay high?</i> <sup>a</sup>																	
% of Recent Users																	
Usually don't get high	31.3	33.7	34.6	27.9	32.7	29.0	23.1	21.7	24.1	30.1	36.4	27.2	29.5	28.1	20.6	28.0	26.6
One to two hours	32.2	31.5	28.7	23.8	25.1	26.7	26.5	29.0	26.9	27.8	18.2	25.0	21.8	17.3	14.3	21.6	20.7
Three to six hours	11.0	25.0	20.7	29.7	27.2	29.8	28.0	37.5	34.2	23.9	22.3	24.5	27.0	24.6	30.9	24.7	33.7
Seven to 24 hours	18.1	6.9	10.7	13.6	11.6	12.6	16.9	8.6	14.2	17.0	18.1	18.4	21.0	20.1	30.4	18.4	16.3
More than 24 hours	7.5	3.0	5.3	4.9	3.4	1.9	5.5	3.2	0.6	1.1	5.0	5.0	0.8	9.9	3.8	7.4	2.7
<i>Approximate weighted N =</i>	102	125	146	147	136	178	195	134	123	143	143	172	206	133	147	148	121
% of All Respondents																	
No use in last 12 months	96.1	95.3	94.3	94.2	94.1	92.8	92.1	94.0	94.0	93.0	93.2	92.8	91.4	94.4	93.7	93.8	94.6
Usually don't get high	1.2	1.6	2.0	1.6	1.9	2.1	1.8	1.3	1.4	2.1	2.5	2.0	2.5	1.6	1.3	1.8	1.4
One to two hours	1.3	1.5	1.6	1.4	1.5	1.9	2.1	1.7	1.6	1.9	1.2	1.8	1.9	1.0	0.9	1.4	1.1
Three to six hours	0.4	1.2	1.2	1.7	1.6	2.1	2.2	2.3	2.0	1.7	1.5	1.8	2.3	1.4	2.0	1.5	1.8
Seven to 24 hours	0.7	0.3	0.6	0.8	0.7	0.9	1.3	0.5	0.9	1.2	1.2	1.3	1.8	1.1	1.9	1.2	0.9
More than 24 hours	0.3	0.1	0.3	0.3	0.2	0.1	0.4	0.2	0.0	0.1	0.3	0.4	0.1	0.6	0.2	0.5	0.2
<i>Approximate weighted N =</i>	2,607	2,633	2,539	2,516	2,298	2,485	2,479	2,226	2,055	2,051	2,098	2,378	2,404	2,379	2,313	2,373	2,251

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-7**  
**Tranquilizers: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you take tranquilizers how high do you usually get?</i> <sup>a</sup>																		↑ Cont.
% of Recent Users																		
I don't take them to get high	17.9	18.5	23.6	23.0	16.8	14.7	19.1	25.3	20.2	24.3	21.7	30.7	30.4	42.7	34.8	34.5	48.3	
Not at all high	11.1	16.2	12.4	14.0	15.0	17.6	17.0	17.3	17.1	16.7	17.6	24.0	20.8	12.9	22.6	11.5	13.9	
A little high	30.1	24.1	29.5	27.0	27.0	27.5	28.7	30.0	27.7	29.9	37.5	19.2	18.4	22.4	16.6	26.1	19.7	
Moderately high	28.9	31.4	25.8	29.1	30.5	29.8	22.9	18.5	26.0	21.4	19.8	17.3	18.2	14.1	21.5	18.2	17.3	
Very high	11.9	9.8	8.7	6.8	10.8	10.5	12.4	8.8	9.0	7.7	3.4	8.9	12.2	7.9	4.5	9.8	0.8	
Approximate weighted N =	159	213	243	267	218	205	223	154	128	115	144	122	125	99	68	75	51	
% of All Respondents																		
No use in last 12 months	89.4	89.7	89.2	90.1	92.9	93.2	93.3	95.5	96.0	96.3	95.4	95.9	96.0	96.9	97.5	97.0	97.9	
I don't take them to get high	1.9	1.9	2.5	2.3	1.2	1.0	1.3	1.1	0.8	0.9	1.0	1.3	1.2	1.3	0.9	1.0	1.0	
Not at all high	1.2	1.7	1.3	1.4	1.1	1.2	1.1	0.8	0.7	0.6	0.8	1.0	0.8	0.4	0.6	0.3	0.3	
A little high	3.2	2.5	3.2	2.7	1.9	1.9	1.9	1.4	1.1	1.1	1.7	0.8	0.7	0.7	0.4	0.8	0.4	
Moderately high	3.1	3.2	2.8	2.9	2.2	2.0	1.5	0.8	1.0	0.8	0.9	0.7	0.7	0.4	0.5	0.6	0.4	
Very high	1.3	1.0	0.9	0.7	0.8	0.7	0.8	0.4	0.4	0.3	0.2	0.4	0.5	0.2	0.1	0.3	0.0	
Approximate weighted N =	1,500	2,068	2,250	2,697	3,073	3,040	3,330	3,420	3,186	3,074	3,119	2,963	3,141	3,199	2,710	2,509	2,448	
<i>When you take tranquilizers how long do you usually stay high?</i> <sup>a</sup>																		
% of Recent Users																		
Usually don't get high	29.9	33.0	31.6	32.7	27.8	27.9	31.1	31.9	38.8	36.9	36.8	46.0	50.4	48.3	45.3	35.8	47.2	
One to two hours	17.6	24.1	22.5	26.0	21.3	25.4	27.2	25.0	21.6	25.7	24.7	25.3	20.0	19.3	19.9	20.7	20.5	
Three to six hours	42.9	35.6	38.8	32.3	40.2	32.4	32.1	33.3	32.5	27.8	33.5	22.4	21.8	23.7	28.5	31.1	25.0	
Seven to 24 hours	9.5	6.5	6.1	8.7	9.4	14.2	9.5	9.8	6.3	9.5	3.5	4.4	7.3	8.0	3.0	9.7	5.6	
More than 24 hours	0.0	0.7	1.0	0.4	1.3	0.0	0.0	0.0	0.8	0.0	1.6	1.9	0.4	0.8	3.3	2.8	1.6	
Approximate weighted N =	158	214	242	269	221	200	221	151	132	114	134	121	129	95	65	67	48	
% of All Respondents																		
No use in last 12 months	89.4	89.7	89.2	90.1	92.8	93.4	93.4	95.6	95.9	96.3	95.7	95.9	95.9	97.0	97.6	97.3	98.0	
Usually don't get high	3.2	3.4	3.4	3.2	2.0	1.8	2.1	1.4	1.6	1.4	1.6	1.9	2.1	1.4	1.1	1.0	0.9	
One to two hours	1.9	2.5	2.4	2.6	1.5	1.7	1.8	1.1	0.9	1.0	1.1	1.0	0.8	0.6	0.5	0.6	0.4	
Three to six hours	4.5	3.7	4.2	3.2	2.9	2.1	2.1	1.5	1.3	1.0	1.4	0.9	0.9	0.7	0.7	0.8	0.5	
Seven to 24 hours	1.0	0.7	0.7	0.9	0.7	0.9	0.6	0.4	0.3	0.4	0.1	0.2	0.3	0.2	0.1	0.3	0.1	
More than 24 hours	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	
Approximate weighted N =	1,491	2,078	2,241	2,717	3,075	3,034	3,328	3,417	3,190	3,072	3,110	2,962	3,144	3,196	2,707	2,501	2,446	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-7 (cont.)**  
**Tranquilizers: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you take tranquilizers how high do you usually get?<sup>a</sup></i>																	
% of Recent Users																	
I don't take them to get high	31.0	29.0	30.5	26.6	18.3	19.3	19.6	11.3	9.4	20.1	16.6	16.1	14.3	13.4	10.3	11.7	14.1
Not at all high	18.6	29.5	19.2	18.6	9.4	13.4	8.0	7.9	10.9	11.8	10.4	7.5	13.4	10.3	3.2	7.8	10.4
A little high	16.1	19.0	22.0	18.9	34.0	25.2	24.9	22.1	35.2	21.4	17.2	23.2	24.1	18.0	31.5	22.3	18.5
Moderately high	21.2	14.6	24.4	24.0	28.1	23.9	37.9	39.7	33.7	29.4	34.2	32.0	32.3	36.7	39.0	41.5	34.4
Very high	13.2	7.8	4.0	11.8	10.2	18.2	9.5	19.1	10.9	17.3	21.6	21.2	16.0	21.6	16.0	16.7	22.6
Approximate weighted N =	57	68	58	67	54	83	80	77	69	95	98	110	126	111	96	119	115
% of All Respondents																	
No use in last 12 months	97.8	97.4	97.7	97.3	97.6	96.6	96.8	96.5	96.6	95.3	95.3	95.4	94.7	95.3	95.8	94.9	94.8
I don't take them to get high	0.7	0.8	0.7	0.7	0.4	0.6	0.6	0.4	0.3	0.9	0.8	0.8	0.8	0.6	0.4	0.6	0.7
Not at all high	0.4	0.8	0.4	0.5	0.2	0.5	0.3	0.3	0.4	0.6	0.5	0.4	0.7	0.5	0.1	0.4	0.5
A little high	0.4	0.5	0.5	0.5	0.8	0.9	0.8	0.8	1.2	1.0	0.8	1.1	1.3	0.9	1.3	1.1	1.0
Moderately high	0.5	0.4	0.6	0.6	0.7	0.8	1.2	1.4	1.1	1.4	1.6	1.5	1.7	1.7	1.6	2.1	1.8
Very high	0.3	0.2	0.1	0.3	0.2	0.6	0.3	0.7	0.4	0.8	1.0	1.0	0.9	1.0	0.7	0.9	1.2
Approximate weighted N =	2,571	2,598	2,523	2,500	2,292	2,469	2,468	2,205	2,046	2,033	2,088	2,356	2,363	2,353	2,292	2,334	2,217
<i>When you take tranquilizers how long do you usually stay high?<sup>a</sup></i>																	
% of Recent Users																	
Usually don't get high	48.7	50.2	43.6	34.0	30.6	22.1	25.1	11.5	13.4	25.2	23.8	22.6	20.9	21.8	7.2	19.0	17.1
One to two hours	19.1	19.1	18.7	25.4	22.6	35.2	31.4	36.4	34.3	19.0	27.6	27.8	27.8	25.0	28.8	27.0	24.4
Three to six hours	18.9	19.1	31.3	28.5	32.7	35.7	36.0	41.9	45.8	38.6	35.1	38.1	38.5	40.3	55.2	41.7	40.3
Seven to 24 hours	12.2	11.6	3.0	8.9	11.5	6.1	4.7	9.0	4.6	11.0	12.6	11.5	10.8	11.8	7.4	10.4	18.3
More than 24 hours	1.2	0.0	3.5	3.2	2.6	1.0	2.9	1.3	1.9	6.3	1.0	0.0	2.0	1.1	1.4	1.8	0.0
Approximate weighted N =	55	72	51	62	54	79	81	74	70	95	98	106	128	111	97	118	112
% of All Respondents																	
No use in last 12 months	97.9	97.2	98.0	97.5	97.7	96.8	96.7	96.6	96.6	95.3	95.3	95.5	94.6	95.3	95.8	94.9	94.9
Usually don't get high	1.0	1.4	0.9	0.8	0.7	0.7	0.8	0.4	0.5	1.2	1.1	1.0	1.1	1.0	0.3	1.0	0.9
One to two hours	0.4	0.5	0.4	0.6	0.5	1.1	1.0	1.2	1.2	0.9	1.3	1.3	1.5	1.2	1.2	1.4	1.2
Three to six hours	0.4	0.5	0.6	0.7	0.8	1.1	1.2	1.4	1.6	1.8	1.7	1.7	2.1	1.9	2.3	2.1	2.0
Seven to 24 hours	0.3	0.3	0.1	0.2	0.3	0.2	0.2	0.3	0.2	0.5	0.6	0.5	0.6	0.6	0.3	0.5	0.9
More than 24 hours	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Approximate weighted N =	2,570	2,602	2,516	2,495	2,291	2,465	2,468	2,202	2,047	2,032	2,088	2,352	2,365	2,353	2,293	2,333	2,214

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

**TABLE 7-8**  
**Alcohol: Trends in Degree and Duration of Feeling High in Grade 12**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>When you drink alcoholic beverages how high do you usually get?<sup>a</sup></i>																		↑ Cont.
% of Recent Users																		
Not at all high	23.6	21.6	20.6	19.1	19.6	20.7	18.9	18.9	18.8	19.0	19.7	18.5	18.8	20.0	22.1	23.0	20.6	
A little high	33.8	32.3	32.8	33.9	33.6	32.6	33.8	32.6	35.8	34.0	34.8	34.7	34.4	34.2	34.4	32.3	36.8	
Moderately high	35.9	38.0	39.6	39.9	38.7	39.7	41.4	40.9	38.8	39.2	38.5	39.8	38.8	38.2	35.9	36.2	34.0	
Very high	6.6	8.1	7.0	7.1	8.1	7.0	5.8	7.5	6.7	7.8	7.1	7.1	8.0	7.6	7.6	8.5	8.6	
<i>Approximate weighted N =</i>	2,419	2,368	2,578	3,124	2,764	2,709	2,912	2,958	2,808	2,601	2,618	2,531	2,718	2,755	2,211	1,965	1,898	
% of All Respondents																		
No use in last 12 months	15.2	14.3	13.0	12.3	12.5	13.2	14.7	14.1	14.1	17.1	16.1	16.0	14.6	14.8	18.8	21.2	22.7	
Not at all high	20.0	18.5	17.9	16.8	17.2	18.0	16.2	16.2	16.2	15.8	16.5	15.5	16.0	17.0	18.0	18.1	15.9	
A little high	28.7	27.7	28.5	29.7	29.4	28.3	28.9	28.0	30.7	28.2	29.2	29.1	29.4	29.2	28.0	25.5	28.5	
Moderately high	30.4	32.6	34.5	35.0	33.8	34.4	35.3	35.2	33.3	32.5	32.3	33.4	33.1	32.6	29.2	28.5	26.3	
Very high	5.6	6.9	6.1	6.2	7.1	6.1	5.0	6.5	5.7	6.5	5.9	6.0	6.8	6.5	6.1	6.7	6.7	
<i>Approximate weighted N =</i>	2,853	2,763	2,963	3,562	3,159	3,122	3,413	3,443	3,268	3,137	3,120	3,011	3,183	3,232	2,721	2,493	2,454	
<i>When you drink alcoholic beverages how long do you usually stay high?<sup>a</sup></i>																		
% of Recent Users																		
Usually don't get high	25.7	24.6	22.6	21.3	21.7	22.7	20.9	20.5	21.4	20.3	21.5	20.9	20.8	22.9	24.2	24.7	23.0	
One to two hours	40.5	38.5	38.8	39.8	41.9	39.5	40.3	41.3	40.8	42.2	41.5	40.6	43.8	42.0	41.3	39.4	40.1	
Three to six hours	30.1	33.8	34.8	35.7	32.7	33.8	35.6	34.4	33.7	33.1	33.5	34.9	31.5	32.1	31.6	31.7	31.7	
Seven to 24 hours	3.4	3.0	3.5	3.1	3.4	3.8	3.1	3.4	3.9	4.0	3.1	3.2	3.7	2.9	2.8	4.0	4.6	
More than 24 hours	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.4	0.3	0.3	0.4	0.4	0.2	0.1	0.2	0.3	0.6	
<i>Approximate weighted N =</i>	2,403	2,358	2,547	3,098	2,746	2,697	2,892	2,947	2,792	2,588	2,608	2,509	2,711	2,748	2,202	1,949	1,884	
% of All Respondents																		
No use in last 12 months	15.2	14.3	13.0	12.3	12.6	13.3	14.8	14.1	14.1	17.1	16.1	16.1	14.7	14.8	18.8	21.3	22.8	
Usually don't get high	21.8	21.1	19.7	18.7	19.0	19.7	17.8	17.6	18.3	16.9	18.0	17.5	17.8	19.5	19.6	19.4	17.8	
One to two hours	34.3	33.0	33.8	34.9	36.6	34.2	34.3	35.5	35.0	35.0	34.8	34.1	37.4	35.8	33.5	31.0	31.0	
Three to six hours	25.5	29.0	30.3	31.3	28.6	29.3	30.4	29.6	28.9	27.4	28.1	29.3	26.9	27.3	25.6	24.9	24.4	
Seven to 24 hours	2.9	2.6	3.0	2.7	3.0	3.3	2.7	2.9	3.3	3.4	2.6	2.7	3.2	2.5	2.2	3.2	3.5	
More than 24 hours	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.5	
<i>Approximate weighted N =</i>	2,834	2,751	2,928	3,532	3,142	3,109	3,393	3,431	3,252	3,124	3,110	2,990	3,177	3,226	2,712	2,477	2,441	

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

(Table continued on next page.)

**TABLE 7-8 (cont.)**  
**Alcohol: Trends in Degree and Duration of Feeling High in Grade 12**

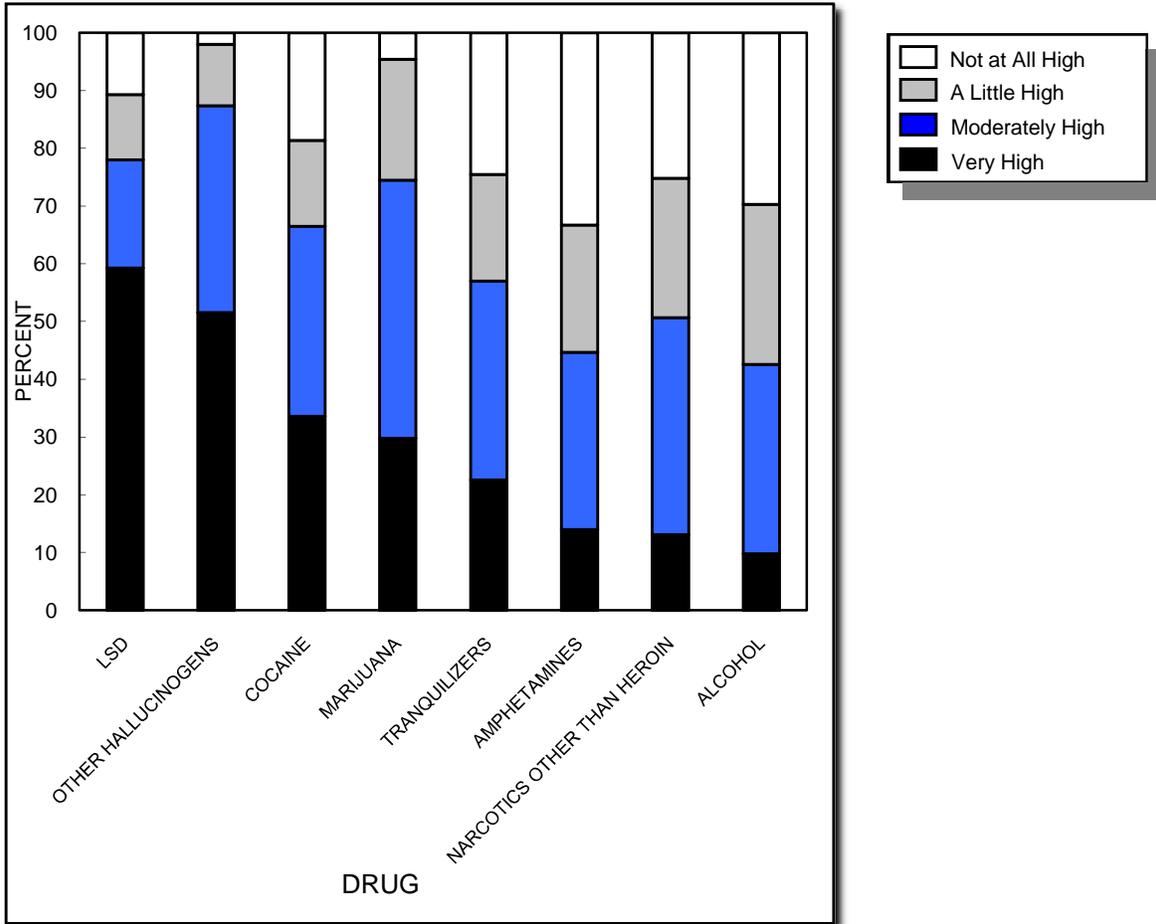
(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>When you drink alcoholic beverages how high do you usually get?<sup>a</sup></i>																	
% of Recent Users																	
Not at all high	24.2	23.8	19.7	20.7	23.2	22.0	20.6	21.1	22.4	20.5	23.2	21.0	23.5	23.6	25.0	28.0	29.7
A little high	32.5	32.2	32.7	32.6	29.9	28.9	29.8	27.3	26.1	26.7	30.1	28.6	25.8	25.3	27.6	26.9	27.7
Moderately high	35.6	36.5	38.3	36.5	35.5	37.5	37.5	41.7	38.8	40.9	35.1	37.6	37.6	38.7	35.2	33.9	32.8
Very high	7.7	7.5	9.2	10.1	11.4	11.6	12.1	10.0	12.7	11.8	11.7	12.9	13.1	12.4	12.2	11.2	9.8
<i>Approximate weighted N =</i>	1,965	1,960	1,866	1,867	1,664	1,915	1,874	1,619	1,567	1,591	1,530	1,691	1,785	1,712	1,629	1,676	1,608
% of All Respondents																	
No use in last 12 months	23.6	25.4	26.4	25.7	28.2	24.7	25.6	27.0	26.2	24.2	28.7	30.1	26.5	29.9	30.0	30.1	30.4
Not at all high	18.5	17.8	14.5	15.4	16.6	16.6	15.3	15.4	16.6	15.6	16.5	14.7	17.3	16.5	17.5	19.6	20.7
A little high	24.8	24.0	24.1	24.2	21.5	21.8	22.2	19.9	19.3	20.2	21.4	20.0	18.9	17.8	19.3	18.8	19.3
Moderately high	27.2	27.2	28.2	27.1	25.5	28.2	27.9	30.5	28.6	31.0	25.1	26.3	27.7	27.1	24.6	23.7	22.8
Very high	5.9	5.6	6.8	7.5	8.2	8.7	9.0	7.3	9.4	9.0	8.3	9.0	9.7	8.7	8.6	7.8	6.8
<i>Approximate weighted N =</i>	2,572	2,627	2,533	2,514	2,318	2,542	2,517	2,217	2,123	2,099	2,145	2,418	2,427	2,441	2,328	2,399	2,311
<i>When you drink alcoholic beverages how long do you usually stay high?<sup>a</sup></i>																	
% of Recent Users																	
Usually don't get high	27.0	26.1	22.5	23.2	25.3	23.5	22.6	22.5	24.6	21.5	24.9	22.3	24.6	25.2	27.0	30.2	32.3
One to two hours	37.3	38.8	40.5	36.7	33.1	33.6	36.8	32.3	32.2	33.7	33.7	32.7	31.5	31.0	32.1	28.9	27.4
Three to six hours	30.7	30.4	32.2	34.2	35.7	36.9	34.5	39.6	37.0	38.5	35.7	39.1	36.5	37.4	34.7	34.3	33.9
Seven to 24 hours	4.7	4.3	4.2	5.4	5.3	5.2	5.7	5.1	5.4	5.6	5.1	5.4	6.7	5.5	5.7	5.8	6.0
More than 24 hours	0.3	0.3	0.6	0.6	0.5	0.9	0.5	0.5	0.9	0.7	0.6	0.6	0.6	0.9	0.5	0.8	0.4
<i>Approximate weighted N =</i>	1,951	1,950	1,857	1,849	1,657	1,897	1,853	1,614	1,552	1,586	1,523	1,681	1,775	1,698	1,625	1,664	1,601
% of All Respondents																	
No use in last 12 months	23.7	25.5	26.4	25.9	28.3	24.8	25.8	27.0	26.4	24.3	28.8	30.2	26.6	30.1	30.1	30.3	30.5
Usually don't get high	20.6	19.5	16.5	17.2	18.2	17.6	16.8	16.4	18.1	16.3	17.7	15.5	18.1	17.7	18.8	21.0	22.5
One to two hours	28.5	28.9	29.8	27.2	23.7	25.3	27.3	23.6	23.7	25.5	24.0	22.8	23.2	21.7	22.5	20.2	19.0
Three to six hours	23.4	22.7	23.7	25.3	25.6	27.7	25.6	28.9	27.2	29.2	25.5	27.3	26.8	26.2	24.2	23.9	23.6
Seven to 24 hours	3.6	3.2	3.1	4.0	3.8	3.9	4.2	3.7	3.9	4.2	3.6	3.8	4.9	3.8	4.0	4.1	4.2
More than 24 hours	0.2	0.2	0.4	0.4	0.4	0.7	0.4	0.4	0.7	0.5	0.4	0.4	0.5	0.6	0.4	0.6	0.3
<i>Approximate weighted N =</i>	2,558	2,616	2,525	2,496	2,311	2,524	2,497	2,211	2,108	2,095	2,138	2,408	2,418	2,427	2,324	2,387	2,304

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>These questions appear in just one form. They are asked only of respondents who report use of the drug in the prior 12 months (i.e., "recent users").

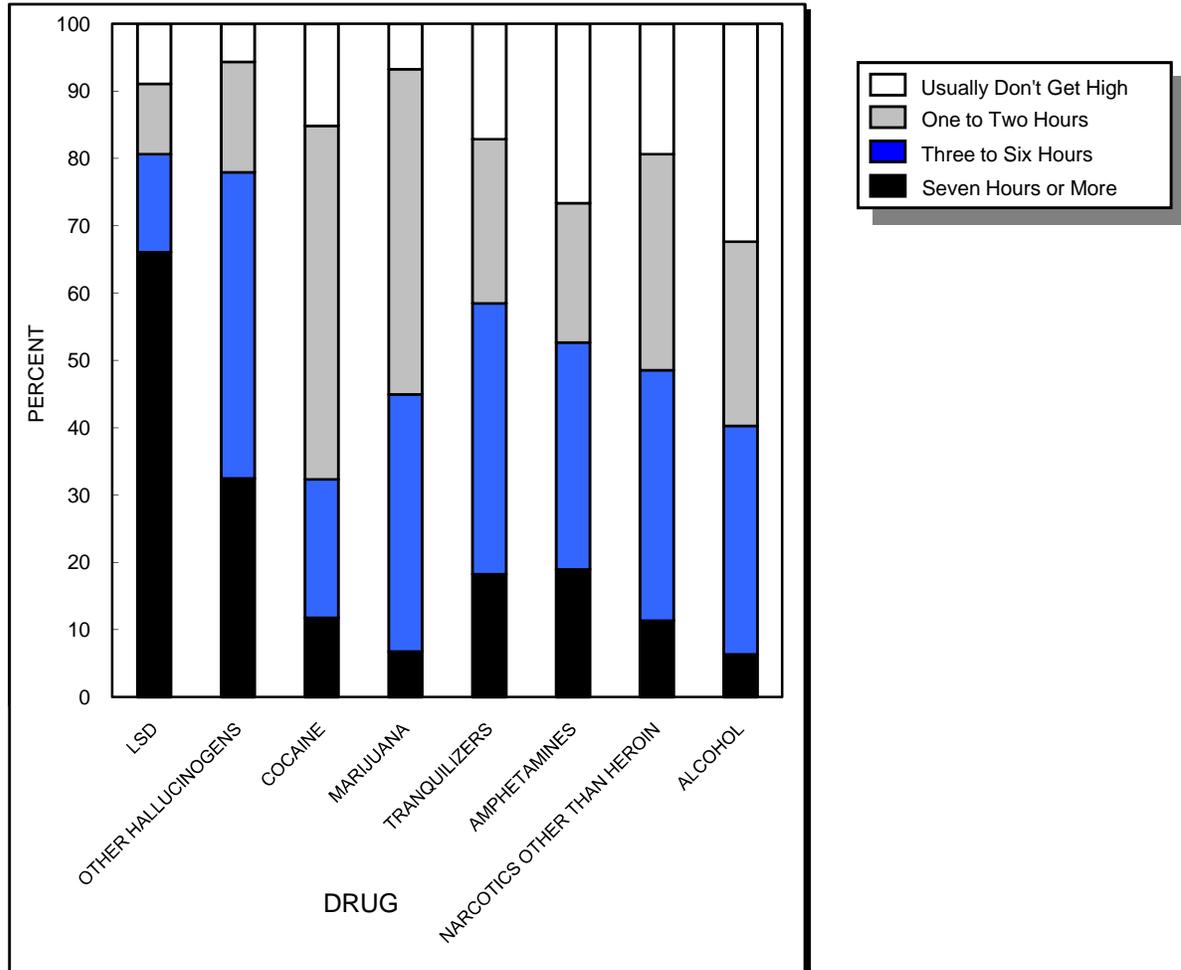
**FIGURE 7-1**  
**Degree of Drug Highs Attained by Recent Users**  
**for Various Drugs in Grade 12**  
**2008**



*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* Data are based on answers from respondents reporting any use of the drug in the prior 12 months. Heroin is not included in this figure because these particular questions are not asked of the small number of heroin users.

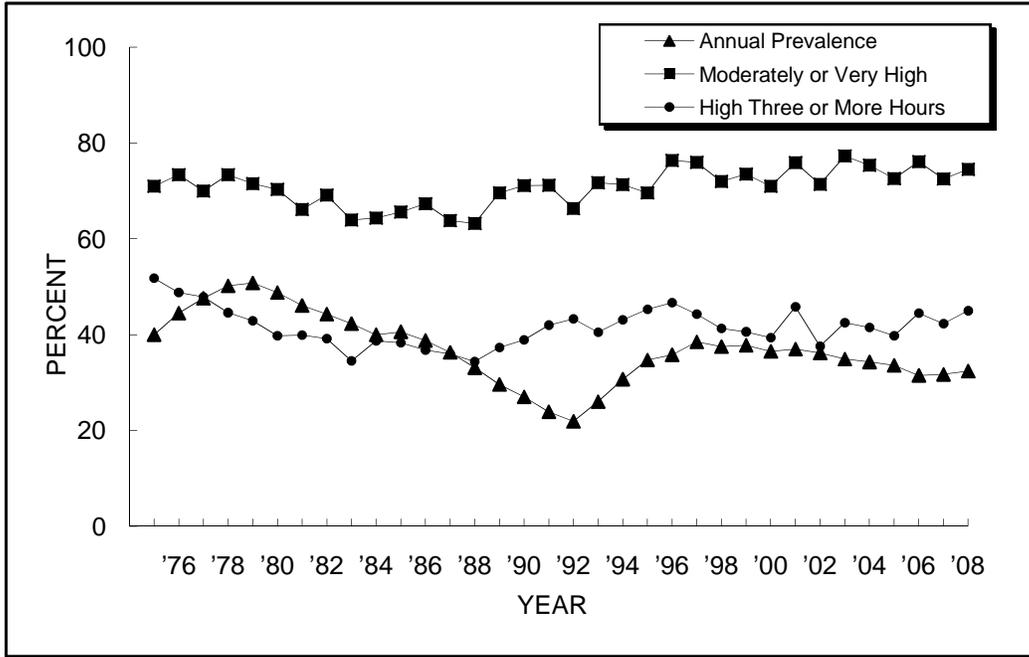
**FIGURE 7-2**  
**Duration of Drug Highs Attained by Recent Users**  
**for Various Drugs in Grade 12**  
**2008**



Source. The Monitoring the Future study, the University of Michigan.

Note. Data are based on answers from respondents reporting any use of the drug in the prior 12 months. Heroin is not included in this figure because these particular questions are not asked of the small number of heroin users.

**FIGURE 7-3**  
**Trends in Annual Prevalence of Marijuana, Percent of Recent Users Getting Moderately or Very High, and Percent of Recent Users Staying High 3 or More Hours in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

Note. "Recent users" is defined as respondents reporting any use of marijuana in the prior 12 months.



## Chapter 8

## ATTITUDES AND BELIEFS ABOUT DRUG USE

At MTF's inception in 1975, a considerable amount of questionnaire content was allocated to measuring certain attitudes and beliefs about use of the various licit and illicit drugs, because we expected they would prove important in explaining drug use. This investment has yielded a great deal of payoff in the years since. Indeed, one of the MTF's most important theoretical and empirical contributions to the general understanding of young people's drug use has been to demonstrate that changes in beliefs and attitudes about drugs are determinants of both the rise and fall of drug use.

The cross-time results for three of these important sets of attitude and belief measures are provided in this section: (a) 8th-, 10th-, and 12th-grade students' beliefs about how *harmful* the various kinds of drug use are for the user, (b) the degree to which students personally *disapprove* of various kinds of drug use, and (c) 12th graders' attitudes about various forms of *legal prohibitions* to using drugs. In the next chapter we present results on the closely related topics of parents' and friends' attitudes about drugs, as students perceive them, as well as on various other aspects of the social context.

The data presented in this chapter show inverse relationships at the aggregate level, between (a) the level of reported use of a drug, and (b) the level of perceived risk and disapproval of using that drug. For example, of the illicit drugs, marijuana has the highest level of use and one of the lowest levels of perceived risk and disapproval. These relationships suggest that individuals who believe that the use of a particular drug involves risk of harm and/or disapprove of its use are less likely to use that drug; indeed, strong correlations also exist at the individual level between use of a drug and attitudes and beliefs about that drug.<sup>75</sup> Students who use a given drug are less likely to disapprove of its use and to see its use as dangerous.

Many attitudes and beliefs about specific drugs have changed dramatically during the life of the study, as have actual drug-using behaviors. Beginning in 1979, scientists, policymakers, and the media gave considerable attention to young people's increasing level of regular marijuana use as reported by this study, and to the potential hazards associated with such use. As discussed later in this chapter, 12th graders' attitudes and beliefs about the regular use of marijuana shifted in a more conservative direction after 1979—a shift that coincided with a reversal in the previous rapid rise of daily use and that very likely reflected the impact of the increased public attention. Between 1986 and 1987, a similar and even more dramatic shift occurred for cocaine use and continued for some years. During much of the 1990s, however, there was an important turnaround or “relapse” in these attitudes, accompanied by an increased use of numerous illicit drugs, in particular marijuana. In the early 2000s, increased recognition of the hazards of ecstasy use appeared to contribute to a sharp downturn in use of that particular drug as we had predicted.

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<sup>75</sup>Johnston, L. D. (2003). Alcohol and illicit drugs: The role of risk perceptions. In D. Romer (Ed.), *Reducing adolescent risk: Toward an integrated approach* (pp. 56–74). Thousand Oaks, CA: Sage.

## PERCEIVED HARMFULNESS OF DRUG USE

### Beliefs about Harmfulness among Twelfth Graders

For many drugs, the level of risk attributed to use varies considerably with the level of use being considered. Expecting this to be the case, we structured the questions about illicit drugs to differentiate among “using once or twice,” “using occasionally,” and “using regularly.” Questions about the harmfulness of alcohol and tobacco use also specify different levels of use appropriate to those substances. The respondent is asked, “How much do you think people risk harming themselves (physically or in other ways), if they . . .” The sentence is completed with a series of phrases about drug use, such as, “. . . try marijuana once or twice?” followed by “. . . smoke marijuana occasionally?” followed by “. . . smoke marijuana regularly?”

- A substantial majority of 12th graders perceive that *regular* use of **any illicit drug** entails a great risk of harm for the user. As Table 8-3 shows, 86% of 12th graders perceive a great risk of harm from regular use of *heroin*, 81% from regular use of *cocaine*, and 83% for *cocaine powder* or *crack*. From half to two thirds of 12th graders attribute great risk to regular use of *LSD*, *amphetamines*, and *sedatives (barbiturates)* (64%, 65%, and 50%, respectively).
- More than half (52%) of all 12th graders think that regular use of *marijuana* involves a great risk to the user.
- Approximately three quarters of 12th graders (74%) judge smoking one or more packs of *cigarettes* per day as entailing a great risk of harm for the user.
- Regular use of *alcohol* is more explicitly defined in several questions providing specificity on the amount of use. About one quarter of 12th graders (24%) associate great risk of harm with having one or two drinks nearly every day, nearly one half (46%) think there is great risk involved in having five or more drinks once or twice each weekend, and about three fifths (61%) think the user takes a great risk in consuming four or five drinks nearly every day. Still, it is noteworthy that about two fifths (39%) do *not* view even heavy daily drinking as entailing great risk.
- Far fewer respondents believe that a person runs a great risk of harm by trying a drug once or twice, which we refer to here as *experimental use*. Still, substantial proportions of 12th graders view even experimenting with most of the illicit drugs as risky. The percentages associating great risk with experimental use rank as follows: 62% for *crystal methamphetamine (ice)*; 61% for *heroin without a needle*; 61% for *steroids*; 57% for *ecstasy (MDMA)*; 56% for *heroin*; 50% for *cocaine*; 48% for *crack*; 47% for *PCP*; 45% for *cocaine powder*; 39% for *amphetamines*; 34% for *LSD*; and 26% for *sedatives (barbiturates)*.
- By way of contrast, only 17% of 12th graders see experimenting with *marijuana* as entailing great risk, and 26% see great risk in occasional use. Regular use, however, is seen as risky by over half (52%).

- Just 10% of 12th graders believe there is much risk involved in trying one or two drinks of an *alcoholic beverage*.

### **Eighth and Tenth Graders' Beliefs about Harmfulness**

An abbreviated set of the same questions on perceived harmfulness has been asked of 8th and 10th graders since 1991. Perceived harmfulness of *inhalant* use is not asked of 12th graders, but is included in the 8th- and 10th-grade questionnaires. Questions about other drugs have been added to the 8th- and 10th-grade questionnaires, including *LSD* (in 1993), *heroin without a needle* (1995), *smoking one to five cigarettes per day* (1999), and *ecstasy* (2001). A question about perceived risk of *steroid* use was dropped in 1995 because at that time steroid use was rather stable, and it was judged desirable to replace the question with one about another drug. In general, the findings for 8th and 10th graders are similar to those for 12th graders, but some interesting differences are noted below.

- The most important difference is observed for *regular cigarette smoking*. Unfortunately, perceived risk is lowest at the ages when initiation is most likely to occur: while about three quarters of 12th graders (74%) see great risk in smoking a pack a day or more, fewer 10th graders (69%) and even fewer 8th graders (60%) see this level of risk. The fact that eventual dropouts are included in the lower grades might account for some of that difference, but given their limited numbers it is unlikely that dropouts can account for all of it.
- Relatively few students see great risk in *smoking one to five cigarettes per day*: 39% of 8th graders and 44% of 10th graders. (Twelfth graders are not asked this question.) Given these low proportions seeing great risk, it seems likely that students are not taking into account that a relatively light smoker runs a substantial risk of becoming a heavy, dependent user.
- Regular use of *smokeless tobacco* is viewed as entailing great risk by 41% of 8th graders, 48% of 10th graders, and 43% of 12th graders, meaning that over half do not see great risk of harm. Again, because this behavior is often initiated at early ages, these figures are disturbingly low.
- In contrast the younger students, particularly 8th graders, are somewhat *more* likely than 12th graders to see *marijuana* use as dangerous. For example, in 2008, about twice as many 8th graders (48%) as 12th graders (26%) see occasional marijuana use as entailing great risk of harm.
- Tenth graders are most likely to see the use of *cocaine powder* and *crack* as dangerous. This unusual pattern has been replicated every year since 1991. Perhaps 10th graders are more aware of the dangers of these drugs than 8th graders. However, 10th graders are less exposed to individuals actually using these drugs than are 12th graders, thus they are less likely to directly observe the consequences, which would lead one to think that they would see less danger than 12th graders.

- Similarly, seeing the use of *heroin without a needle* as dangerous is highest in 10th grade and has been so since this question was added in 1995.
- Eighth and 10th graders are slightly more likely than 12th graders to see weekend *binge drinking* as dangerous: 57% for 8th graders, 57% for 10th graders, and 46% for 12th graders. The younger students are also somewhat more likely than 12th graders to see *daily drinking* (one or two drinks nearly every day) and experimentation as risky.
- The pattern for *ecstasy (MDMA)* use is similar to that for cigarettes, with younger students seeing less risk in its use than 12th graders: 29% of 8th graders, 43% of 10th graders, and 57% of 12th graders see great risk in trying ecstasy. Because 12th graders are considerably more likely to have been exposed to ecstasy use and its consequences, this differential might be used effectively in some prevention messages to younger students.
- Experimentation with *inhalants* is seen as dangerous by relatively low proportions of 8th and 10th graders (34% and 41%, respectively). (The question about risk of inhalant use is not asked of 12th graders.)

## TRENDS IN PERCEIVED HARMFULNESS OF DRUG USE

### Trends in Perceived Harmfulness among Twelfth Graders

Several very important trends in student beliefs about the dangers associated with using various drugs have occurred over the life of the study (see Table 8-3 and the “a” panels of Figures 8-1 through 8-12).

- Some of the most important trends have involved *marijuana* use (see Figure 8-1a). From the beginning of the study in 1975 through 1978, the degree of harmfulness perceived to be associated with all levels of marijuana use declined as use increased sharply (see Figure 8-4). In 1979, for the first time, the proportion of 12th graders seeing risk to the user increased. This increase in perceived risk preceded an appreciable downturn in use (which began a year later in 1980) and continued fairly steadily through 1991, as use fell dramatically. However, in 1992 perceived risk began to drop again, which presaged a sharp increase in use beginning in 1993. As Figures 8-1a and 8-4 illustrate, perceived risk continued to drop and use continued to rise until 1997. This clear and consistent concordance in trends supports our contention that changes in beliefs about the harmfulness of marijuana use played a critical role in causing both the downturn and the subsequent upturn in use. In both cases, the reversal in perceived risk preceded the reversal in actual use by a year.
- In the earlier years of MTF, the largest increase (in absolute terms) in perceived risk occurred for *regular marijuana use*. The proportion of 12th graders who viewed regular marijuana use as involving a great risk doubled in just seven years, from 35% to 70% between 1978 and 1985. Subsequently, the proportion increased more slowly, reaching 79% by 1991. That dramatic change occurred during a period when a substantial amount

of scientific and media attention was devoted to the potential dangers of heavy marijuana use. Young people also had ample opportunity for vicarious learning about the effects of heavy use through observation because such use was widespread among their peers. (In 1978, one in nine 12th graders was an active daily marijuana user.) Concerns about the harmfulness of occasional and experimental use also increased, and those increases were even larger in proportional terms, though not in absolute terms. For example, the proportion of 12th graders seeing great risk in *trying marijuana* rose from 8% in 1978 to 27% in 1991, and for *occasional marijuana use* perceived risk rose from 12% to 41% over the same interval.

There are several possible and interconnected explanations for the turnaround and decline in perceived risk of marijuana use during the early 1990s. First, some of the forces that gave rise to the earlier increases in perceived risk became less influential: (a) because of lower use rates overall, fewer students had opportunities for vicarious learning by observing firsthand the effects of heavy marijuana use among their peers (generational forgetting); (b) media coverage of the harmful effects of drug use, as well as of incidents resulting from drug use (particularly marijuana), decreased substantially in the early 1990s (as has been documented by media surveys of national news programs); (c) media coverage of the antidrug advertising campaign of the Partnership for a Drug-Free America also declined appreciably (as documented by both the Partnership and our own data from 12th graders on their levels of recalled exposure to such ads); and (d) congressional funding for drug abuse prevention programs and curricula in the schools was cut appreciably in the early 1990s. In addition, forces encouraging use became more visible; in particular, a number of rap, grunge, and rock groups started to sing the praises of using marijuana (and sometimes other drugs), perhaps influencing young people to think that using drugs might not be so dangerous after all. Finally, the drug experiences of many parents may have inhibited them from discussing drugs with their children, and may have caused them uncertainty in knowing how to handle the apparent hypocrisy of telling their children not to do what they themselves did as teens. We believe that all of these factors may have contributed to the resurgence of marijuana use in the 1990s.

By the mid-1990s, many of these sources of influence had reversed direction, laying the groundwork for an end to the rise in marijuana use (and illicit drug use more generally). First, because there was considerably more use among young people and among many of their public role-model groups, the opportunity for vicarious learning by observing the consequences of use began to increase. And MTF and others began to call the public's attention to the resurgence of the drug epidemic among youth, news stories on the subject increased substantially. Other institutions also changed their ways. The recording industry appeared to be producing fewer prodrug lyrics and messages, in large part because of growing concern about overdose deaths among their artists. (A similar dynamic seems to have occurred in the fashion industry with the resulting demise of "heroin chic.") Various government initiatives to prevent drug use by young people were launched, including the Department of Health and Human Services (DHHS) Secretary's Marijuana Use Prevention Initiative. This initiative was launched at the 1994 annual national press conference reporting the MTF results. Federal funding for drug prevention in schools also increased appreciably.

In addition, parents were repeatedly exhorted to talk to their children about drugs, and it appears from other surveys that more of them did so. In the late 1990s, a federally sponsored media campaign involving paid advertising was initiated. MTF data indicate that the campaign reached increasing numbers of young people over a period of several years.<sup>76</sup>

- Trends among 12th graders in their perceived risk of *regular marijuana use* and 30-day prevalence of marijuana use are combined in Figure 8-4 to illustrate more clearly their degree of covariance over time, which we interpret as reflecting a causal connection.<sup>77</sup> The trend line for the perceived availability of marijuana is included in Figure 8-4 to show its relative stability at a very high level and, thus, its inability to explain the substantial fluctuations in usage levels over time.

We have hypothesized that perceived risk operates not only directly on the individual's use, but also indirectly through its impact on personal disapproval. In turn, personal disapproval operates directly on use and, in the collective, indirectly by influencing peer norms. (See chapter 9 for evidence on how closely perceptions of friends' disapproval track personal disapproval at the aggregate level.) Presumably there is some lag in these indirect effects: while 12th graders' perceived risk began to fall in 1992, their personal disapproval did not begin to decline for experimental marijuana use until 1993, when it dropped sharply and use rose sharply. These shifts continued through 1997.

From 1997 through 2002, there was some decline in perceived risk of regular use of marijuana, but no further increase in use; in fact, actual use declined slightly (by about two percentage points in 2002 for all three measures—monthly, annual, and lifetime). This pattern was, of course, not consistent with the earlier findings of risk and use moving in opposite directions. The decline in use of marijuana without a corresponding (or leading) increase in perceived risk associated specifically with that drug may reflect some general decrease in young people's motivation to use drugs (conceivably associated with the shock of the 9-11 events in late 2001), or possibly a change in some other predisposing factor, such as cigarette smoking (which is strongly correlated with marijuana use). However, perceived risk rose from 2003 to 2006 among 12th graders, and use declined in that interval, consistent with the more general pattern of use declining with increases in perceived risk. In 2007 and 2008 there was possible evidence of a

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<sup>76</sup>For example, see Johnston, L. D. (2002, June 19). Written and oral testimony presented at hearings on the National Youth Anti-Drug Media Campaign, held by the Treasury and General Government Subcommittee on Appropriations of the U.S. Senate Appropriations Committee. Published in *The Congressional Record*.

<sup>77</sup>We have addressed elsewhere an alternate hypothesis—that a general shift toward a more conservative lifestyle might have accounted for the shifts in both attitudes and behaviors. The empirical evidence tended to contradict that hypothesis. See Bachman, J. G., Johnston, L. D., O'Malley, P. M., & Humphrey, R. H. (1988). Explaining the recent decline in marijuana use: Differentiating the effects of perceived risks, disapproval, and general lifestyle factors. *Journal of Health and Social Behavior*, 29, 92–112. Johnston also showed that an increasing proportion of the quitters of and abstainers from marijuana use reported concern over the physical and psychological consequences of use as reasons for their nonuse. See Johnston, L. D. (1982). A review and analysis of recent changes in marijuana use by American young people. In *Marijuana: The national impact on education* (pp. 8–13). New York: American Council on Marijuana. The role of perceived risk in the period of more recent increase in marijuana use in the 1990s is addressed in Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1998). Explaining the recent increases in students' marijuana use: The impacts of perceived risks and disapproval from 1976 through 1996. *American Journal of Public Health*, 88, 887–892.

turnaround in the marijuana situation: perceived risk of regular use decreased and annual and 30-day use increased slightly.

- Like marijuana, *cocaine* has shown a pattern of closely corresponding trends between perceived risk and actual use among 12th graders (see Figure 8-5). First, the percentage who perceived great risk in *trying cocaine* once or twice dropped steadily from 43% to 31% between 1975 and 1980, corresponding to a period of rapidly increasing use. However, rather than reversing sharply, as did perceived risk for marijuana use, perceived risk for experimental cocaine use moved rather little from 1980 to 1986, corresponding to a fairly stable period in actual use. Then, from 1986 to 1987, perceived risk for experimenting with cocaine jumped sharply from 34% to 48% in a single year, and in that year the first significant decline in use took place. From 1987 to 1990, perceived risk continued to rise as use fell. Perceived risk peaked around 1990 or 1991 and then decreased slightly (as use rose modestly) until 1995, when a significant decline in perceived risk of trying cocaine occurred. Perceived risk was stable between 1995 and 1998, and then declined slightly until 2000. Both perceived risk and annual use were relatively stable from 2000 through 2008.
- Trends in attitudes toward *crack* and *cocaine powder* use have been similar to those toward cocaine use. Crack use showed some decline in perceived risk of experimental use through 1999, to 48%. Since then, perceived risk increased slightly, to 51% in 2002; then in 2003, it fell back to 47%. It has remained virtually unchanged since 2004 at 47–48%. (We believe that some generational forgetting of the hazards of crack may be operating here.)
- These changes in beliefs appear to have had an important impact on behavior. As Figure 8-2a illustrates, perceived risk for *regular cocaine use* began to rise in the 1980s, increasing gradually from 69% in 1980 to 82% in 1986; however, that fairly substantial change did not translate into a change in actual behavior, and we believe the explanation is that very few 12th graders were regular users or ever expected to be. Thus, as we had predicted earlier, it was not until 12th graders' attitudes about behaviors they saw as relevant to themselves began to change (i.e., attitudes about experimental and occasional cocaine use) that the behaviors also began to shift.<sup>78,79</sup> Figure 8-5 shows trends in perceived risk, perceived availability, and actual use simultaneously—again, to illustrate that shifts in perceived risk could explain the downturn in use, while shifts in availability could not.

<sup>78</sup>See also Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). Explaining the recent decline in cocaine use among young adults: Further evidence that perceived risks and disapproval lead to reduced drug use. *Journal of Health and Social Behavior*, 31, 173–184. For a discussion of perceived risk in the larger set of factors influencing trends, and for a consideration of the forces likely to influence perceived risk, see Johnston, L. D. (1991). Toward a theory of drug epidemics. In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–131). Hillsdale, NJ: Lawrence Erlbaum. Available online at <http://monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf>.

<sup>79</sup>Our belief in the importance of perceived risk of experimental and occasional cocaine use led us to include in 1986 for the first time the question about the dangers of occasional cocaine use. The very next year proved to have a sharp rise on this measure.

We attribute changes in actual cocaine use between 1986 and 1991 to changes in risk associated with experimental and occasional use. We believe the changes in these attitudes resulted from three factors: (a) the greatly increased media coverage of cocaine use and its dangers that occurred in that interval (particularly in 1986); (b) an increasing number of antidrug, and specifically, anticocaine media campaigns; and (c) the widely publicized 1986 deaths, attributed to cocaine use, of sports stars Len Bias and Don Rogers. The death of the sports stars, we believe, helped to bring home the notions, first, that no one—regardless of age or physical condition—is invulnerable to being killed by cocaine, and second, that one does not have to be an addict or regular user to suffer such adverse consequences. In the media coverage that occurred during that period, the addictive potential of cocaine was heavily emphasized.

As with marijuana, 1991 saw an end to the increase in perceived risk of cocaine use. Perceived risk began to fall in 1992, and a year later actual use began rising among 12th graders (see Figure 8-5). The significant reversal of trends in beliefs set the stage for a resurgence in use, particularly when combined with the fact that the proportions of students using two of the so-called “gateway drugs”—cigarettes and marijuana—had also been rising. From 1992 to 1999, the proportion of 12th graders using cocaine in the prior 12 months rose steadily from 3.1% to 6.2% before decreasing significantly to 5.0% in 2000, with little change since. The decline in 12th graders’ cocaine use in 2000 was not accompanied by any increase in perceived risk or disapproval. Thus, there must be other reasons for the decline. One possibility is that the decline reflects a more general antidrug attitude among 12th graders. Another possibility is that some other drug may have been substituting for cocaine to some extent—quite possibly *ecstasy* (*MDMA*).

Both crack and cocaine powder had been showing a similar rise in use during much of the 1990s, as well as a subsequent decline in 2000. As we shall see later, similar downturns in perceived risk occurred in 8th and 10th grades through 1998, except that they started a year earlier among 8th graders and resulted in larger changes in 8th and 10th grades than in 12th grade.

- For most of the *illicit drugs other than marijuana and cocaine*, the period from 1975 (at the beginning of the study) to 1979 revealed a modest but consistent trend in the direction of fewer 12th graders associating much risk with experimental or occasional use of such drugs (see Table 8-3 and Figures 8-7a, 8-8a, and 8-9a). This trend continued for *amphetamines* and *sedatives* (*barbiturates*) until about 1984.

In the early 1980s, there was little change in perceived risk, although perceived risk of harm from experimental or occasional use of all the illicit drugs other than marijuana dropped slightly in 1985 and 1986. However, the perceived risk of experimental or occasional use of all drugs except PCP began to increase in 1987, reached a peak in 1990 or 1991, and then began to decline noticeably until about 1996.

- For *heroin* use, perceived risk declined gradually between 1975 and 1986 (perhaps as the result of generational forgetting of the dangers of heroin), even though use dropped and then stabilized in that interval. There was then an upward shift in perceived risk in 1987

(the same year in which there was a dramatic rise in perceived risk for cocaine) to a new level, where it held for four years. In 1992 risk dropped to a lower plateau again, a year or two before use started to rise. As perceived risk fell in the early 1990s, heroin use by 12th graders rose, with annual prevalence of use nearly tripling from 0.4% in 1991 to 1.1% by 1995. (Use also rose in the lower grades.) From 1995 through 1998 there was some increase in perceived risk (an increase that was also observed in the lower grades; see Tables 8-1 and 8-2 and Figure 8-9a). Usage rates then generally stabilized. Perhaps not entirely coincidentally, the Partnership for a Drug-Free America launched a media campaign aimed at deglamorizing heroin in 1996. While the target audience was young adults, many secondary school students undoubtedly saw the ads as well. Annual use of heroin by 12th graders decreased from 1.5% in 2000 to 0.8% by 2003 *following* the upturn in perceived risk between 1995 and 1998. Use has changed little since 2003, nor has perceived risk.

- To summarize, between 1975 and 1978 (or 1979) there was a distinct decline among 12th graders in perceived harmfulness associated with use of all the illicit drugs. After 1978, concerns about regular *marijuana* use increased dramatically, and concerns about the use of marijuana at less frequent levels increased considerably. After 1986, there was a sharp increase in the perceived risk associated with *cocaine* use—particularly at the experimental and occasional use levels—and some increase in perceived risk of use of virtually all the *other illicit drugs* (see Figures 8-7a, 8-8a, and 8-9a). Between 1991 and 1995, the trends reversed, with fewer 12th graders seeing use of these drugs as being dangerous. By 1996 and 1997 among 12th graders, the decline in perceived risk of *marijuana* use had sharply decelerated (see Figure 8-1a), the decline in perceived risk of *cocaine* use had leveled (see Figure 8-2a), the decline in the perceived risk of *LSD* use had decelerated (see Figure 8-8a), and the perceived risk of using *heroin* was actually rising (see Figure 8-9a). Only for *sedative (barbiturate)* use (asked only of 12th graders, see Figure 8-7a) was there any appreciable further decline in perceived risk. In 1998, perceived risk for a few drugs gave evidence of rising—*marijuana*, *LSD*, and *amphetamines* (though the increases were not always statistically significant)—but in 1999 perceived risk declined some for these drugs and almost all others. In 2001, the only significant increase in perceived risk of illicit drug use was for *ecstasy (MDMA)*, which rose from 38% in 2000 to 46% in 2001. In 2002 and 2003, perceived risk of *ecstasy* use again rose significantly (to 52% in 2002 and to 56% in 2003). Perceived risk of trying *LSD* also rose significantly in 2002, while perceived risk of regular *marijuana* use decreased significantly. None of the illicit drugs showed significant changes among 12th graders in 2005. In 2006, there were significant increases in perceived risk of experimental and occasional use of *heroin*, trying *crystal methamphetamine (ice)* and *sedatives (barbiturates)*, and taking *steroids*; none of these changes was accompanied by a significant change in use. In 2007 there were no significant changes in perceived risk; however, in 2008 perceived risk of regular use of *LSD* declined significantly (as use increased), perceived risk of regular use of *sedatives (barbiturates)* declined significantly (though use did not change), and perceived risk for pack-a-day smoking declined significantly.

- The sharp decline in 12th graders' perceived risk of **LSD** use between 1991 and 1997 was particularly noteworthy, confirming our concerns about generational forgetting—that attitudes and beliefs of the newer generation of young people were not influenced by the direct and vicarious learning experiences that helped to make their predecessors more cautious about using LSD (see Figure 8-8a). In the late 1960s and early 1970s, young people became aware of the risks of bad trips, uncontrollable flashbacks, dangerous behaviors under the influence, etc. Those in their teens since then seem to know much less about those risks.

Despite the fact that perceived risk of LSD use declined some prior to 2001 (while disapproval was fairly steady), use had been falling. Obviously, this decline in use cannot be explained by a change in attitudes, and thus raises the question of whether there was any substitution by another drug. As it happens, another drug popular in the club scene and also used for its hallucinogenic properties, **ecstasy (MDMA)**, had been in ascent and may have had some substitution effect. From 1998 to 2001, ecstasy use more than doubled as LSD use was in decline. However, after 2001 both drugs declined, suggesting that there may no longer have been a displacement effect. Indeed, after 2001 there was a sharp decline in availability of LSD, which may have played a role in its further sharp drop in use. In 2002, twelfth graders' perceived risk (and disapproval) of **LSD** use increased significantly as use continued to decrease significantly. Perceived risk declined slightly from 2003 to 2007, and significantly so in 2008; annual use was steady at about 2%, but increased in 2008 to 2.7%. The historically low levels of perceived risk for LSD suggest that young people today are not well prepared to resist a resurgence in the popularity and availability of that drug.

- Perceived risk for **ecstasy** use was asked only of 12th graders from 1997 to 2000; in 2001 it was added to the 8th- and 10th-grade questionnaires as well. Between 1997 and 2000, the percentage of 12th graders seeing a great risk in trying ecstasy increased slightly from 34% to 38%, but in 2001 there was a sharp increase of eight percentage points, up to 46%. In 2002 and 2003 risk again increased significantly (to 52% in 2002 and 56% in 2003), and the increase continued into 2005 (60%). Perceived risk declined slightly to 57% by 2008, while annual use increased from 3.0% to 4.3%.

As documented in the next chapter, there was a dramatic rise in the availability of ecstasy to American teens up to 2001, which may well help to explain its spread (see Figure 8-6). Another belief—the perceived benefits of using a drug—was, like perceived risk, almost surely a determinant of use. It seems very likely that there was a change in the perceived benefits of ecstasy use; but unfortunately for these purposes, we do not measure this belief. In any case, the significant increases (in all three grades) in perceived risk in 2000 through 2003 were encouraging. We stated in the 2001 report in this series that we believed the use of this drug would not decline until more young people came to see its use as dangerous. In 2002, use of ecstasy decreased some for all three grades (though only the 10th-grade decrease was significant), and in 2003, use decreased significantly for all three grades, presumably driven by the increased perceptions of risk.

We believe that the unusually rapid changes in perceptions of risk about ecstasy reflect the effects of a three-part effort: much media coverage of adverse events associated with ecstasy use; the substantial efforts of the National Institute on Drug Abuse to disseminate information about the adverse consequences associated with ecstasy use; and efforts by the Partnership for a Drug-Free America and the Office of National Drug Control Policy to discourage ecstasy use through an ad campaign, begun in 2002, that addressed the hazards of use. The gradual erosion in the level of perceived risk since 2005 raises the question of whether a process of generational forgetting of the hazards of ecstasy use may be occurring.

- The proportion of students associating great risk with experimental use of *crystal methamphetamine (ice)* fell from 62% in 1991 to 53% in 1998, as annual use increased from 1.4% to 3.0%, showing the familiar pattern of use increasing when perceived risk declines. After 1998 perceived risk was fairly steady or rising slightly (it was at 55% in 2005), while annual use has fluctuated between 2% and 3%. The continuous rise since about 2004 in perceived risk for crystal methamphetamine continued into 2008, reaching 62% of 12th graders seeing great risk in even trying it compared to 52% in 2004. Use of this drug dropped sharply after 2005, again showing a lag between a change in perceived risk and a corresponding change in use.
- The perceived risk of trying *PCP*, though very high relative to other drugs in 1988, fell by 14 percentage points from its peak level of 59% in 1988 to 45% in 1999, about where it has remained since. Again, we suspect that teens in more recent classes are simply much less familiar with the drug and its considerable dangers compared to previous cohorts.
- Between 1989 (when questions about steroid use were introduced) and 1992, perceived risk of taking *steroids* increased slightly while annual use declined a bit. A noteworthy and constructive change occurred in 1992, when perceived risk of taking steroids rose by five percentage points (66% to 71%). (Similar changes occurred for 8th and 10th graders.) This change suggested that the widely publicized experience of professional football player Lyle Alzado, who was dying of a brain tumor that he believed resulted from his steroid use, had an important effect on young people's beliefs regarding the harmfulness of this drug. The effect of this "unfortunate role model" was similar to the effect of Len Bias' death on beliefs about the dangers of cocaine use, except that in Lyle Alzado's case he *intentionally* set about making his experience an object lesson for young people.<sup>80</sup> Unfortunately, the increases in perceived risk did not continue, and perceived risk slipped a bit between 1992 and 1994, before increasing some through 1998.

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<sup>80</sup>The July 8, 1991, issue of *Sports Illustrated* magazine had an article by Lyle Alzado entitled "I Lied." For a discussion of the importance of vicarious learning from unfortunate role models, see Johnston, L. D. (1991). Toward a theory of drug epidemics. In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–131). Hillsdale, NJ: Lawrence Erlbaum. Available at [www.monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf](http://www.monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf).

An unusually sharp, six-percentage-point drop in perceived risk of steroid use by 12th graders occurred in 1999, which coincided with a slight rise in use among 12th graders, and a sharp rise in use that year among 8th and 10th graders. (After 1994 perceived risk is measured only among 12th graders, so their answers serve as the best estimate we have of how this belief was changing among secondary schools students more generally. For this reason, we comment in this section on 8th and 10th graders as well as 12th graders.) We believe it likely that a highly visible baseball player, whose use of a steroid precursor was widely reported in 1998, served unwittingly as a role model that year, this time associating the use of steroids with athletic success. In 2000 there was a continued sharp decline in perceived risk of steroid use among 12th graders.

Since 1999 there has been a pattern of declining use across the grades suggestive of a cohort effect, with the 8th graders the first to show a downturn (beginning in about 2001), followed by 10th graders (beginning in 2003), and then by 12th graders (beginning in about 2005). Those staggered decreases followed somewhat staggered increases in the prior years, though both 8th and 10th graders began to increase in the same year (1999). In 2004 perceived risk began to rise in 12th grade (again, the only grade on which it is measured), and use has continued to decline in all grades. Some may ask why use has not increased in the past few years as the most recent scandal of widespread steroid use in professional baseball has hit the headlines. The answer may lie in the amount of negative publicity and negative outcomes that have emerged for some of these players. Their use of steroids has seemed anything but glamorous and ultimately has not helped their careers.

- After showing little systematic change in the latter half of the 1970s, the perceived risks associated with *alcohol* use at various levels rose during the 1980s (though not as dramatically as the perceived risks associated with marijuana and cocaine use) (see Figure 8-10a). The proportion perceiving great risk of harm in having one or two drinks nearly every day rose from 20% in 1980 to 33% in 1991 before falling all the way back to 20% by 2003. The latter decline was due perhaps in part to publicity about the value of moderate alcohol consumption in protecting against heart disease. Interestingly, perceived risk increased from 20% in 2003 to 25% in 2006, before it leveled. The proportion of 12th graders perceiving great risk in having four or five drinks nearly every day rose from 65% in 1981 to 71% in 1990, but subsequently declined to 58% by 2003, then increased to 63% by 2006, about where it stood in 2008 (61%).

The corresponding figure on perceived risk of *occasional heavy drinking* (having five or more drinks once or twice a weekend) rose quite substantially, from 35% in 1979 to 49% in 1992 (a period in which the consequences of drunk driving were covered extensively in the media), and then it, too, decreased—to 43% by 1997, but was up to 46% in 2007 and 2008. (Actual prevalence of occasional binge drinking declined appreciably between 1981 and 1993, from 41% to 28%, rose slightly to 32% by 1998, and since then has fallen back to 25% by 2008.) The increases in perceived risk tended to be followed by some declines in the actual behaviors, while the decreases in perceived risk tended to be followed by some increases in those behaviors—once again suggesting the importance of these beliefs in influencing use, even the use of licit drugs. The increase in perceived risk

during the 1980s may have been due in large part to the many efforts aimed at discouraging drunk driving—a point discussed in more detail elsewhere.<sup>81</sup> Since 2000, occasional heavy drinking has declined slightly, while perceived risk has increased somewhat.

- Despite all that is known today about the health consequences of *cigarette smoking*, about a quarter (26%) of 12th-grade students still do not believe that there is a great risk in smoking a pack or more of cigarettes per day (see Figure 8-11a). Over a longer period, the number of 12th graders who thought *smoking a pack or more a day* involved great risk to the user increased, from 51% in 1975 to 64% in 1980. This shift corresponded with, and to some degree preceded, the downturn in current smoking found in this age group (compare Figures 5-4n and 8-11a). Between 1980 and 1984, perceived risk and use leveled. Then, from 1984 to 1993 perceived risk inched up from 64% to 70% while use remained quite stable. Perceived risk then declined a bit in 1994 and 1995 (as it did in the lower grades) and use rose through 1997. Between 1995 and 1998, perceived risk rose about five percentage points, presaging a decline in smoking that began in 1998. Overall, in the 13-year interval between 1984 and 1997, the percentage of 12th graders perceiving great risk in regular smoking rose only about five percentage points, while use *rose*, not fell, by seven percentage points. Clearly, influences other than perceived risk were at work during this period. Between 1997 and 2007, perceived risk rose by another nine percentage points from 69% to 77%, while use fell by 15 percentage points (from 37% in 1997 to 22% in 2007). Thus, changes in perceived risk may well have contributed to the decline in use during this period. Unfortunately, risk declined significantly among 12th graders in 2008, but use continued to decline to 20%. The reversal of the increase in perceived risk does not bode well for future drops in use.
- Relatively few 12th graders reported much risk in regular use of *smokeless tobacco* (see Figure 8-12a), although there was a fair increase in the proportion who did, from 26% in 1986 (when the belief was first measured) to 39% in 1993. From 1993 to 1995 such concerns decreased a bit, declining to 33% in 1995, but then rose again to reach 45% by 2001, with little change since. As perceived risk rose, regular use (30-day prevalence) of smokeless tobacco declined appreciably from 12% in 1995 to 7% in 2002. Between 2002 and 2008, there was not much further change in either risk or use.

### Trends in Perceived Harmfulness among Eighth and Tenth Graders

Data on perceived risk for 8th and 10th graders are not available for many of the drugs for which 12th-grade data are available, because the younger students were given a more limited set of questions.

- From the early 1990s until 1997, eighth and 10th graders showed troublesome declines in perceived risk for *marijuana* use, as did 12th graders (see Tables 8-1 and 8-2 and Figure 8-1a). Indeed, the decreases in the perceived risk of marijuana use, which had been occurring at least since 1991 for 8th graders and since 1992 for 10th graders, became

<sup>81</sup>O'Malley, P. M., & Johnston, L. D. (1999). Drinking and driving among American high school seniors: 1984–1997. *American Journal of Public Health*, 89, 678–684.

very sharp. For 8th graders, perceived risk of trying marijuana dropped from 40% in 1991 to 25% in 1997. For 10th graders, this measure dropped from 32% in 1992 to 19% in 1997. As shown in Figure 8-1a, however, these declines in perceived risk for marijuana use had been decelerating, and they stalled among 10th and 12th graders through 2001. Among 8th graders there was actually a reversal, with perceived risk standing at 28% in 2001 and 2002, followed by a significant increase to 30% in 2003 and another significant increase to 32% in 2004, about where it has remained (31% in 2008). The increased risk among 8th graders was accompanied by declining use through 2007, but the decline halted in 2008. Use has gradually declined among 10th graders since 2002, coinciding with an increase in perceived risk. Note the divergence among the three grades in the perceived risk measure since the beginning of the 1990s. Eighth graders (72%) are now more likely than 10th graders (65%) to see risk associated with regular marijuana use, and 10th graders in turn are more likely than 12th graders (52%) to perceive such risk.

- For *crack* and *cocaine powder*, there was a large drop in perceived risk between 1991 and 1995 for both 8th and 10th graders. (For crack the declines were 12 and 10 percentage points for the two grades, respectively, and for cocaine powder, 11 and 6 percentage points.) There was some further erosion in these beliefs in the following years, though little further change since 1999 in the case of powder cocaine and since 2000 for crack (see Tables 8-1 and 8-2). Use of both drugs rose from a low point in 1991 or 1992 to a recent high point in 1998 or 1999—the same interval during which perceived risk fell. Since 2000 there has been little change in perceived risk for crack for both 8th and 10th graders, but for powder cocaine there was a bit of a rise for two or three years, followed by some falloff. Tenth graders have tended to have the highest level of perceived risk for powder cocaine.
- Perceived risk of *LSD* use has generally been declining among 8th and 10th graders since it was first measured in 1993, including statistically significant declines in 2001 in both grades for risk of regular use, in 2002 for 10th-grade risk of regular use, and in 2007 for 10th graders for trying and for regular use. Use, which had been increasing fairly steadily in all grades through 1996, has shown some appreciable decline in all grades since then, although the decline halted in 2006, with some modest increase since then; annual prevalence remains at quite low levels. As we pointed out earlier, the recent drop in LSD use cannot be explained by parallel changes in perceived risk. As discussed in the next chapter, there has been a decline in the reported availability of LSD since the mid-1990s. Despite the lower levels of use at present, we note that perceived risk for LSD use has been dropping in recent years in the lower grades, particularly among 8th graders, likely as the result of generational forgetting. This leaves them potentially vulnerable to a resurgence in LSD use, should the drug become widely available again.
- Questions about the dangers of *inhalant* use have been asked only of 8th and 10th graders. Perceived risk was relatively stable between 1991 and 1995, showed a clear jump in 1996, and then held steady through 2000 (see Tables 8-1 and 8-2). Partly in response to MTF findings of growing inhalant use among teenagers, the Partnership for a Drug-Free America launched a media campaign in 1995 to increase adolescents' awareness of the dangers associated with inhalant use. The data here are consistent with

the notion that their efforts were successful, because the increase in perceived risk occurred during the years of this intervention, and because most of the other drugs had not yet begun to show an increase in perceived risk at that point. In 2001, perceived risk of inhalant use again jumped significantly in both grades, and use declined some. Since 2001, perceived risk (of both experimental and occasional use) has fallen fairly steadily in both grades. During this period of declining perceived risk, there were some small changes in use, but by 2008 use was very close to 2001 levels. The declines in perceived risk imply that generational forgetting of the dangers of inhalant use may have been taking place, which suggests that it may be time for another advertising and public information campaign on the subject (among other potential interventions).

- The perceived risk associated with having five or more drinks of *alcohol* once or twice each weekend slipped during much of the 1990s. It dropped from 59% in 1991 to 52% in 1996 for 8th graders, and from 56% in 1992 to 51% in 1996 for 10th graders. During the same interval, self-reported *occasions of heavy drinking* rose gradually. Since 1999, perceived risk has increased in 8th grade and use has declined. In 10th grade, both measures were fairly stable between 1996 and 2001; in 2002, use declined significantly, while perceived risk increased slightly. Since 2002, perceived risk for binge drinking has been increasing gradually in all three grades as use has gradually decreased.
- Compared to regular use of most illicit drugs, relatively few 12th graders recognize the risk associated with pack-a-day *cigarette smoking*, and even fewer 8th and 10th graders do so (see Figure 8-11a). From 1993 to 1995, perceived risk of smoking decreased slightly at all grade levels, while smoking rates rose in all grades. After 1995, perceived risk rose in all three grade levels, including significant increases for 8th and 10th graders in 2000. Smoking rates began to drop in 1997 for grades 8 and 10, and a year later among 12th graders, so an increase in perceived risk very likely helped to drive this important decline.

A number of incidents in this historical period may well have contributed to the decline in teen smoking. A series of public debates brought considerable adverse publicity to the product and the industry, and eventually led to the widely publicized tobacco settlement between the states' attorneys general and the tobacco companies. Additional deterrents included increased cigarette prices, substantial tobacco prevention efforts in several large states, antismoking ad campaigns (the largest of which was funded by the American Legacy Foundation—an entity created under the tobacco settlement), the withdrawal of advertising from billboards, and the elimination of the Joe Camel ads (that we believe may have been particularly successful with adolescent boys from the upper end of the socioeconomic spectrum).

Cigarette smoking continued to decline in all grades in 2001 and 2002, but perceived risk leveled off in grades 8 and 10 for a while. (Only 12th graders showed a continuing rise in perceived risk, which may reflect some residual cohort effects.) Perceived risk was fairly level in all three grades from 2000 through 2003, increased in 2004 in all three grades, and has been level since in grades 8 and 10. Among 12th graders the increase continued through 2006, but has since declined some, with a 3.3-percentage-point drop in 2008. For

the most part, cigarette use continued to decline in all three grades, although the declines in use have generally decelerated in recent years.

- Twelfth graders showed a considerable increase in the level of risk perceived to be associated with regular *smokeless tobacco* use between 1986 (when this variable was first measured) and 1993, and the lower grades showed a parallel change during this period in the years for which data are available (1991–1993). All three grades showed some decline from 1993 to 1995 and then increased between 1995 and 2000 (see Figure 8-12a). During this period of substantial increase in perceived risk between 1995 and 2000, a considerable decline in the use of smokeless tobacco took place. As with cigarettes, perceived risk became fairly level between 2000 and 2002 as the decline in use in 10th grade halted. (Use continued to drop in 8th and 12th grades.) It thus appears that one important reason for the appreciable declines in smokeless tobacco use during the latter half of the 1990s was the fact that an increasing proportion of young people were persuaded of the dangers of using it. In 2003, perceived risk increased for all three grades (not significantly), and in 2004 the increase continued in 8th and 12th grades. Use leveled in 2003 and 2004 in grades 8 and 12 while it continued to decline gradually among 10th graders. Since 2004, perceived risk has held fairly level in all three grades. The decline in use of smokeless tobacco ended in 2002 in grade 8, in 2004 in grade 10, and in 2006 in grade 12.

## PERSONAL DISAPPROVAL OF DRUG USE

At the beginning of the MTF, we included a set of questions to measure the moral sentiment respondents attach to various types of drug use. The phrasing, “Do you disapprove of people (who are 18 or older) doing each of the following?” was adopted. The answer alternatives were “don’t disapprove,” “disapprove,” and “strongly disapprove.” For 8th and 10th grades, a fourth response, “can’t say, drug unfamiliar,” is included, and the parenthetical phrase “who are 18 or older” is omitted from the question stem. Responses of “disapprove” or “strongly disapprove” are combined and reported here as “disapproval.” For 8th and 10th graders, “can’t say, drug unfamiliar” was included in calculating the percentages. Each question specifies a level of drug involvement, such as “trying marijuana,” “using marijuana occasionally,” or “using marijuana regularly,” just as in the questions about perceived risk.

### Extent of Disapproval among Twelfth Graders

- The vast majority of 12th graders do not condone *regular* use of *any of the illicit drugs* (see Table 8-6). Even *regular marijuana use* is disapproved (or strongly disapproved) of by 80%, and regular use of each of the other illicit drugs is disapproved of by between 93% and 96% of today’s 12th graders. (Regular steroid use is disapproved of by 91%.)
- For each of the drugs included in this set of questions, fewer respondents indicate disapproval of experimental or occasional use than of regular use. However, the differences are not great for the use of *illicit drugs other than marijuana*, because nearly all 12th graders disapprove of even experimenting with them. For example, the proportions disapproving of experimental use are 93% for *heroin*; 90% for *crack*; 88%

for *ecstasy (MDMA)*; 87% for *amphetamines*; and 86% for *LSD, cocaine powder*, and *sedatives (barbiturates)*. The extent of disapproval of illicit drug use by peers is no doubt underestimated by adolescents themselves and, as we have written elsewhere, provides the basis for some potentially powerful prevention messages in the form of normative education.<sup>82</sup>

- For *marijuana*, the rate of disapproval varies substantially for different usage levels, although not as much as it has in the past. Disapproval for this drug is really quite high. More than half (56%) disapprove of trying marijuana once or twice, more than two thirds (67%) disapprove of its occasional use, and 80% disapprove of regular use. Looked at another way, only one in five 12th graders (20%) say they don't disapprove of regular marijuana use.
- Smoking a pack (or more) of *cigarettes* per day is also now disapproved of by four out of five (81%) 12th-grade students.
- Taking *one or two drinks nearly every day* is disapproved of by 75% of 12th graders. Curiously, *weekend binge drinking* (five or more drinks once or twice each weekend) is disapproved of by slightly fewer 12th graders (69%), despite the fact that many more 12th graders see a greater risk in weekend binge drinking (46%) than in having one or two drinks nearly every day (24%).

One likely explanation for these anomalous findings may be that a greater proportion of this age group are themselves weekend binge drinkers rather than moderate daily drinkers. Therefore, they may express attitudes consistent with their own behavior, even though such attitudes may be somewhat inconsistent with their beliefs about possible consequences. It also may be that the ubiquitous advertising of alcohol use in partying situations has managed to increase social acceptability. In any case, this divergence between the perceived risk associated with the two behaviors and the corresponding levels of disapproval helps to illustrate the point that, while perceived risk may influence disapproval (as we have consistently hypothesized), other factors also play a role.

### Extent of Disapproval among Eighth and Tenth Graders

- Attitudes about *inhalant* use have been asked only of 8th- and 10th-grade students, and in 2008 the great majority (82% and 87%, respectively) said they disapprove of even trying inhalants.
- Currently, the rates of disapproval for the use of *crack* and *cocaine powder* are similar for all three grades, with 87% of 8th graders disapproving of the two drugs, 91% and 89% of 10th graders disapproving, and 90% and 86% of 12th graders disapproving (see Tables 8-4 through 8-6).

<sup>82</sup>Johnston, L. D. (1991). Contributions of drug epidemiology to the field of drug abuse prevention. In C. Leukefeld & W. Bukoski (Eds.), *Drug abuse prevention research: Methodological issues* (pp. 57–80) (NIDA Research Monograph No. 107). Washington, DC: National Institute on Drug Abuse.

- **Marijuana** use shows the greatest grade-related difference in disapproval rates—the lower the grade level, the higher the rate of disapproval. To illustrate, in 2008, 56% of 12th graders said they disapprove of trying marijuana compared to 65% of 10th graders and 77% of 8th graders (see Tables 8-4 through 8-6). There is now considerable evidence that these attitudes do shift with age—that there is an age effect common to all cohorts. For example, the 8th graders of 1991 for the most part constituted the 10th graders of 1993 and the 12th graders of 1995, and their disapproval of trying marijuana fell from 85% among 8th graders in 1991, to 70% by 10th grade (in 1993), and to 57% by 12th grade (in 1995). This drop far exceeds the secular trend at any given grade level. (It is also possible that, in addition to any age effects, there are lasting differences between class cohorts—i.e., cohort effects.)

Another possible explanation for this decrease in disapproval with age is that secondary school students' attitudes about use are age-graded—that is, they may disapprove more of an 8th grader using marijuana, less so for a 10th grader, and still less for a 12th grader. The question stem used at the lower grades does not specify the age of the person about whom they are answering, and the respondents may simply assume that the question is about people their age. The question asked of 12th graders over the years specifies people “who are 18 or older,” and this lower limit corresponds closely to their current age.

- Disapproval of **alcohol** use is also higher at the lower grade levels than among 12th graders. For example, 69% of 12th graders said they disapprove of **weekend binge drinking** versus 77% of 10th graders and 83% of 8th graders.
- The same is true for **cigarette** use: 81% of 12th graders, 85% of 10th graders, and 87% of 8th graders said they disapprove of someone smoking one or more packs per day. Oddly enough, the 8th graders, who are least likely to see regular smoking as dangerous, are the most likely to disapprove of it. This disparity may help to explain why so many do begin to smoke. In the absence of an underlying belief that smoking really represents a hazard to them, many may not be deterred by the predominant peer norms alone.

## TRENDS IN DISAPPROVAL OF DRUG USE

As illustrated below, while the perceived risk associated with a drug often reverses course a year *prior* to a change in the actual use of that drug, disapproval tends to move in a way more synchronous with use. In other words, disapproval tends to rise in the same year that use falls, and tends to fall in the same year that use rises. We have hypothesized that this is due in part to both disapproval and use being influenced by perceived risk, for which the inflection point often occurs a year earlier. Table 8-6 provides the long-term trends in disapproval for 12th grade. See also the “b” panels of Figures 8-1 through 8-12.

### Trends in Disapproval among Twelfth Graders

- Between 1975 and 1977, a substantial decrease occurred in disapproval of **marijuana** use at any level of frequency (see Figure 8-1b and Table 8-6). Compared with the class of 1975, the proportion of 12th graders in the class of 1977 who disapproved of

*experimenting* was 14 percentage points lower, the proportion who disapproved of *occasional* use was 11 percentage points lower, and the proportion who disapproved of *regular* use was 6 percentage points lower. These were undoubtedly continuations of longer term trends that began in the late 1960s, as the norms of American young people against illicit drug use seriously eroded. Between 1977 and 1990, however, there was a substantial reversal of that trend as disapproval of experimental marijuana use rose by 34 percentage points, disapproval of occasional use by 36 percentage points, and disapproval of regular use by 26 percentage points. There were no further significant changes in 1991 or 1992, although disapproval of experimental use continued to rise gradually.

Beginning in 1993 (a year *after* perceived risk began to decline), a sharp drop in disapproval of marijuana use began. Between 1992 and 1997, disapproval dropped 19 percentage points for experimental use, 17 percentage points for occasional use, and 11 percentage points for regular use. These changes accompanied a significant increase in self-reported use of marijuana. By the mid-1990s, the decline in disapproval of marijuana use began to decelerate, and disapproval was steady from about 1997 to 2001. From 2001 to 2007, disapproval increased somewhat, but dropped in 2008 for all levels of use, significantly so for regular use. Disapproval rates are still well below those observed in the early 1990s.

- From 1975 to 1980, the proportion of 12th graders who disapproved of trying *amphetamines* remained extremely stable at 75% (see Figure 8-7b and Table 8-6). This proportion dropped some (to 71%) in 1981, the peak year for amphetamine use, and then increased gradually over a decade until it reached 87% in 1991, where it remained for one year. After 1992, a reversal began: disapproval dropped by seven percentage points by 1996 to 80%. Self-reported use increased over the same period. Disapproval then rose to 86% by 2003, as use has continued to decline, and remains about the same in 2008 (87%).
- During the late 1970s, personal disapproval of experimenting with *sedatives (barbiturates)* increased (from 78% in 1975 to 84% in 1979) and then remained relatively stable through 1984, before it began to increase again (see Figure 8-7b). By 1990, disapproval had reached 91%. Use declined substantially from 1975 to 1992 as disapproval rose. As with many drugs, between 1993 and 1996, disapproval dropped (to 85%) as use rose; but, as with amphetamines, disapproval began to rise again in 1997, then leveled beginning in 1998 at about 86% with little change through 2001, followed by a gradual increase thereafter.
- Concurrent with the years of increase in *cocaine* use, disapproval of experimental use of cocaine declined somewhat, from a high of 82% in 1976 to a low of 75% in 1979 (see Figure 8-2b). It then leveled for four years, before edging upward to 80% by 1986. There was a sharp rise in disapproval between 1986 and 1987, the same interval in which perceived risk rose dramatically. This rise continued through 1991, reaching 94% of 12th graders disapproving of trying cocaine. Between 1992 and 1997, disapproval slowly declined (to 88% in 1997) as use steadily increased before leveling. Disapproval of trying *cocaine powder* and *crack cocaine* (see Figure 8-3b) peaked in 1992, after which there

was a modest falloff. However, there has been little change in 12th graders' disapproval of crack or powder cocaine since 1996.

We believe that the parallel or slightly lagged trends between perceived risk and disapproval—particularly for marijuana and cocaine use—are no accident. We have hypothesized for a long time that perceived risk is an important influence on a person's level of disapproval of a drug-using behavior, although there are surely other influences as well. As levels of personal disapproval change, these individually held attitudes are communicated among friends and acquaintances, and thus perceived norms change as well (as is illustrated in the next chapter). It is noteworthy that, as perceived risk for use of most of the illicit drugs began to reverse in 1991 or 1992, personal disapproval of use of virtually all of them appeared to level. In 1993, personal disapproval among 12th graders began to drop for use of nearly all of the illicit drugs (see Table 8-6), and it continued to fall for use of many of these substances through 1997. Since 2001, disapproval for a number of drugs has been increasing some. This time lag is consistent with the notion that perceived risk influences disapproval, which, in turn, changes peer norms and use.

Disapproval of trying *ecstasy (MDMA)* has been asked of 12th graders since 1997 and of 8th and 10th graders since 2001. Disapproval among 12th graders declined slightly, from 82% in 1999 to 80% in 2001, during a period when use was increasing and perceived risk was just beginning to increase. But in 2002, disapproval increased significantly to 84%, at the same time that use decreased and perceived risk continued its increase. Thus, increases in perceived risk may have contributed to the recent increase in personal disapproval, albeit with a fair amount of lag. Disapproval continued to increase through 2004, reaching 88%, where it has remained.

- Despite the large changes that were taking place in adult use of cigarettes, and presumably in adult attitudes about smoking, young people's disapproval of **regular cigarette smoking** (a pack or more per day) changed surprisingly little throughout much of the life of this study. Disapproval increased from 66% to 71% between 1976 and 1980, slightly ahead of the downturn in use between 1977 and 1982. Disapproval fluctuated slightly throughout the 1980s and 1990s, with some increase between 1982 (69%) and 1986 (75%), and then some gradual decline through 1997 (to 67%, almost exactly where it started 21 years earlier). (Recall that use increased from 1992 through 1997 as disapproval was declining.) Since 1997, disapproval has increased steadily, rising to 82% in 2006 (the highest percentage recorded in the last 34 years) before dropping slightly in 2007; use declined steadily in the same interval. The earlier lack of appreciable change in students' disapproval of smoking is surprising because many antismoking laws and policies had been enacted during the 1980s and 1990s. Very likely, the tobacco industry's promotion and advertising efforts helped to account for this lack of change in disapproval, as did the widespread portrayal of smoking by characters—often the lead characters—in movies and on television. But by the mid- to late 1990s the tobacco industry and its product received so much adverse publicity, and some of the advertising efforts were curtailed as well, that disapproval finally rose substantially.

- Figure 8-10b tracks disapproval rates for several different patterns of *alcohol* use. It shows that 12th graders' disapproval of most forms of alcohol use rose throughout the 1980s and into the early 1990s. Then, between 1992/1993 and 1998/1999, there was considerable falloff in the proportion disapproving of many of these behaviors, including *weekend binge drinking*.

With regard to abstention, the proportion of 12th graders who disapproved of even *trying one or two drinks of alcohol* doubled, from a low point of 16% in 1980 to 33% by 1992. It fell back to 25% by 1998 and increased modestly thereafter (to 30% in 2008). It seems likely that the increased minimum drinking age in many states between 1981 and 1987 contributed to these changes in attitude about abstention, since more recent senior classes grew up under the higher minimum drinking age.<sup>83</sup> If so, this illustrates the considerable capacity of laws to influence informal norms. It also seems likely that the activities of Mothers Against Drunk Driving (MADD), which peaked in 1984, and of the designated driver effort, which occurred mostly from 1989 to 1992, helped to influence these attitudes.<sup>84</sup>

- Disapproval of weekend *heavy drinking* rose gradually but quite substantially, from a low of 56% in 1981 to a high of 71% by 1992. Over that same 11-year interval, the self-reported rate of occasional heavy drinking declined substantially from a high of 41% in 1981 to a low of 28% in 1992. While the ad campaigns mentioned earlier dealt specifically with drinking and driving, we believe that the negative connotations may well have generalized to heavy drinking under any circumstance.

After 1992, disapproval of weekend heavy drinking fell briefly, from 71% in 1992 to 65% by 1994. From 1994 through 2005, it remained fairly stable at 63–67%, and then moved up to 69% in 2006, where it remains in 2008. So attitudes about the acceptability of this important behavior have become considerably more conservative since 1980.

### Trends in Disapproval among Eighth and Tenth Graders

Tables 8-4 and 8-5 provide 16-year trends (1991–2007) in disapproval for 8th and 10th graders. The lower panels in many of the figures in this chapter showing trends in disapproval provide the same information graphically with regard to using each of the individual drugs one or two times (when data for the lower grade levels are available).

- In 1992, tenth and 12th graders showed little change in disapproval of the use of illicit drugs, but 8th graders showed some erosion in their attitudes with respect to using *marijuana*, *cocaine powder*, and *crack*. In 1993, rates of disapproval for using these drugs continued to decline among 8th graders and began to decline among 10th and 12th graders, as well (see Tables 8-4 through 8-6 and Figures 8-1b and 8-3b). Between 1993 and 1996, disapproval of both *marijuana* use and *LSD* use declined in all three grades.

<sup>83</sup>O'Malley, P. M., & Wagenaar, A. C. (1991). Effects of minimum drinking age laws on alcohol use, related behaviors, and traffic crash involvement among American youth: 1976–1987. *Journal of Studies on Alcohol*, 52, 478–491.

<sup>84</sup>O'Malley, P. M., & Johnston, L. D. (1999). Drinking and driving among U.S. high school seniors, 1984–1997. *American Journal of Public Health*, 89, 678–684.

- The declines in personal disapproval were particularly sharp for *marijuana* at all three grade levels; marijuana was the drug that showed the greatest increase in use during that period. Between 1991 and 1997, the proportion of 8th graders who disapproved of trying marijuana fell substantially, from 85% to 68%. Personal disapproval fell among 10th graders from 75% to 54%, and among 12th graders from 69% to 51% over the same interval. Finally, in 1998 there were some early signs of a reversal in this trend at all grade levels, although none of the increases reached statistical significance. In 1999 we saw a significant increase in disapproval of experimental use for 8th graders, a leveling of disapproval rates for 10th graders, and some further decline in this measure for 12th graders, suggesting a cohort effect at work. The 8th graders' level of disapproval slowly diverged (upward) from the other two grades after 1995, which is consistent with the gradual drop in use at 8th grade. After about 2001, disapproval of marijuana use had been rising quite steadily in all three grades until 2005, when it leveled among 8th graders (as did use). All three grades increased in disapproval in 2006 and 2007, though use showed rather little further decline. Disapproval of experimental use declined in 8th and 12th grades in 2008, as annual use showed slight increases, while 10th graders showed little change.
- From 1993 to 1996, disapproval of *LSD* use declined in all three grades (as did perceived risk) as self-reported use increased. Since about 1997, disapproval trends diverged among the three grades, with rates rising in 12th grade, holding fairly steady through 2000 and then decreasing in 10th grade, and declining significantly in 8th grade (see Figure 8-8b). There is now a large difference between the grades, with 53% of 8th graders disapproving of LSD use, compared to 86% of 12th graders. As noted earlier, the use of LSD decreased in recent years in all three grades despite the fact that there has been little or no increase in either perceived risk or disapproval at any grade (except for an increase in disapproval among 12th graders, which continued into 2004). This “disconnect” between these attitudes and beliefs and actual use suggests that other important factors were at work. Two possibilities are (1) a displacement of use by the rise in ecstasy use, at least in the early years of the downturn; and (2) a large drop in the reported availability of LSD since the mid-1990s, but particularly since 2001. We think it likely that both of these dynamics were at work. However, as noted earlier, we believe that the low levels of perceived risk and disapproval among 8th graders with regard to LSD leaves them potentially vulnerable to another epidemic of LSD use. Indeed, between 2006 and 2008, perceived risk has declined, disapproval has declined, and annual use has increased in all three grades; however, the changes in use in particular have been quite modest.
- As noted above, disapproval of *ecstasy* increased in 2002 in 12th grade, and this increase was also seen in 8th and 10th grades. These increases likely help explain the decreases in use that occurred among all three grade levels. In 2003, disapproval increased for all grades (significantly so for 8th and 10th graders), risk increased significantly for all grades, and use decreased significantly for all grades. In 2004, as use continued a gradual downward drift, disapproval continued to increase significantly in the upper grades but dropped some for 8th graders. Between 2005 and 2008, disapproval was unchanged among 12th graders, but decreased among both 8th and 10th graders; this unusual pattern of divergence is similar to that observed for perceived risk for ecstasy. We believe that

generational forgetting of the risks of this drug may account for the decline among the younger adolescents in both perceived risk and disapproval.

- Disapproval of *crack* and *cocaine powder* fell some from 1991 through 1996 among 8th graders, from 1991 through 1998 among 10th graders, and from 1992 through 1998 among 12th graders. These attitudes have not changed a great deal since then, though there has been a very gradual rise in disapproval. The softening in attitudes about using crack and cocaine powder in the early 1990s eventually translated into changes in usage levels. For example, crack use rose from 1991 through 1998 in 8th grade, from 1992 through 1998 in 10th grade, and from 1993 through 1999 in 12th grade. Since those recent peaks in use, there has been some falloff at all grades in the use of both crack and powder cocaine. As with LSD, this recent general decline in use occurred for the most part without any significant increases in risk or disapproval, suggesting the possibility that there is some substitution by another drug occurring. Ecstasy would seem the most logical candidate because it was the only drug on a steep ascent for several years; but there has also been a modest decline in perceived availability in all three grades. Whether the decline in use drove the decline in availability or vice versa is unclear.
- Regarding the use of *inhalants*, there was a small decrease in the disapproval rates among 8th graders from 1991 to 1995, but none among 10th graders. Perceived risk for inhalants jumped up between 1995 and 1996 for both grades. Disapproval inched up from 1995 through 1997, but in 1999 disapproval of trying inhalants jumped significantly in both grades, with little change since for 10th graders. For 8th graders, there was some increase in disapproval between 1998 and 2002, with disapproval of trying inhalants once or twice reaching 86%; by 2008, this was down slightly, to 82%.
- Disapproval of weekend *binge drinking* declined among 8th graders between 1991 and 1996 and among 10th and 12th graders between 1992 and 1997, before leveling (see Figure 8-10b). Disapproval began to rise slowly among 8th graders after 1999, and to rise some among 10th and 12th graders after 2001. In general, self-reported binge drinking rates have moved in a manner complementary to disapproval over time.
- Disapproval of *smoking one or more packs of cigarettes per day* also declined significantly, from 1991 to 1996 among 8th and 10th graders and from 1992 to 1996 among 12th graders (see Figure 8-11b), corresponding to periods of sharp increase in cigarette use. After 1996, however, disapproval turned upward in both lower grades, including a significant increase in 2002 among 10th graders; the same has been happening since 1997 in grade 12. Disapproval continued to rise in 2005 at the upper grades, but leveled among 8th graders, as did their rate of smoking. In 2007, both 8th and 10th graders showed further increase in disapproval of smoking, but disapproval leveled off among 12th graders. No important changes in disapproval were seen in 2008. During this long period of increasing disapproval, and even longer period of increase in perceived risk, actual smoking rates have fallen appreciably. These recent changes in attitudes may well have been brought about by the extremely adverse publicity suffered by the tobacco industry during these years. Also, the Joe Camel advertising campaign

ended, billboard advertising of cigarettes was removed, and a number of states, as well as the American Legacy Foundation, initiated antismoking campaigns aimed at youth.

## **ATTITUDES REGARDING THE LEGALITY OF DRUG USE**

At the beginning of the study in 1975, legal restraints on drug use appeared likely to be in a state of flux for some time. Therefore, we decided to measure attitudes about legal sanctions. As it turns out, some dramatic changes in these attitudes have occurred. Table 8-7 presents a set of questions on this subject, along with the answers provided by each 12th-grade class. The set lists a sampling of illicit and licit drugs and asks respondents whether the use of each should be prohibited by law. A distinction was made between *use in public* and *use in private*—a distinction that has proven quite important. (These questions have not been asked of 8th- and 10th-grade respondents.) The answer alternatives are “no,” “yes,” and “not sure.”

### **Attitudes of Twelfth Graders**

- The great majority of 12th graders believe that the use in public of *illicit drugs other than marijuana* should be prohibited by law. For instance, in the case of *amphetamines* or *sedatives*, 72% of 12th graders in 2008 believe that use in public should be prohibited, and 81% believe that such use of *heroin* should be prohibited. Even use in private is opposed by the majority, though by smaller proportions: for example, 53% believe that the use in private of *amphetamines* or *sedatives* should be illegal, 61% hold this belief about *LSD* use, and 72% about *heroin* use.
- Despite the fact that many 12th graders have used marijuana themselves (43%), and many do not judge it to be as dangerous as other drugs, the great majority (70%) favor legally prohibiting *marijuana* use in public places. Substantially fewer (39%) feel that marijuana use in private should be prohibited.
- In 2008, 45% of 12th graders believe that *cigarette smoking* in “certain specified public places” should be prohibited by law. Were the question more specific as to the types of public places in which smoking might be prohibited (e.g., restaurants or hospitals), quite different results might have emerged. Just as many think that *getting drunk* in public should be prohibited (50%).
- For *all drugs* included in the question, fewer 12th graders believe that use in private settings should be illegal than believe this about use in public. This is particularly true for *getting drunk* in private (for which only 23% think there should be a legal prohibition) and for using *marijuana* in private (for which only 39% think there should be a legal prohibition).

### Trends in These Attitudes among Twelfth Graders

- From 1975 through 1978, there were modest declines (shifts of five to seven percentage points, depending on the substance) in the proportions of 12th graders who favored legal prohibition of private use of any of the five illicit drugs (see Table 8-7). By 1990 (12 years later), all of these proportions had increased substantially, with shifts of 8 to 31 percentage points. The proportion who thought *marijuana* use in private should be prohibited by law more than doubled, from 25% in 1978 to 56% in 1990—a dramatic shift.

Then, between 1990 and 1997, positions on prohibition of all illicit drug use softened once again, particularly in the case of marijuana use in private. Since 1997 these attitudes have been fairly stable, or continued to soften slightly. For example, in 2006, 70% thought taking *amphetamines* or *sedatives (barbiturates)* in public should be prohibited, down from 77% in 1997; the rate was 72% in 2008.

- There has been surprisingly little change in the proportion of 12th graders who said *smoking cigarettes* “in certain specified public places” should be prohibited by law. In 1977, 42% held this view, versus 45% in 2008, 31 years later. The lowest level was 39% (in 1984), and the highest was 48% (in 1988). On the other hand, given recent widespread prohibitions of smoking in many public buildings, it is possible that the assumed definition of “certain specified public places” has narrowed in the minds of many 12th graders.
- Attitudes about the legality of *drunkenness* in public or private places have changed little over the past 33 years, but there has been a small change toward less tolerance of drunkenness in public places. The stability of attitudes about the preferred legality for this culturally ingrained drug-using behavior contrasts sharply with the instability of attitudes regarding the legality of using illicit drugs.

### THE LEGAL STATUS OF MARIJUANA

Another set of questions asks with more specificity what legal sanctions, if any, 12th graders think should be attached to the *use* and *sale* of marijuana. (These questions have not been asked of 8th- and 10th-grade respondents.) Respondents are also asked to guess how they would be likely to react to the legalized use and sale of the drug. The answers to such a hypothetical question must be interpreted with considerable caution, of course.

#### Attitudes and Predicted Responses to Legalization

- As shown in Table 8-8, about equal proportions of 12th graders in 2008 believed that marijuana use should be (a) entirely legal (29%); (b) a minor violation like a parking ticket, but not a crime (30%); or (c) a crime (28%). (The remaining 13% said they “don’t know.”)
- Asked whether they thought it should be legal to sell marijuana *if* it were legal to use it, just over half (56%) said “yes.” However, four fifths of those answering “yes” (46% of

all respondents) would permit the sale *only* to adults. Only a small minority (10%) favored the sale to anyone, regardless of age, while 31% said that sale should not be legal even if use were made legal, and 13% said they “don’t know.”

- Most 12th graders felt that they would be little affected personally by the legalization of either the sale or the use of marijuana. About three fifths (61%) of the respondents said that they would not use the drug even if it were legal to buy and use, while others indicated they would use it about as often as they do now (15%) or less often (1.4%). Only 5.5% said they would use it more often than they do at present, while another 8.9% thought they would try it. (Nine percent said they did not know how their behavior would be affected if marijuana were legalized.) Still, this amounts to 14.4%, or about one in seven who state that they would try marijuana, or their use would increase, if marijuana were legalized.

A study of the effects of decriminalization by several states during the late 1970s found no evidence of any impact on the use of marijuana among young people, nor on attitudes and beliefs concerning its use.<sup>85</sup> However, it should be noted that *decriminalization* falls well short of the full *legalization* posited in the questions here. Moreover, the situation today is very different than it was in the late 1970s, with much more peer disapproval and more rigorous enforcement of drug laws. More recent studies suggest that there may be an impact of decriminalization, such that “youths living in decriminalized states are significantly more likely to report currently using marijuana.”<sup>86</sup>

### Trends in Attitudes and Predicted Responses

- In the 12-year interval between 1978 and 1990, American 12th graders became much more supportive of legal prohibitions of the use of all the *illegal drugs* shown in Table 8-7, whether used in private or in public.
- Between 1976 and 1979, 12th graders’ preferences for decriminalization or legalization of *marijuana* remained fairly constant (see Table 8-8). But between 1979 and 1990, the proportion favoring outright legalization dropped by half (from 32% in 1979 to 16% in 1990), and there was a corresponding doubling in the proportion saying marijuana use should be a crime (from 24% to 53%). Also reflecting this increased conservatism about marijuana use, somewhat fewer said they would support legalized *sale* even if *use* were made legal (down from 65% in 1979 to 48% in 1990).

After 1990 these policy attitudes began to change again. Fewer favored criminal penalties and more favored legal sale (see Table 8-8). For example, in 1996, the proportion saying that using marijuana should be entirely legal was 31%, up from 16% in 1990, and the proportion saying it should be a crime was 34%, down from 53% in 1990. For the most

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<sup>85</sup>See Johnston, L. D., O’Malley, P. M., & Bachman, J. G. (1981). *Marijuana decriminalization: The impact on youth, 1975–1980* (Monitoring the Future Occasional Paper No. 13). Ann Arbor, MI: Institute for Social Research.

<sup>86</sup>Chaloupka, F. J., Pacula, R. L., Farrelly, M. C., Johnston, L. D., O’Malley, P. M., & Bray, J. W. (February 1999). *Do higher cigarette prices encourage youth to use marijuana?* (NBER Working Paper No. 6939). Cambridge, MA: National Bureau of Economic Research.

part, these attitudes have not changed in any systematic pattern in the last few years, although the proportion saying marijuana use should be a crime has declined by six percentage points since 1997, while the proportion saying it should be a minor violation increased by nine percentage points. One thing that has become clear over the past 3+ decades is that young people's policy preferences regarding the legal status of marijuana and other drugs track rather closely the extent to which they personally disapprove of the use of those drugs *and* the extent to which they are using them.

- The predictions about personal marijuana use, if sale and use were legalized, have been fairly similar for all graduating classes. The slight shifts observed have been attributable mostly to the changing proportions of 12th graders who have actually used marijuana.

**TABLE 8-1**  
**Trends in Harmfulness of Drugs as Perceived by 8th Graders**

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying "great risk" <sup>a</sup>																2007-2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008 change	
Try marijuana once or twice	40.4	39.1	36.2	31.6	28.9	27.9	25.3	28.1	28.0	29.0	27.7	28.2	30.2	31.9	31.4	32.2	32.8	31.1	-1.7 s
Smoke marijuana occasionally	57.9	56.3	53.8	48.6	45.9	44.3	43.1	45.0	45.7	47.4	46.3	46.0	48.6	50.5	48.9	48.9	50.2	48.1	-2.1 s
Smoke marijuana regularly	83.8	82.0	79.6	74.3	73.0	70.9	72.7	73.0	73.3	74.8	72.2	71.7	74.2	76.2	73.9	73.2	74.3	72.0	-2.3 s
Try inhalants once or twice <sup>b</sup>	35.9	37.0	36.5	37.9	36.4	40.8	40.1	38.9	40.8	41.2	45.6	42.8	40.3	38.7	37.5	35.8	35.9	33.9	-2.0
Take inhalants regularly <sup>b</sup>	65.6	64.4	64.6	65.5	64.8	68.2	68.7	67.2	68.8	69.9	71.6	69.9	67.4	66.4	64.1	62.1	61.9	59.2	-2.8 s
Take LSD once or twice <sup>c</sup>	—	—	42.1	38.3	36.7	36.5	37.0	34.9	34.1	34.0	31.6	29.6	27.9	26.8	25.8	23.8	22.8	21.9	-0.9
Take LSD regularly <sup>c</sup>	—	—	68.3	65.8	64.4	63.6	64.1	59.6	58.8	57.5	52.9	49.3	48.2	45.2	44.0	40.0	38.5	36.9	-1.5
Try ecstasy (MDMA) once or twice <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	35.8	38.9	41.9	42.5	40.0	32.8	30.4	28.6	-1.9
Take ecstasy (MDMA) occasionally <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	55.5	61.8	65.8	65.1	60.8	52.0	48.6	46.8	-1.7
Try crack once or twice <sup>b</sup>	62.8	61.2	57.2	54.4	50.8	51.0	49.9	49.3	48.7	48.5	48.6	47.4	48.7	49.0	49.6	47.6	47.3	47.1	-0.2
Take crack occasionally <sup>b</sup>	82.2	79.6	76.8	74.4	72.1	71.6	71.2	70.6	70.6	70.1	70.0	69.7	70.3	70.4	69.4	68.7	68.3	67.9	-0.4
Try cocaine powder once or twice <sup>e</sup>	55.5	54.1	50.7	48.4	44.9	45.2	45.0	44.0	43.3	43.3	43.9	43.2	43.7	44.4	44.2	43.5	43.5	42.7	-0.9
Take cocaine powder occasionally <sup>e</sup>	77.0	74.3	71.8	69.1	66.4	65.7	65.8	65.2	65.4	65.5	65.8	64.9	65.8	66.0	65.3	64.0	64.2	62.7	-1.5
Try heroin once or twice without using a needle <sup>e</sup>	—	—	—	—	60.1	61.3	63.0	62.8	63.0	62.0	61.1	62.6	62.7	61.6	61.4	60.4	60.3	60.8	+0.5
Take heroin occasionally without using a needle <sup>e</sup>	—	—	—	—	76.8	76.6	79.2	79.0	78.9	78.6	78.5	78.5	77.8	77.5	76.8	75.3	76.4	75.5	-0.9
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	11.0	12.1	12.4	11.6	11.6	11.8	10.4	12.1	11.6	11.9	12.2	12.5	12.6	13.7	13.9	14.2	14.9	13.5	-1.3 s
Take one or two drinks nearly every day	31.8	32.4	32.6	29.9	30.5	28.6	29.1	30.3	29.7	30.4	30.0	29.6	29.9	31.0	31.4	31.3	32.6	31.5	-1.2
Have five or more drinks once or twice each weekend	59.1	58.0	57.7	54.7	54.1	51.8	55.6	56.0	55.3	55.9	56.1	56.4	56.5	56.9	57.2	56.4	57.9	57.0	-0.9
Smoke one to five cigarettes per day <sup>f</sup>	—	—	—	—	—	—	—	—	26.9	28.9	30.5	32.8	33.4	37.0	37.5	37.0	38.6	38.6	0.0
Smoke one or more packs of cigarettes per day <sup>f</sup>	51.6	50.8	52.7	50.8	49.8	50.4	52.6	54.3	54.8	58.8	57.1	57.5	57.7	62.4	61.5	59.4	61.1	59.8	-1.3
Use smokeless tobacco regularly	35.1	35.1	36.9	35.5	33.5	34.0	35.2	36.5	37.1	39.0	38.2	39.4	39.7	41.3	40.8	39.5	41.8	41.0	-0.8
Take steroids <sup>g</sup>	64.2	69.5	70.2	67.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N = 17,400 18,400 18,400 17,400 17,500 17,900 18,800 18,100 16,700 16,700 16,200 15,100 16,500 17,000 16,800 16,500 16,100 15,700</i>																			

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

<sup>b</sup>Beginning in 1997, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>c</sup>Data based on one of two forms in 1993-1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

<sup>d</sup>Data based on one third of N indicated.

<sup>e</sup>Beginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>f</sup>Data based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

**TABLE 8-2**  
**Trends in Harmfulness of Drugs as Perceived by 10th Graders**

	Percentage saying "great risk" <sup>a</sup>																		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008 change
How much do you think people risk harming themselves (physically or in other ways), if they . . .	30.0	31.9	29.7	24.4	21.5	20.0	18.8	19.6	19.2	18.5	17.9	19.9	21.1	22.0	22.3	22.2	22.2	23.1	+0.9
Try marijuana once or twice	48.6	48.9	46.1	38.9	35.4	32.8	31.9	32.5	33.5	32.4	31.2	32.0	34.9	36.2	36.6	35.6	36.0	37.0	+1.0
Smoke marijuana occasionally	82.1	81.1	78.5	71.3	67.9	65.9	65.9	65.8	65.9	64.7	62.8	60.8	63.9	65.6	65.5	64.9	64.5	64.8	+0.4
Smoke marijuana regularly	37.8	38.7	40.9	42.7	41.6	47.2	47.5	45.8	48.2	46.6	49.9	48.7	47.7	46.7	45.7	43.9	43.0	41.2	-1.8
Try inhalants once or twice <sup>b</sup>	69.8	67.9	69.6	71.5	71.8	75.8	74.5	73.3	76.3	75.0	76.4	73.4	72.2	73.0	71.2	70.2	68.6	66.8	-1.8
Take inhalants regularly <sup>b</sup>	—	—	48.7	46.5	44.7	45.1	44.5	43.5	45.0	43.0	41.3	40.1	40.8	40.6	40.3	38.8	35.4	34.6	-0.8
Take LSD once or twice <sup>c</sup>	—	—	78.9	75.9	75.5	75.3	73.8	72.3	73.9	72.0	68.8	64.9	63.0	63.1	60.8	60.7	56.8	55.7	-1.1
Take LSD regularly <sup>c</sup>	—	—	—	—	—	—	—	—	—	—	39.4	43.5	49.7	52.0	51.4	48.4	45.3	43.2	-2.1
Try ecstasy (MDMA) once or twice <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	64.8	67.3	71.7	74.6	72.8	71.3	68.2	66.4	-1.8
Take ecstasy (MDMA) occasionally <sup>d</sup>	70.4	69.6	66.6	64.7	60.9	60.9	59.2	58.0	57.8	56.1	57.1	57.4	57.6	56.7	57.0	56.6	56.4	56.5	+0.1
Try crack once or twice <sup>b</sup>	87.4	86.4	84.4	83.1	81.2	80.3	78.7	77.5	79.1	76.9	77.3	75.7	76.4	76.7	76.9	76.2	76.0	76.5	+0.5
Take crack occasionally <sup>b</sup>	59.1	59.2	57.5	56.4	53.5	53.6	52.2	50.9	51.6	48.8	50.6	51.3	51.8	50.7	51.3	50.2	49.5	49.8	+0.3
Try cocaine powder once or twice <sup>b</sup>	82.2	80.1	79.1	77.8	75.6	75.0	73.9	71.8	73.6	70.9	72.3	71.0	71.4	72.2	72.4	71.3	70.9	71.1	+0.3
Take cocaine powder occasionally <sup>b</sup>	—	—	—	—	70.7	72.1	73.1	71.7	73.7	71.7	72.0	72.2	70.6	72.0	72.4	70.0	70.5	70.8	+0.3
Try heroin once or twice without using a needle <sup>e</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Take heroin occasionally without using a needle <sup>e</sup>	—	—	—	—	85.1	85.8	86.5	84.9	86.5	85.2	85.4	83.4	83.5	85.4	85.2	83.6	84.2	83.1	-1.1
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	9.0	10.1	10.9	9.4	9.3	8.9	9.0	10.1	10.5	9.6	9.8	11.5	11.5	10.8	11.5	11.1	11.6	12.6	+0.9
Take one or two drinks nearly every day	36.1	36.8	35.9	32.5	31.7	31.2	31.8	31.9	32.9	32.3	31.5	31.0	30.9	31.3	32.6	31.7	33.3	35.0	+1.7 s
Have five or more drinks once or twice each weekend	54.7	55.9	54.9	52.9	52.0	50.9	51.8	52.5	51.9	51.0	50.7	51.7	51.6	51.7	53.3	52.4	54.1	56.6	+2.5 ss
Smoke one to five cigarettes per day <sup>f</sup>	—	—	—	—	—	—	—	—	28.4	30.2	32.4	35.1	38.1	39.7	41.0	41.3	41.7	43.5	+1.8
Smoke one or more packs of cigarettes per day <sup>f</sup>	60.3	59.3	60.7	59.0	57.0	57.9	59.9	61.9	62.7	65.9	64.7	64.3	65.7	68.4	68.1	67.7	68.2	69.1	+0.9
Use smokeless tobacco regularly	40.3	39.6	44.2	42.2	38.2	41.0	42.2	42.8	44.2	46.7	46.2	46.9	48.0	47.8	46.1	45.9	46.7	48.0	+1.2
Take steroids <sup>g</sup>	67.1	72.7	73.4	72.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	14,700	14,800	15,300	15,900	17,000	15,700	15,600	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

<sup>b</sup>Beginning in 1997, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>c</sup>Data based on one of two forms in 1993-1996; N is one half of N indicated. Beginning in 1997, data based on one third of N indicated due to changes in questionnaire forms.

<sup>d</sup>Data based on one third of N indicated.

<sup>e</sup>Beginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>f</sup>Data based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

**TABLE 8-3**  
**Trends in Harmfulness of Drugs as Perceived in Grade 12**

	Percentage saying "great risk" <sup>a,b</sup>																	
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>How much do you think people risk harming themselves (physically or in other ways), if they . . .</i>																		
Try marijuana once or twice	15.1	11.4	9.5	8.1	9.4	10.0	13.0	11.5	12.7	14.7	14.8	15.1	18.4	19.0	23.6	23.1	27.1	
Smoke marijuana occasionally	18.1	15.0	13.4	12.4	13.5	14.7	19.1	18.3	20.6	22.6	24.5	25.0	30.4	31.7	36.5	36.9	40.6	
Smoke marijuana regularly	43.3	38.6	36.4	34.9	42.0	50.4	57.6	60.4	62.8	66.9	70.4	71.3	73.5	77.0	77.5	77.8	78.6	
Try LSD once or twice	49.4	45.7	43.2	42.7	41.6	43.9	45.5	44.9	44.7	45.4	43.5	42.0	44.9	45.7	46.0	44.7	46.6	
Take LSD regularly	81.4	80.8	79.1	81.1	82.4	83.0	83.5	83.5	83.2	83.8	82.9	82.6	83.8	84.2	84.3	84.5	84.3	
Try PCP once or twice	—	—	—	—	—	—	—	—	—	—	—	—	55.6	58.8	56.6	55.2	51.7	
Try ecstasy (MDMA) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Try cocaine once or twice	42.6	39.1	35.6	33.2	31.5	31.3	32.1	32.8	33.0	35.7	34.0	33.5	47.9	51.2	54.9	59.4	59.4	
Take cocaine occasionally	—	—	—	—	—	—	—	—	—	—	—	54.2	66.8	69.2	71.8	73.9	75.5	
Take cocaine regularly	73.1	72.3	68.2	68.2	69.5	69.2	71.2	73.0	74.3	78.8	79.0	82.2	88.5	89.2	90.2	91.1	90.4	
Try crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	57.0	62.1	62.9	64.3	60.6	
Take crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	70.4	73.2	75.3	80.4	76.5	
Take crack regularly	—	—	—	—	—	—	—	—	—	—	—	—	84.6	84.8	85.6	91.6	90.1	
Try cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	45.3	51.7	53.8	53.9	53.6	
Take cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	56.8	61.9	65.8	71.1	69.8	
Take cocaine powder regularly	—	—	—	—	—	—	—	—	—	—	—	—	81.4	82.9	83.9	90.2	88.9	
Try heroin once or twice	60.1	58.9	55.8	52.9	50.4	52.1	52.9	51.1	50.8	49.8	47.3	45.8	53.6	54.0	53.8	55.4	55.2	
Take heroin occasionally	75.6	75.6	71.9	71.4	70.9	70.9	72.2	69.8	71.8	70.7	69.8	68.2	74.6	73.8	75.5	76.6	74.9	
Take heroin regularly	87.2	88.6	86.1	86.6	87.5	86.2	87.5	86.0	86.1	87.2	86.0	87.1	88.7	88.8	89.5	90.2	89.6	
Try heroin once or twice without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Take heroin occasionally without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Try amphetamines once or twice	35.4	33.4	30.8	29.9	29.7	29.7	26.4	25.3	24.7	25.4	25.2	25.1	29.1	29.6	32.8	32.2	36.3	
Take amphetamines regularly	69.0	67.3	66.6	67.1	69.9	69.1	66.1	64.7	64.8	67.1	67.2	67.3	69.4	69.8	71.2	71.2	74.1	
Try crystal methamphetamine (ice) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	61.6	
Try sedatives (barbiturates) once or twice <sup>b</sup>	34.8	32.5	31.2	31.3	30.7	30.9	28.4	27.5	27.0	27.4	26.1	25.4	30.9	29.7	32.2	32.4	35.1	
Take sedatives (barbiturates) regularly <sup>b</sup>	69.1	67.7	68.6	68.4	71.6	72.2	69.9	67.6	67.7	68.5	68.3	67.2	69.4	69.6	70.5	70.2	70.5	
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	5.3	4.8	4.1	3.4	4.1	3.8	4.6	3.5	4.2	4.6	5.0	4.6	6.2	6.0	6.0	8.3	9.1	
Take one or two drinks nearly every day	21.5	21.2	18.5	19.6	22.6	20.3	21.6	21.6	21.6	23.0	24.4	25.1	26.2	27.3	28.5	31.3	32.7	
Take four or five drinks nearly every day	63.5	61.0	62.9	63.1	66.2	65.7	64.5	65.5	66.8	68.4	69.8	66.5	69.7	68.5	69.8	70.9	69.5	
Have five or more drinks once or twice each weekend	37.8	37.0	34.7	34.5	34.9	35.9	36.3	36.0	38.6	41.7	43.0	39.1	41.9	42.6	44.0	47.1	48.6	
Smoke one or more packs of cigarettes per day	51.3	56.4	58.4	59.0	63.0	63.7	63.3	60.5	61.2	63.8	66.5	66.0	68.6	68.0	67.2	68.2	69.4	
Use smokeless tobacco regularly	—	—	—	—	—	—	—	—	—	—	—	25.8	30.0	33.2	32.9	34.2	37.4	
Take steroids	—	—	—	—	—	—	—	—	—	—	—	—	—	—	63.8	69.9	65.6	
<i>Approximate weighted N = 2,804 2,918 3,052 3,770 3,250 3,234 3,604 3,557 3,305 3,262 3,250 3,020 3,315 3,276 2,796 2,553 2,549</i>																		

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available. "+" indicates some change in the question. See relevant footnote for that drug.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

(Table continued on next page.)



**TABLE 8-3 (cont.)  
Trends in Harmfulness of Drugs as Perceived in Grade 12**

How much do you think people risk harming themselves (physically or in other ways), if they . . .	Percentage saying "great risk" <sup>a</sup>																	2007-2008
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Try marijuana once or twice	24.5	21.9	19.5	16.3	15.6	14.9	16.7	15.7	13.7	15.3	16.1	16.1	15.9	16.1	17.8	18.6	17.4	-1.2
Smoke marijuana occasionally	39.6	35.6	30.1	25.6	25.9	24.7	24.4	23.9	23.4	23.5	23.2	26.6	25.4	25.8	25.9	27.1	25.8	-1.4
Smoke marijuana regularly	76.5	72.5	65.0	60.8	59.9	58.1	58.5	57.4	58.3	57.4	53.0	54.9	54.6	58.0	57.9	54.8	51.7	-3.1
Try LSD once or twice	42.3	39.5	38.8	36.4	36.2	34.7	37.4	34.9	34.3	33.2	36.7	36.2	36.2	36.5	36.1	37.0	33.9	-3.1
Take LSD regularly	81.8	79.4	79.1	78.1	77.8	76.6	76.5	76.1	75.9	74.1	73.9	72.3	70.2	69.9	69.3	67.3	63.6	-3.7 s
Try PCP once or twice	54.8	50.8	51.5	49.1	51.0	48.8	46.8	44.8	45.0	46.2	48.3	45.2	47.1	46.6	47.0	48.0	47.4	-0.7
Try ecstasy (MDMA) once or twice	56.8	57.6	57.2	53.7	54.2	53.8	54.6	52.1	51.1	50.7	51.2	51.0	50.7	50.5	52.5	51.3	50.3	-1.0
Try cocaine once or twice	75.1	73.3	73.7	70.8	72.1	72.4	70.1	70.1	69.5	69.9	68.3	69.1	67.2	66.7	69.8	68.8	67.1	-1.7
Take cocaine occasionally	90.2	90.1	89.3	87.9	88.3	87.1	86.3	85.8	86.2	84.1	84.5	83.0	82.2	82.8	84.6	83.3	80.7	-2.6
Take cocaine regularly	62.4	57.6	58.4	54.6	56.0	54.0	52.2	48.2	48.4	49.4	50.8	47.3	47.8	48.4	47.8	47.3	47.5	+0.2
Try crack once or twice	76.3	73.9	73.8	72.8	71.4	70.3	68.7	67.3	65.8	65.4	65.6	64.0	64.5	63.8	64.8	63.6	65.2	+1.6
Take crack occasionally	89.3	87.5	89.6	88.6	88.0	86.2	85.3	85.4	85.3	85.8	84.1	83.2	83.5	83.3	82.8	82.6	83.4	+0.8
Take crack regularly	57.1	53.2	55.4	52.0	53.2	51.4	48.5	46.1	47.0	49.0	49.5	46.2	45.4	46.2	45.8	45.1	45.1	0.0
Try cocaine powder once or twice	70.8	68.6	70.6	69.1	68.8	67.7	65.4	64.2	64.7	63.2	64.4	61.4	61.6	60.8	61.9	59.9	61.6	+1.7
Take cocaine powder occasionally	88.4	87.0	88.6	87.8	86.8	86.0	84.1	84.6	85.5	84.4	84.2	82.3	81.7	82.7	82.1	81.5	82.5	+1.1
Take cocaine powder regularly	50.9	50.7	52.8	50.9	52.5	56.7	57.8	56.0	54.2	55.6	56.0	58.0	56.6	55.2	59.1	58.4	55.5	-2.9
Try heroin once or twice	74.2	72.0	72.1	71.0	74.8	76.3	76.9	77.3	74.6	75.9	76.6	78.5	75.7	76.0	79.1	76.2	75.3	-1.0
Take heroin occasionally	89.2	88.3	88.0	87.2	89.5	88.9	89.1	89.9	89.2	88.3	88.5	89.3	86.8	87.5	89.7	87.8	86.4	-1.4
Take heroin regularly	—	—	—	55.6	58.6	60.5	59.6	58.5	61.6	60.7	60.6	58.9	61.2	60.5	62.6	60.2	60.8	+0.6
Try heroin once or twice without using a needle	—	—	—	71.2	71.0	74.3	73.4	73.6	74.7	74.4	74.7	73.0	76.1	73.3	76.2	73.9	73.2	-0.6
Take heroin occasionally without using a needle	32.6	31.3	31.4	28.8	30.8	31.0	35.3	32.2	32.6	34.7	34.4	36.8	35.7	37.7	39.5	41.3	39.2	-2.2
Try amphetamines once or twice	72.4	69.9	67.0	65.9	66.8	66.0	67.7	66.4	66.3	67.1	64.8	65.6	63.9	67.1	68.1	68.1	65.4	-2.6
Take amphetamines regularly	61.9	57.5	58.3	54.4	55.3	54.4	52.7	51.2	51.3	52.7	53.8	51.2	52.4	54.6	59.1	60.2	62.2	+2.0
Try crystal methamphetamine (ice) once or twice	32.2	29.2	29.9	26.3	29.1	26.9	29.0	26.1	25.0	25.7	26.2	27.9†	24.9	24.7	28.0	27.9	25.9	-2.0
Try sedatives (barbiturates) once or twice <sup>b</sup>	70.2	66.1	63.3	61.6	60.4	56.8	56.3	54.1	52.3	50.3	49.3	49.6‡	54.0	54.1	56.8	55.1	50.2	-4.9 ss
Take sedatives (barbiturates) regularly <sup>b</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	8.6	8.2	7.6	5.9	7.3	6.7	8.0	8.3	6.4	8.7	7.6	8.4	8.6	8.5	9.3	10.5	10.0	-0.5
Take one or two drinks nearly every day	30.6	28.2	27.0	24.8	25.1	24.8	24.3	21.8	21.7	23.4	21.0	20.1	23.0	23.7	25.3	25.1	24.2	-0.9
Take four or five drinks nearly every day	70.5	67.8	66.2	62.8	65.6	63.0	62.1	61.1	59.9	60.7	58.8	57.8	59.2	61.8	63.4	61.8	60.8	-1.0
Have five or more drinks once or twice each weekend	49.0	48.3	46.5	45.2	49.5	43.0	42.8	43.1	42.7	43.6	42.2	43.5	43.6	45.0	47.6	45.8	46.3	+0.6
Smoke one or more packs of cigarettes per day	69.2	69.5	67.6	65.6	68.2	68.7	70.8	70.8	73.1	73.3	74.2	72.1	74.0	76.5	77.6	77.3	74.0	-3.3 s
Use smokeless tobacco regularly	35.5	38.9	36.6	33.2	37.4	38.6	40.9	41.1	42.2	45.4	42.6	43.3	45.0	43.6	45.9	44.0	42.9	-1.1
Take steroids	70.7	69.1	66.1	66.4	67.6	67.2	68.1	62.1	57.9	58.9	57.1	55.0	55.7	56.8	60.2	57.4	60.8	+3.4
<i>Approximate weighted N =</i>	<i>2,684</i>	<i>2,759</i>	<i>2,591</i>	<i>2,603</i>	<i>2,449</i>	<i>2,579</i>	<i>2,564</i>	<i>2,306</i>	<i>2,130</i>	<i>2,173</i>	<i>2,198</i>	<i>2,466</i>	<i>2,749</i>	<i>2,512</i>	<i>2,407</i>	<i>2,450</i>	<i>2,389</i>	

<sup>a</sup> Answer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar.

<sup>b</sup> In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates" and the list of examples was changed from "downers, goofballs, reids, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

**TABLE 8-4**  
**Trends in Disapproval of Drug Use in Grade 8**

Do you disapprove of people who . . .	Percentage who "disapprove" or "strongly disapprove" <sup>a</sup>																	2007- 2008 change
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Try marijuana once or twice	84.6	82.1	79.2	72.9	70.7	67.5	67.6	69.0	70.7	72.5	72.4	73.3	73.8	75.9	75.3	76.0	78.7	76.6
Smoke marijuana occasionally	89.5	88.1	85.7	80.9	79.7	76.5	78.1	78.4	79.3	80.6	80.6	80.9	81.5	83.1	82.4	82.2	84.5	82.6
Smoke marijuana regularly	92.1	90.8	88.9	85.3	85.1	82.8	84.6	84.5	84.5	85.3	84.5	85.3	85.7	86.8	86.3	86.1	87.7	86.8
Try inhalants once or twice <sup>b</sup>	84.9	84.0	82.5	81.6	81.8	82.9	84.1	83.0	85.2	85.4	86.6	86.1	85.1	85.1	84.6	83.4	84.1	82.3
Take inhalants regularly <sup>b</sup>	90.6	90.0	88.9	88.1	88.8	89.3	90.3	89.5	90.3	90.2	90.5	90.4	89.8	90.1	89.8	89.0	89.5	88.5
Take LSD once or twice <sup>c</sup>	—	—	77.1	75.2	71.6	70.9	72.1	69.1	69.4	66.7	64.6	62.6	61.0	58.1	58.5	53.9	53.5	52.6
Take LSD regularly <sup>c</sup>	—	—	79.8	78.4	75.8	75.3	76.3	72.5	72.5	69.3	67.0	65.5	63.5	60.5	60.7	55.8	55.6	54.7
Try ecstasy (MDMA) once or twice <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	69.0	74.3	77.7	76.3	75.0	66.7	65.7	63.5
Take ecstasy (MDMA) occasionally <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	73.6	78.6	81.3	79.4	77.9	69.8	68.3	66.5
Try crack once or twice <sup>b</sup>	91.7	90.7	89.1	86.9	85.9	85.0	85.7	85.4	86.0	85.4	86.0	86.2	86.4	87.4	87.6	87.2	88.6	87.2
Take crack occasionally <sup>b</sup>	93.3	92.5	91.7	89.9	89.8	89.3	90.3	89.5	89.9	88.8	89.8	89.6	89.8	90.3	90.5	90.0	91.2	90.3
Try cocaine powder once or twice <sup>b</sup>	91.2	89.6	88.5	86.1	85.3	83.9	85.1	84.5	85.2	84.8	85.6	85.8	85.6	86.8	87.0	86.5	88.2	86.8
Take cocaine powder occasionally <sup>b</sup>	93.1	92.4	91.6	89.7	89.7	88.7	90.1	89.3	89.9	88.8	89.6	89.9	89.8	90.3	90.7	90.2	91.0	90.1
Try heroin once or twice without using a needle <sup>e</sup>	—	—	—	—	85.8	85.0	87.7	87.3	88.0	87.2	87.2	87.8	86.9	86.6	86.9	87.2	88.4	86.9
Take heroin occasionally without using a needle <sup>e</sup>	—	—	—	—	88.5	87.7	90.1	89.7	90.2	88.9	88.9	89.6	89.0	88.6	88.5	88.5	89.7	88.2
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	51.7	52.2	50.9	47.8	48.0	45.5	45.7	47.5	48.3	48.7	49.8	51.1	49.7	51.1	51.2	51.3	54.0	52.5
Take one or two drinks nearly every day	82.2	81.0	79.6	76.7	75.9	74.1	76.6	76.9	77.0	77.8	77.4	78.3	77.1	78.6	78.7	78.7	80.4	79.2
Have five or more drinks once or twice each weekend	85.2	83.9	83.3	80.7	80.7	79.1	81.3	81.0	80.3	81.2	81.6	81.9	81.9	82.3	82.9	82.0	83.8	83.2
Smoke one to five cigarettes per day <sup>d</sup>	—	—	—	—	—	—	—	—	75.1	79.1	80.4	81.1	81.4	83.1	82.9	83.5	85.3	85.0
Smoke one or more packs of cigarettes per day <sup>e</sup>	82.8	82.3	80.6	78.4	78.6	77.3	80.3	80.0	81.4	81.9	83.5	84.6	84.6	85.7	85.3	85.6	87.0	86.7
Use smokeless tobacco regularly	79.1	77.2	77.1	75.1	74.0	74.1	76.5	76.3	78.0	79.2	79.4	80.6	80.7	81.0	82.0	81.0	82.3	82.1
Take steroids <sup>f</sup>	89.8	90.3	89.9	87.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	17,400	18,500	18,400	17,400	17,600	18,000	18,800	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

<sup>a</sup>Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>b</sup>Answer alternatives were: (1) Don't disapprove, (2) Disapprove, (3) Strongly disapprove, and (4) Can't say, drug unfamiliar. Percentages are shown for categories (2) and (3) combined.

<sup>c</sup>Beginning in 1997, data based on two thirds of *N* indicated due to changes in questionnaire forms.

<sup>d</sup>Data based on one of two forms in 1993–1996; *N* is one half of *N* indicated due to changes in questionnaire forms.

<sup>e</sup>Data based on one third of *N* indicated.

<sup>f</sup>Beginning in 1999, data based on two thirds of *N* indicated due to changes in questionnaire forms.

<sup>g</sup>Data based on one of two forms in 1993 and 1994; *N* is one half of *N* indicated.

**TABLE 8-5**  
**Trends in Disapproval of Drug Use in Grade 10**

Do you disapprove of people who . . .	Percentage who "disapprove" or "strongly disapprove" <sup>a,b</sup>																	2007- 2008	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Try marijuana once or twice	74.6	74.8	70.3	62.4	59.8	55.5	54.1	56.0	56.2	54.9	54.8	57.8	58.1	60.4	61.3	62.5	63.9	64.5	+0.6
Smoke marijuana occasionally	83.7	83.6	79.4	72.3	70.0	66.9	66.2	67.3	68.2	67.2	66.2	68.3	68.4	70.8	71.9	72.6	73.3	73.6	+0.3
Smoke marijuana regularly	90.4	90.0	87.4	82.2	81.1	79.7	79.7	80.1	79.8	79.1	78.0	78.6	78.8	81.3	82.0	82.5	82.4	83.0	+0.6
Try inhalants once or twice <sup>b</sup>	85.2	85.6	84.8	84.9	84.5	86.0	86.9	85.6	88.4	87.5	87.8	88.6	87.7	88.5	88.1	88.1	87.6	87.1	-0.5
Take inhalants regularly <sup>b</sup>	91.0	91.5	90.9	91.0	90.9	91.7	91.7	91.1	92.4	91.8	91.3	91.8	91.0	92.3	91.9	92.2	91.8	91.6	-0.3
Take LSD once or twice <sup>c</sup>	—	—	82.1	79.3	77.9	76.8	76.6	76.7	77.8	77.0	75.4	74.6	74.4	72.4	71.8	71.2	67.7	66.3	-1.4
Take LSD regularly <sup>c</sup>	—	—	86.8	85.6	84.8	84.5	83.4	82.9	84.3	82.1	80.8	79.4	77.6	75.9	75.0	74.9	71.5	69.8	-1.7
Try ecstasy (MDMA) once or twice <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	72.6	77.4	81.0	83.7	83.1	81.6	80.0	78.1	-1.9
Take ecstasy (MDMA) occasionally <sup>d</sup>	—	—	—	—	—	—	—	—	—	—	81.0	84.6	86.3	88.0	87.4	86.0	84.3	83.0	-1.3
Try crack once or twice <sup>b</sup>	92.5	92.5	91.4	89.9	88.7	88.2	87.4	87.1	87.8	87.1	86.9	88.0	87.6	88.6	88.8	89.5	89.5	90.8	+1.3
Take crack occasionally <sup>b</sup>	94.3	94.4	93.6	92.5	91.7	91.9	91.0	90.6	91.5	90.9	90.6	91.0	91.0	91.8	91.8	92.0	92.7	92.9	+0.2
Try cocaine powder once or twice <sup>b</sup>	90.8	91.1	90.0	88.1	86.8	86.1	85.1	84.9	86.0	84.8	85.3	86.4	85.9	86.8	86.9	87.3	87.7	88.6	+0.9
Take cocaine powder occasionally <sup>b</sup>	94.0	94.0	93.2	92.1	91.4	91.1	90.4	89.7	90.7	89.9	90.2	89.9	90.4	91.2	91.2	91.4	92.0	92.1	+0.1
Try heroin once or twice without using a needle <sup>e</sup>	—	—	—	—	89.7	89.5	89.1	88.6	90.1	90.1	89.1	89.2	89.3	90.1	90.3	91.1	90.7	91.4	+0.7
Take heroin occasionally without using a needle <sup>e</sup>	—	—	—	—	91.6	91.7	91.4	90.5	91.8	92.3	90.8	90.7	90.6	91.8	92.0	92.5	92.5	92.5	-0.1
Try one or two drinks of an alcoholic beverage (beer, wine, liquor)	37.6	39.9	38.5	36.5	36.1	34.2	33.7	34.7	35.1	33.4	34.7	37.7	36.8	37.6	38.5	37.8	39.5	41.8	+2.3 s
Take one or two drinks nearly every day	81.7	81.7	78.6	75.2	75.4	73.8	75.4	74.6	75.4	73.8	73.8	74.9	74.2	75.1	76.9	76.4	77.1	79.1	+2.0
Have five or more drinks once or twice each weekend	76.7	77.6	74.7	72.3	72.2	70.7	70.2	70.5	69.9	68.2	69.2	71.5	71.6	71.8	73.7	72.9	74.1	77.2	+3.1 ss
Smoke one to five cigarettes per day <sup>d</sup>	—	—	—	—	—	—	—	—	67.8	69.1	71.2	74.3	76.2	77.5	79.3	80.2	79.7	82.5	+2.8 s
Smoke one or more packs of cigarettes per day <sup>f</sup>	79.4	77.8	76.5	73.9	73.2	71.6	73.8	75.3	76.1	76.7	78.2	80.6	81.4	82.7	84.3	83.2	84.7	85.2	+0.5
Use smokeless tobacco regularly	75.4	74.6	73.8	71.2	71.0	71.0	72.3	73.2	75.1	75.8	76.1	78.7	79.4	80.2	80.5	80.5	80.9	81.8	+0.9
Take steroids <sup>g</sup>	90.0	91.0	91.2	90.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N = 14,800 14,800 15,300 15,900 17,000 15,700 15,600 15,000 13,600 14,300 14,000 14,300 15,800 16,400 16,200 16,100 16,200 16,100 15,700</i>																			

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) Don't disapprove, (2) Disapprove, (3) Strongly disapprove, and (4) Can't say, drug unfamiliar. Percentages are shown for categories (2) and (3) combined.

<sup>b</sup>Beginning in 1997, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>c</sup>Data based on one of two forms in 1993-1996; N is one half of N indicated due to changes in questionnaire forms.

<sup>d</sup>Data based on one third of N indicated.

<sup>e</sup>Beginning in 1999, data based on two thirds of N indicated due to changes in questionnaire forms.

<sup>f</sup>Data based on two forms in 1991 and 1992. Data based on one of two forms in 1993 and 1994; N is one half of N indicated.

**TABLE 8-6**  
**Trends in Disapproval of Drug Use in Grade 12**

Do you disapprove of people (who are 18 or older) doing each of the following? <sup>a</sup>	Percentage "disapproving" <sup>b</sup>																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Trying marijuana once or twice	47.0	38.4	33.4	33.4	34.2	39.0	40.0	45.5	46.3	49.3	51.4	54.6	56.6	60.8	64.6	67.8	68.7
Smoking marijuana occasionally	54.8	47.8	44.3	43.5	45.3	49.7	52.6	59.1	60.7	63.5	65.8	69.0	71.6	74.0	77.2	80.5	79.4
Smoking marijuana regularly	71.9	69.5	65.5	67.5	69.2	74.6	77.4	80.6	82.5	84.7	85.5	86.6	89.2	89.3	89.8	91.0	89.3
Trying LSD once or twice	82.8	84.6	83.9	85.4	86.6	87.3	86.4	88.8	89.1	88.9	89.5	89.2	91.6	89.8	89.7	89.8	90.1
Taking LSD regularly	94.1	95.3	95.8	96.4	96.9	96.7	96.8	96.7	97.0	96.8	97.0	96.6	97.8	96.4	96.4	96.3	96.4
Trying ecstasy (MDMA) once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trying cocaine once or twice	81.3	82.4	79.1	77.0	74.7	76.3	74.6	76.6	77.0	79.7	79.3	80.2	87.3	89.1	90.5	91.5	93.6
Taking cocaine regularly	93.3	93.9	92.1	91.9	90.8	91.1	90.7	91.5	93.2	94.5	93.8	94.3	96.7	96.2	96.4	96.7	97.3
Trying crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92.3	92.1
Taking crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.3	94.2
Taking crack regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.9	95.0
Trying cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	87.9	88.0
Taking cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92.1	93.0
Taking cocaine powder regularly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.7	94.4
Trying heroin once or twice	91.5	92.6	92.5	92.0	93.4	93.5	93.5	94.6	94.3	94.0	94.0	93.3	96.2	95.0	95.4	95.1	96.0
Taking heroin occasionally	94.8	96.0	96.0	96.4	96.8	96.7	97.2	96.9	96.9	97.1	96.8	96.6	97.9	96.9	97.2	96.7	97.3
Taking heroin regularly	96.7	97.5	97.2	97.8	97.9	97.6	97.8	97.5	97.7	98.0	97.6	97.6	98.1	97.2	97.4	97.5	97.8
Trying heroin once or twice without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taking heroin occasionally without using a needle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trying amphetamines once or twice	74.8	75.1	74.2	74.8	75.1	75.4	71.1	72.6	72.3	72.8	74.9	76.5	80.7	82.5	83.3	85.3	86.5
Taking amphetamines regularly	92.1	92.8	92.5	93.5	94.4	93.0	91.7	92.0	92.6	93.6	93.3	93.5	95.4	94.2	94.2	95.5	96.0
Trying sedatives (barbiturates) once or twice <sup>c</sup>	77.7	81.3	81.1	82.4	84.0	83.9	82.4	84.4	83.1	84.1	84.9	86.8	89.6	89.4	89.3	90.5	90.6
Taking sedatives (barbiturates) regularly <sup>c</sup>	93.3	93.6	93.0	94.3	95.2	95.4	94.2	94.4	95.1	95.1	95.5	94.9	96.4	95.3	95.3	96.4	97.1
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor)	21.6	18.2	15.6	15.6	15.8	16.0	17.2	18.2	18.4	17.4	20.3	20.9	21.4	22.6	27.3	29.4	29.8
Taking one or two drinks nearly every day	67.6	68.9	66.8	67.7	68.3	69.0	69.1	69.9	68.9	72.9	70.9	72.8	74.2	75.0	76.5	77.9	76.5
Taking four or five drinks nearly every day	88.7	90.7	88.4	90.2	91.7	90.8	91.8	90.9	90.0	91.0	92.0	91.4	92.2	92.8	91.6	91.9	90.6
Having five or more drinks once or twice each weekend	60.3	58.6	57.4	56.2	56.7	55.6	55.5	58.8	56.6	59.6	60.4	62.4	62.0	65.3	66.5	68.9	67.4
Smoking one or more packs of cigarettes per day	67.5	65.9	66.4	67.0	70.3	70.8	69.9	69.4	70.8	73.0	72.3	75.4	74.3	73.1	72.4	72.8	71.4
Taking steroids	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	90.8	90.5
<i>Approximate weighted N = 2,677 2,957 3,085 3,686 3,221 3,261 3,610 3,651 3,341 3,254 3,265 3,173 3,302 3,311 2,799 2,566 2,547</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

"±" indicates some change in the question. See relevant footnote for that drug.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

(Table continued on next page.)

**TABLE 8-6 (cont.)**  
**Trends in Disapproval of Drug Use in Grade 12**

Do you disapprove of people (who are 18 or older) doing each of the following? <sup>a</sup>	Percentage "disapproving" <sup>b</sup>																	2007- 2008
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Trying marijuana once or twice	69.9	63.3	57.6	56.7	52.5	51.0	51.6	48.8	52.5	49.1	51.6	53.4	52.7	55.0	55.6	58.6	55.5	-3.0
Smoking marijuana occasionally	79.7	75.5	68.9	66.7	62.9	63.2	64.4	62.5	65.8	63.2	63.4	64.2	65.4	67.8	69.3	70.2	67.3	-2.9
Smoking marijuana regularly	90.1	87.6	82.3	81.9	80.0	78.8	81.2	78.6	79.7	79.3	78.3	78.7	80.7	82.0	82.2	83.3	79.6	-3.7 ss
Trying LSD once or twice	88.1	85.9	82.5	81.1	79.6	80.5	82.1	83.0	82.4	81.8	84.6	85.5	87.9	87.9	88.0	87.8	85.5	-2.4
Taking LSD regularly	95.5	95.8	94.3	92.5	93.2	92.9	93.5	94.3	94.2	94.0	94.0	94.4	94.6	95.6	95.9	94.9	93.5	-1.5
Trying ecstasy (MDMA) once or twice	—	—	—	—	—	82.2	82.5	82.1	81.0	79.5	83.6	84.7	87.7	88.4	89.0	87.8	88.2	+0.4
Trying cocaine once or twice	93.0	92.7	91.6	90.3	90.0	88.0	89.5	89.1	88.2	88.1	89.0	89.3	88.6	88.9	89.1	89.6	89.2	-0.5
Taking cocaine regularly	96.9	97.5	96.6	96.1	95.6	96.0	95.6	94.9	95.5	94.9	95.0	95.8	95.4	96.0	96.1	96.2	94.8	-1.4
Trying crack once or twice	93.1	89.9	89.5	91.4	87.4	87.0	86.7	87.6	87.5	87.0	87.8	86.6	86.9	86.7	88.8	88.8	89.6	+0.8
Taking crack occasionally	95.0	92.8	92.8	94.0	91.2	91.3	90.9	92.3	91.9	91.6	91.5	90.8	92.1	91.9	92.9	92.4	93.3	+0.9
Taking crack regularly	95.5	93.4	93.1	94.1	93.0	92.3	91.9	93.2	92.8	92.2	92.4	91.2	93.1	92.1	93.8	93.6	93.5	-0.1
Trying cocaine powder once or twice	89.4	86.6	87.1	88.3	83.1	83.0	83.1	84.3	84.1	83.3	83.8	83.6	82.2	83.2	84.1	83.5	85.7	+2.2
Taking cocaine powder occasionally	93.4	91.2	91.0	92.7	89.7	89.3	88.7	90.0	90.3	89.8	90.2	88.9	90.0	89.4	90.4	90.6	91.7	+1.1
Taking cocaine powder regularly	94.3	93.0	92.5	93.8	92.9	91.5	91.1	92.3	92.6	92.5	92.2	90.7	92.6	92.0	93.2	92.6	92.8	+0.2
Trying heroin once or twice	94.9	94.4	93.2	92.8	92.1	92.3	93.7	93.5	93.0	93.1	94.1	94.1	94.2	94.3	93.8	94.8	93.3	-1.5
Taking heroin occasionally	96.8	97.0	96.2	95.7	95.0	95.4	96.1	95.7	96.0	95.4	95.6	95.9	96.4	96.3	96.2	96.8	95.3	-1.4 s
Taking heroin regularly	97.2	97.5	97.1	96.4	96.3	96.4	96.6	96.4	96.6	96.2	96.2	97.1	97.1	96.7	96.9	97.1	95.9	-1.2
Trying heroin once or twice without using a needle	—	—	—	92.9	90.8	92.3	93.0	92.6	94.0	91.7	93.1	92.2	93.1	93.2	93.7	93.6	94.2	+0.6
Taking heroin occasionally without using a needle	—	—	—	94.7	93.2	94.4	94.3	93.8	95.2	93.5	94.4	93.5	94.4	95.0	94.5	94.9	95.3	+0.4
Trying amphetamines once or twice	86.9	84.2	81.3	82.2	79.9	81.3	82.5	81.9	82.1	82.3	83.8	85.8	84.1	86.1	86.3	87.3	87.2	-0.1
Taking amphetamines regularly	95.6	96.0	94.1	94.3	93.5	94.3	94.0	93.7	94.1	93.4	93.5	94.0	93.9	94.8	95.3	95.4	94.2	-1.3
Trying sedatives (barbiturates) once or twice <sup>c</sup>	90.3	89.7	87.5	87.3	84.9	86.4	86.0	86.6	85.9	85.9	86.6	87.8†	83.7	85.4	85.3	86.5	86.1	-0.4
Taking sedatives (barbiturates) regularly <sup>c</sup>	96.5	97.0	96.1	95.2	94.8	95.3	94.6	94.7	95.2	94.5	94.7	94.4†	94.2	95.2	95.1	94.6	94.3	-0.3
Trying one or two drinks of an alcoholic beverage (beer, wine, liquor)	33.0	30.1	28.4	27.3	26.5	26.1	24.5	24.6	25.2	26.6	26.3	27.2	26.0	26.4	29.0	31.0	29.8	-1.2
Taking one or two drinks nearly every day	75.9	77.8	73.1	73.3	70.8	70.0	69.4	67.2	70.0	69.2	69.1	68.9	69.5	70.8	72.8	73.3	74.5	+1.2
Taking four or five drinks nearly every day	90.8	90.6	89.8	88.8	89.4	88.6	86.7	86.9	88.4	86.4	87.5	86.3	87.8	89.4	90.6	90.5	89.8	-0.7
Having five or more drinks once or twice each weekend	70.7	70.1	65.1	66.7	64.7	65.0	63.8	62.7	65.2	62.9	64.7	64.2	65.7	66.5	68.5	68.8	68.9	+0.2
Smoking one or more packs of cigarettes per day	73.5	70.6	69.8	68.2	67.2	67.1	68.8	69.5	70.1	71.6	73.6	74.8	76.2	79.8	81.5	80.7	80.5	-0.1
Taking steroids	92.1	92.1	91.9	91.0	91.7	91.4	90.8	88.9	88.8	86.4	86.8	86.0	87.9	88.8	89.4	89.2	90.9	+1.7
	2,645	2,723	2,588	2,603	2,399	2,601	2,545	2,310	2,150	2,144	2,160	2,442	2,455	2,460	2,377	2,450	2,314	

<sup>a</sup>The 1975 question asked about people who are "20 or older."

<sup>b</sup>Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

<sup>c</sup>In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates" and the list of examples was changed from "downers, goofballs, redds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

**TABLE 8-7**  
**Trends in 12th Graders' Attitudes Regarding Legality of Drug Use**

Do you think that people (who are 18 or older) <sup>b</sup> should be prohibited by law from doing each of the following?	Percentage saying "yes" <sup>a</sup>																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Smoking marijuana in private	32.8	27.5	26.8	25.4	28.0	28.9	35.4	36.6	37.8	41.6	44.7	43.8	47.6	51.8	51.5	56.0	51.6
Smoking marijuana in public places	63.1	59.1	58.7	59.5	61.8	66.1	67.4	72.8	73.6	75.2	78.2	78.9	79.7	81.3	80.0	81.9	79.8
Taking LSD in private	67.2	65.1	63.3	62.7	62.4	65.8	62.6	67.1	66.7	67.9	70.6	69.0	70.8	71.5	71.6	72.9	68.1
Taking LSD in public places	85.8	81.9	79.3	80.7	81.5	82.8	80.7	82.1	82.8	82.4	84.8	84.9	85.2	86.0	84.4	84.9	83.9
Taking heroin in private	76.3	72.4	69.2	68.8	68.5	70.3	68.8	69.3	69.7	69.8	73.3	71.7	75.0	74.2	74.4	76.4	72.8
Taking heroin in public places	90.1	84.8	81.0	82.5	84.0	83.8	82.4	82.5	83.7	83.4	85.8	85.0	86.2	86.6	85.2	86.7	85.4
Taking amphetamines or sedatives in private <sup>c</sup>	57.2	53.5	52.8	52.2	53.4	54.1	52.0	53.5	52.8	54.4	56.3	56.8	59.1	60.2	61.1	64.5	59.7
Taking amphetamines or sedatives in public places <sup>c</sup>	79.6	76.1	73.7	75.8	77.3	76.1	74.2	75.5	76.7	76.8	78.3	79.1	79.8	80.2	79.2	81.6	79.7
Getting drunk in private	14.1	15.6	18.6	17.4	16.8	16.7	19.6	19.4	19.9	19.7	19.8	18.5	18.6	19.2	20.2	23.0	22.0
Getting drunk in public places	55.7	50.7	49.0	50.3	50.4	48.3	49.1	50.7	52.2	51.1	53.1	52.2	53.2	53.8	52.6	54.6	54.3
Smoking cigarettes in certain specified public places	—	—	42.0	42.2	43.1	42.8	43.0	42.0	40.5	39.2	42.8	45.1	44.4	48.4	44.5	47.3	44.9
<i>Approximate weighted N =</i>	2,620	2,959	3,113	3,783	3,288	3,224	3,611	3,627	3,315	3,236	3,254	3,074	3,332	3,288	2,813	2,571	2,512

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"†" indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) No, (2) Not sure, and (3) Yes.

<sup>b</sup>The 1975 question asked about people who are "20 or older."

<sup>c</sup>In 2004 the question text was changed from "barbiturates" to "sedatives" and the list of examples was changed from "downers, goofballs, rebs, yellows, etc." to just "downers."

These changes likely explain the discontinuity in the 2004 results.

(Table continued on next page.)



**TABLE 8-7 (cont.)**  
**Trends in 12th Graders' Attitudes Regarding Legality of Drug Use**

Do you think that people (who are 18 or older) <sup>b</sup> should be prohibited by law from doing each of the following?	Percentage saying "yes" <sup>a</sup>													2007-2008 change				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004		2005	2006	2007	2008
Smoking marijuana in private	52.4	48.0	42.9	44.0	40.4	38.8	39.8	39.3	38.8	39.1	38.4	40.3	41.4	40.7	42.3	38.7	39.3	+0.6
Smoking marijuana in public places	78.3	77.3	72.5	72.9	70.0	69.4	72.2	71.5	72.1	68.3	67.6	68.6	69.2	69.6	68.5	69.4	70.2	+0.8
Taking LSD in private	67.2	63.5	63.2	64.3	62.0	61.2	64.7	62.6	62.9	63.1	64.2	64.2	64.4	63.7	62.3	63.6	60.9	-2.6
Taking LSD in public places	82.2	82.1	80.5	81.5	79.2	80.3	82.7	80.4	80.4	78.8	79.9	79.1	77.0	77.4	75.0	76.9	74.2	-2.7
Taking heroin in private	71.4	70.7	70.1	72.2	70.8	70.6	73.9	72.9	71.1	70.6	73.6	73.1	72.0	71.3	71.6	72.5	72.0	-0.5
Taking heroin in public places	83.3	84.5	82.9	84.8	82.3	84.3	86.4	84.2	83.9	81.7	83.7	83.2	80.9	82.0	80.1	81.7	80.6	-1.1
Taking amphetamines or sedatives in private <sup>c</sup>	60.5	57.4	55.7	57.5	54.6	54.6	58.5	55.1	56.0	55.9	56.0	55.8†	52.2	53.6	51.5	54.3	53.0	-1.2
Taking amphetamines or sedatives in public places <sup>c</sup>	78.5	78.0	76.4	77.6	74.3	76.5	77.4	76.1	75.4	74.5	73.6	74.4†	69.9	72.0	69.5	72.8	71.6	-1.2
Getting drunk in private	24.4	22.1	21.0	21.6	21.4	20.5	20.2	20.5	21.5	22.6	21.0	21.4	22.0	22.5	23.4	21.3	23.2	+1.9
Getting drunk in public places	54.1	53.6	54.3	54.5	52.8	51.7	51.2	52.8	51.9	50.6	48.6	50.1	47.7	48.2	47.3	47.8	49.6	+1.9
Smoking cigarettes in certain specified public places	47.6	45.9	47.3	45.1	43.4	41.3	41.1	43.2	45.1	44.2	43.8	45.5	44.3	46.8	47.0	46.4	45.1	-1.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

† indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) No, (2) Not sure, and (3) Yes.

<sup>b</sup>The 1975 question asked about people who are "20 or older."

<sup>c</sup>In 2004 the question text was changed from "barbiturates" to "sedatives" and the list of examples was changed from "downers, goofballs, reeds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

**TABLE 8-8**  
**Trends in 12th Graders' Attitudes Regarding Marijuana Laws**  
 (Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<i>There has been a great deal of public debate about whether marijuana use should be legal. Which of the following policies would you favor?</i>	27.3	32.6	33.6	32.9	32.1	26.3	23.1	20.0	18.9	18.6	16.6	14.9	15.4	15.1	16.6	15.9	18.0
Using marijuana should be entirely legal	25.3	29.0	31.4	30.2	30.1	30.9	29.3	28.2	26.3	23.6	25.7	25.9	24.6	21.9	18.9	17.4	19.2
It should be a minor violation like a parking ticket, but not a crime	30.5	25.4	21.7	22.2	24.0	26.4	32.1	34.7	36.7	40.6	40.8	42.5	45.3	49.2	50.0	53.2	48.6
It should be a crime	16.8	13.0	13.4	14.6	13.8	16.4	15.4	17.1	18.1	17.2	16.9	16.7	14.8	13.9	14.6	13.6	14.3
Don't know																	
<i>If it were legal for people to USE marijuana, should it also be legal to SELL marijuana?</i>																	
No	27.8	23.0	22.5	21.8	22.9	25.0	27.7	29.3	27.4	30.9	32.6	33.0	36.0	36.8	38.8	40.1	36.8
Yes, but only to adults	37.1	49.8	52.1	53.6	53.2	51.8	48.6	46.2	47.6	45.8	43.2	42.2	41.2	39.9	37.9	38.8	41.4
Yes, to anyone	16.2	13.3	12.7	12.0	11.3	9.6	10.5	10.7	10.5	10.6	11.2	10.4	9.2	10.5	9.2	9.6	9.4
Don't know	18.9	13.9	12.7	12.6	12.6	13.6	13.2	13.8	14.6	12.8	13.1	14.4	13.6	12.8	14.1	11.6	12.5
<i>If marijuana were legal to use and legally available, which of the following would you be most likely to do?</i>																	
Not use it, even if it were legal and available	53.2	50.4	50.6	46.4	50.2	53.3	55.2	60.0	60.1	62.0	63.0	62.4	64.9	69.0	70.1	72.9	70.7
Try it	8.2	8.1	7.0	7.1	6.1	6.8	6.0	6.3	7.2	6.6	7.5	7.6	7.3	7.1	6.7	7.0	6.3
Use it about as often as I do now	22.7	24.7	26.8	30.9	29.1	27.3	24.8	21.7	19.8	19.1	17.7	16.8	16.2	13.1	13.0	10.1	11.7
Use it more often than I do now	6.0	7.1	7.4	6.3	6.0	4.2	4.7	3.8	4.9	4.7	3.7	5.0	4.1	4.3	2.4	2.7	3.3
Use it less often than I do now	1.3	1.5	1.5	2.7	2.5	2.6	2.5	2.2	1.5	1.6	1.6	2.0	1.3	1.5	2.1	1.1	1.6
Don't know	8.5	8.1	6.6	6.7	6.1	5.9	6.9	6.0	6.4	6.0	6.5	6.1	6.3	5.0	5.7	6.1	6.4
<i>Approximate weighted N =</i>	2,600	2,970	3,110	3,710	3,280	3,210	3,600	3,620	3,300	3,220	3,230	3,080	3,330	3,277	2,812	2,570	2,515

Source. The Monitoring the Future study, the University of Michigan.

(Table continued on next page.)

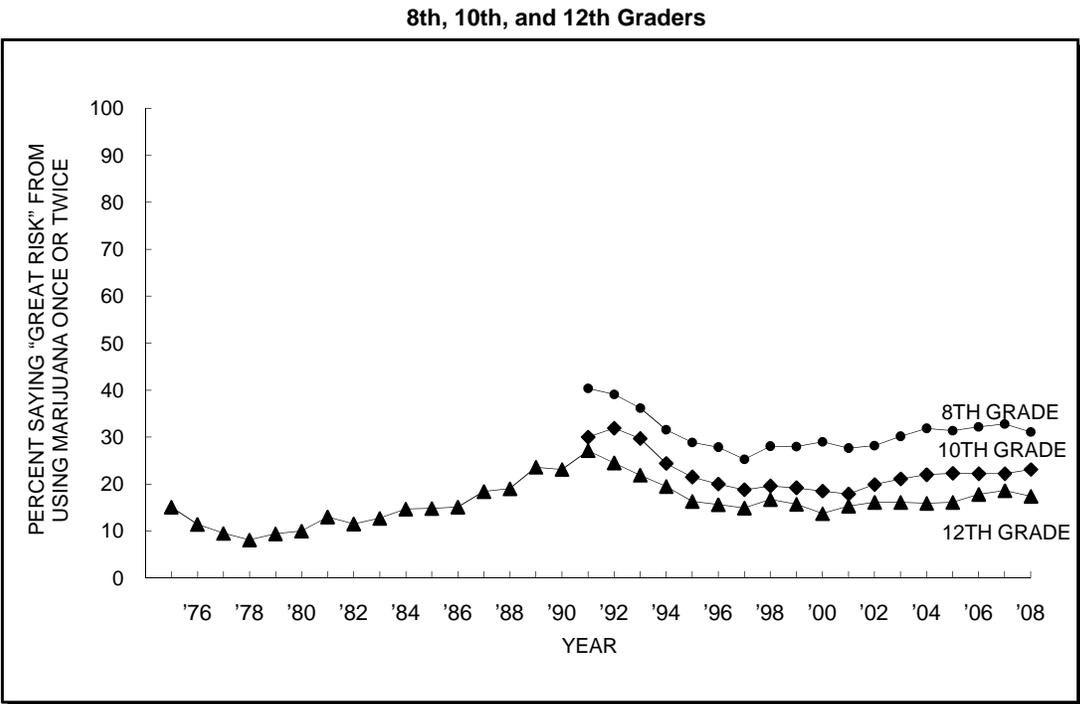
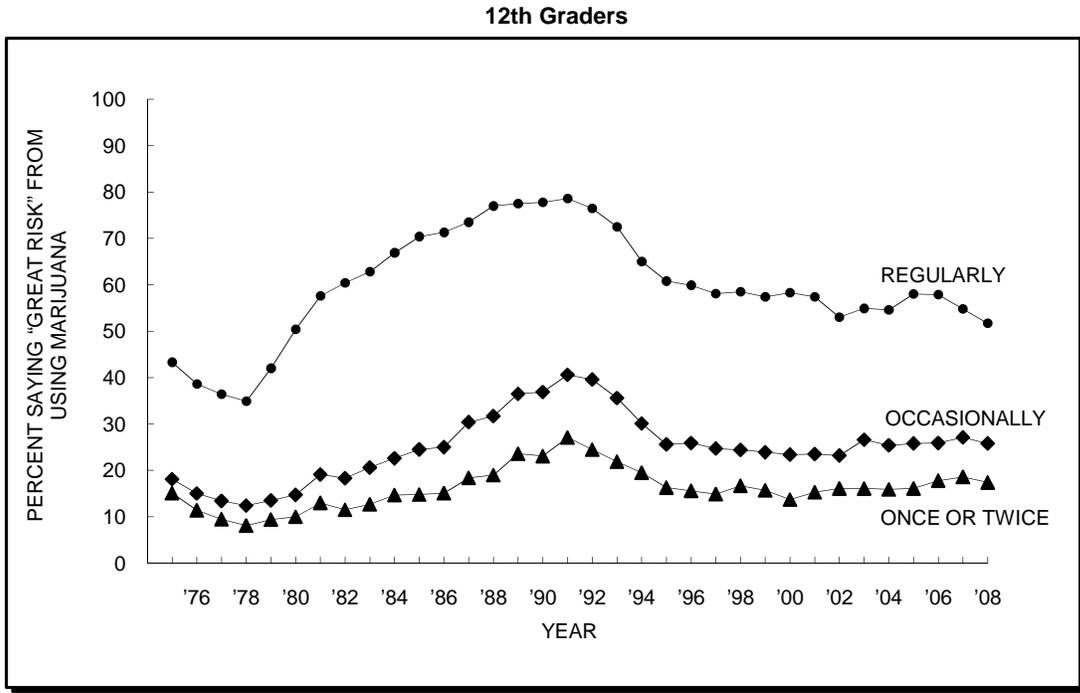


**TABLE 8-8 (cont.)**  
**Trends in 12th Graders' Attitudes Regarding Marijuana Laws**  
 (Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>There has been a great deal of public debate about whether marijuana use should be legal. Which of the following policies would you favor?</i>	18.7	22.8	26.8	30.4	31.2	30.8	27.9	27.3	31.2	29.2	30.8	29.5	30.5	27.6	27.1	29.3	29.4
Using marijuana should be entirely legal	18.0	18.7	19.0	18.0	21.0	20.7	24.3	23.7	23.4	24.5	24.2	25.8	26.5	27.7	27.6	27.8	30.0
It should be a minor violation like a parking ticket, but not a crime	47.6	43.4	39.4	37.3	33.8	34.0	32.6	32.5	30.2	31.1	29.1	29.8	28.5	29.7	31.7	30.2	27.5
It should be a crime	15.7	15.1	14.8	14.4	13.9	14.5	15.2	16.5	15.2	15.3	15.9	14.9	14.5	15.1	13.6	12.8	13.1
Don't know																	
<i>If it were legal for people to USE marijuana, should it also be legal to SELL marijuana?</i>																	
No	37.8	36.7	33.1	32.3	29.4	29.1	30.2	30.2	27.4	30.0	29.1	30.5	28.4	32.3	32.9	29.9	30.5
Yes, but only to adults	39.5	40.7	41.7	43.4	46.7	44.8	42.4	42.9	45.5	43.6	43.6	43.2	45.2	43.0	42.5	45.9	45.9
Yes, to anyone	9.6	10.1	11.6	11.7	11.1	12.5	11.9	12.1	13.4	12.0	13.6	11.6	12.2	11.2	10.8	11.0	10.3
Don't know	13.1	12.5	13.7	12.6	12.8	13.7	15.5	14.7	13.6	14.3	13.7	14.7	14.3	13.5	13.9	13.2	13.3
<i>If marijuana were legal to use and legally available, which of the following would you be most likely to do?</i>																	
Not use it, even if it were legal and available	72.5	69.0	64.6	60.2	59.9	56.4	58.3	59.0	60.3	58.1	58.6	57.9	56.4	60.1	62.5	61.5	60.5
Try it	7.4	7.3	7.6	8.8	8.8	9.1	8.1	9.3	7.3	9.3	8.4	10.6	10.6	8.9	9.7	8.8	8.9
Use it about as often as I do now	10.2	11.9	14.3	17.1	17.3	18.4	17.9	15.2	18.5	16.8	17.2	15.6	17.4	15.2	13.8	15.1	14.8
Use it more often than I do now	3.2	3.5	4.7	4.9	4.8	6.1	5.9	6.5	5.4	6.3	7.1	7.1	6.0	6.1	5.6	5.5	5.5
Use it less often than I do now	1.0	1.4	1.5	1.6	1.6	2.0	2.0	1.9	1.6	2.2	1.7	1.6	1.6	1.8	1.1	1.5	1.4
Don't know	5.7	7.0	7.3	7.4	7.7	7.9	7.8	8.1	7.0	7.3	7.0	7.2	8.0	8.0	7.3	7.6	9.0
	Approximate weighted N = 2,672 2,768 2,597 2,574 2,426 2,585 2,566 2,285 2,143 2,160 2,150 2,444 2,461 2,466 2,383 2,450 2,366																

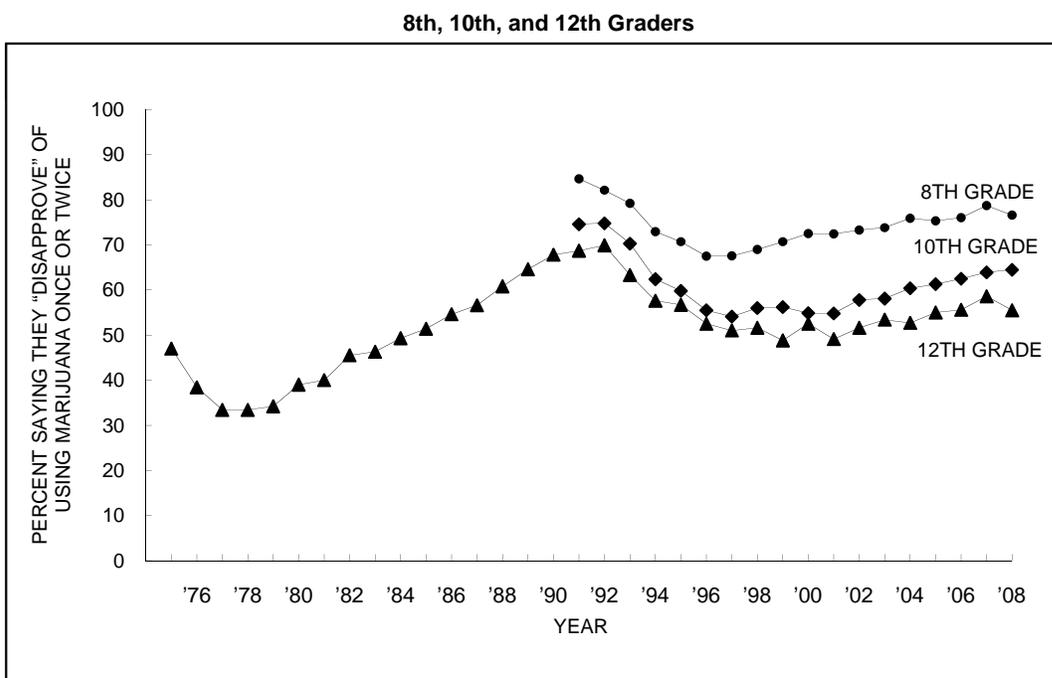
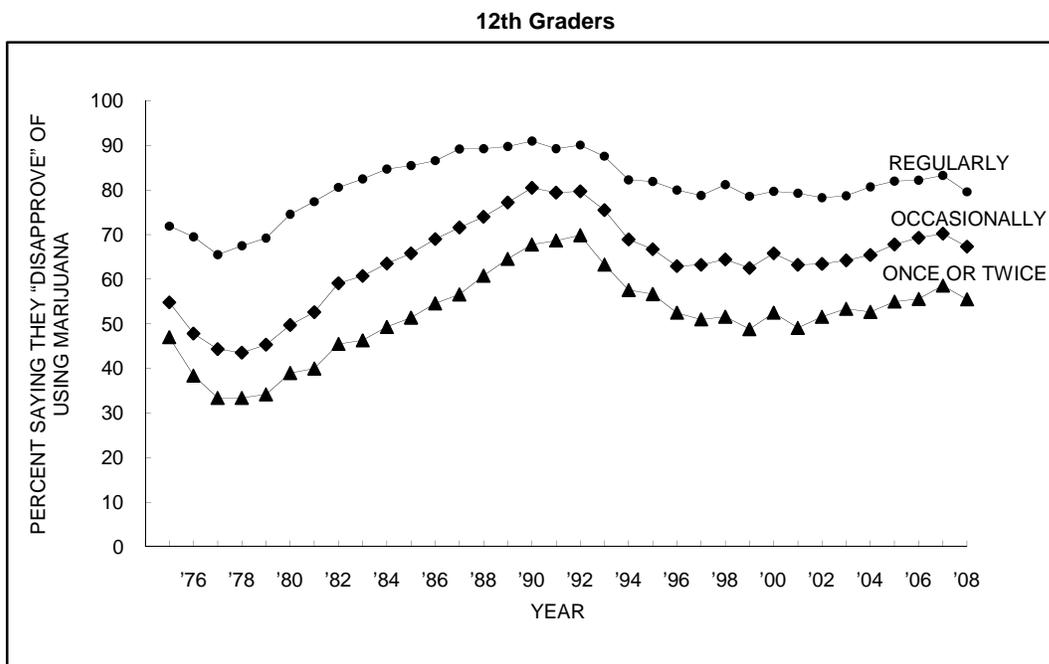
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-1a**  
**Marijuana: Trends in Perceived Harmfulness**  
**in Grades 8, 10, and 12**



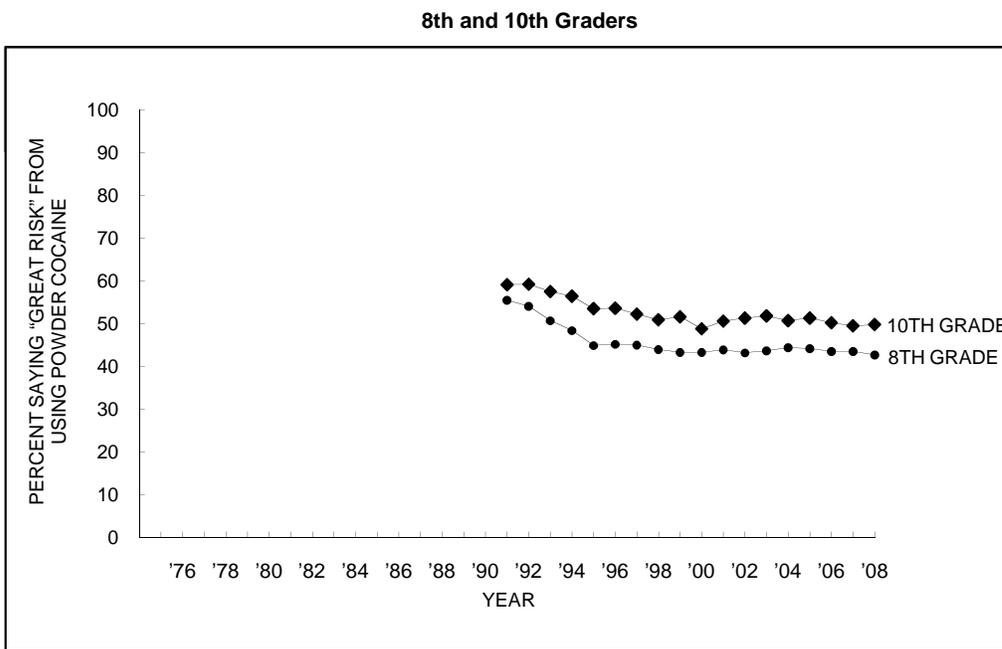
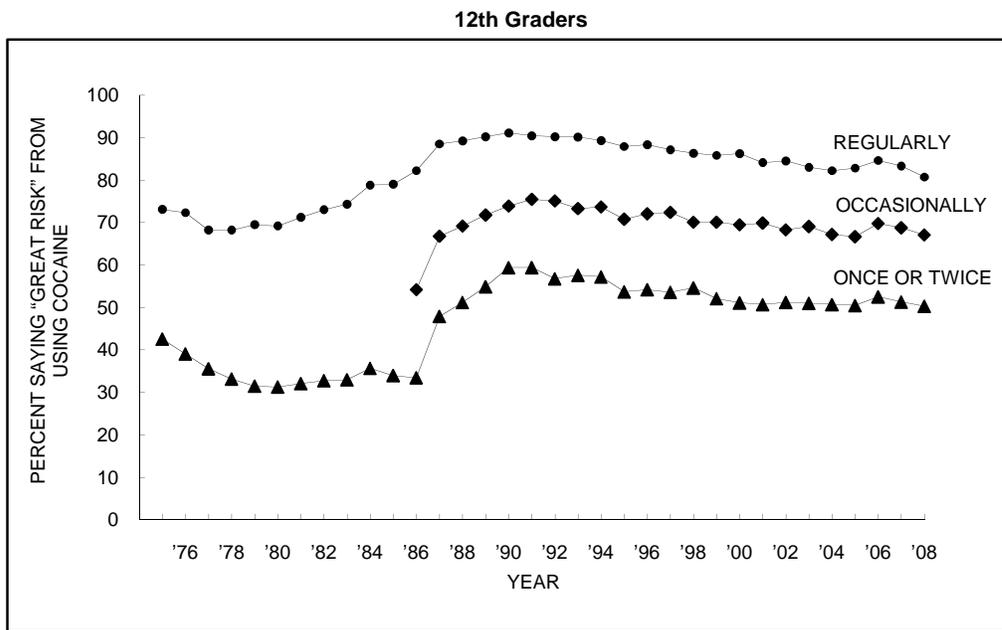
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-1b**  
**Marijuana: Trends in Disapproval**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

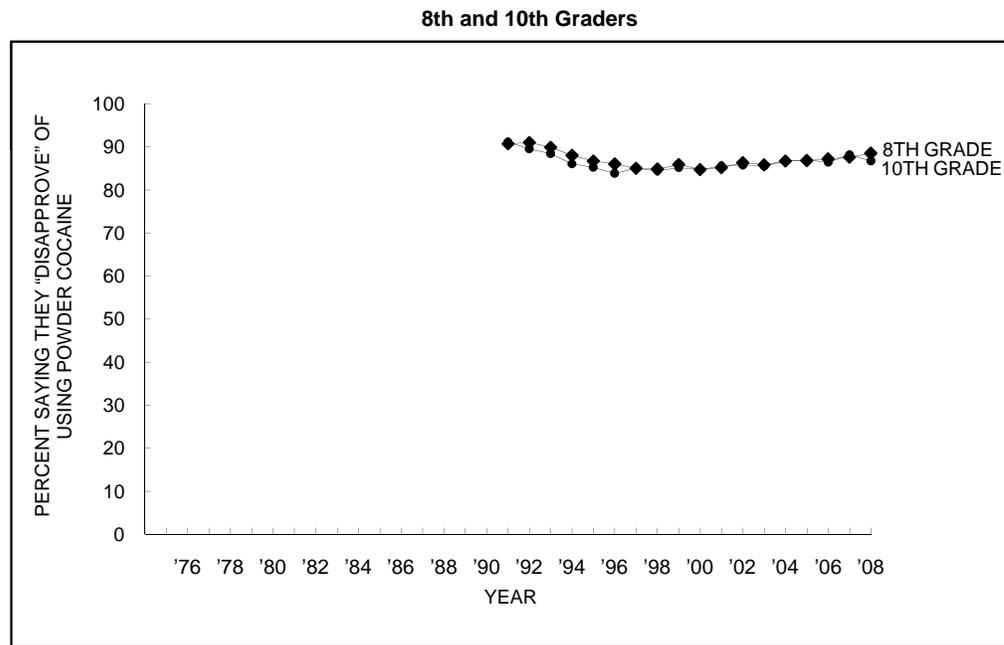
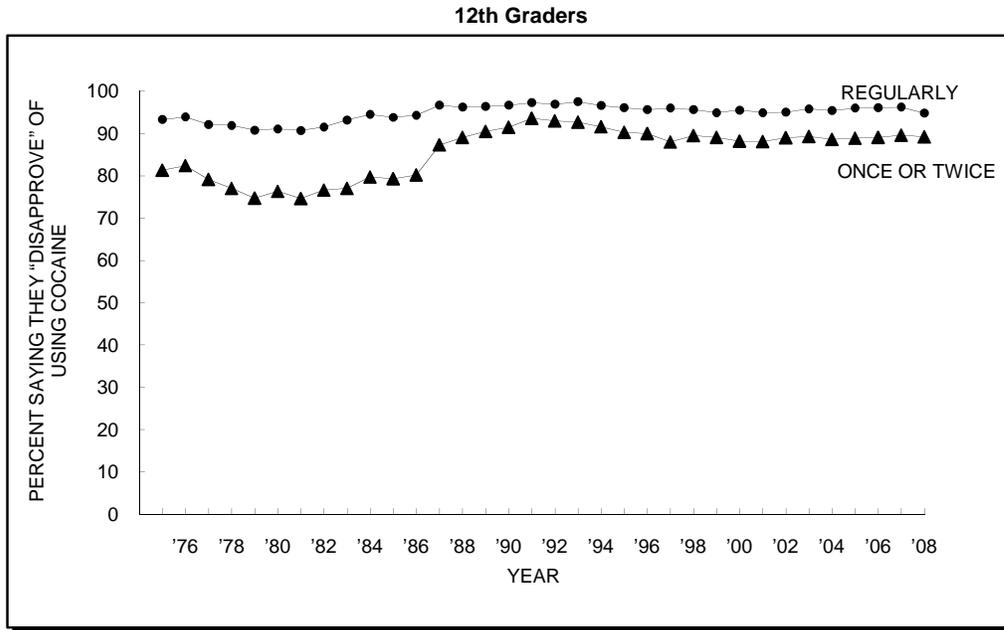
**FIGURE 8-2a**  
**Cocaine: Trends in Perceived Harmfulness**  
**in Grades 8, 10, and 12**



*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* Data presented above for 12th graders pertains to cocaine in general, while the data for 8th and 10th graders pertains to cocaine specifically in powder form.

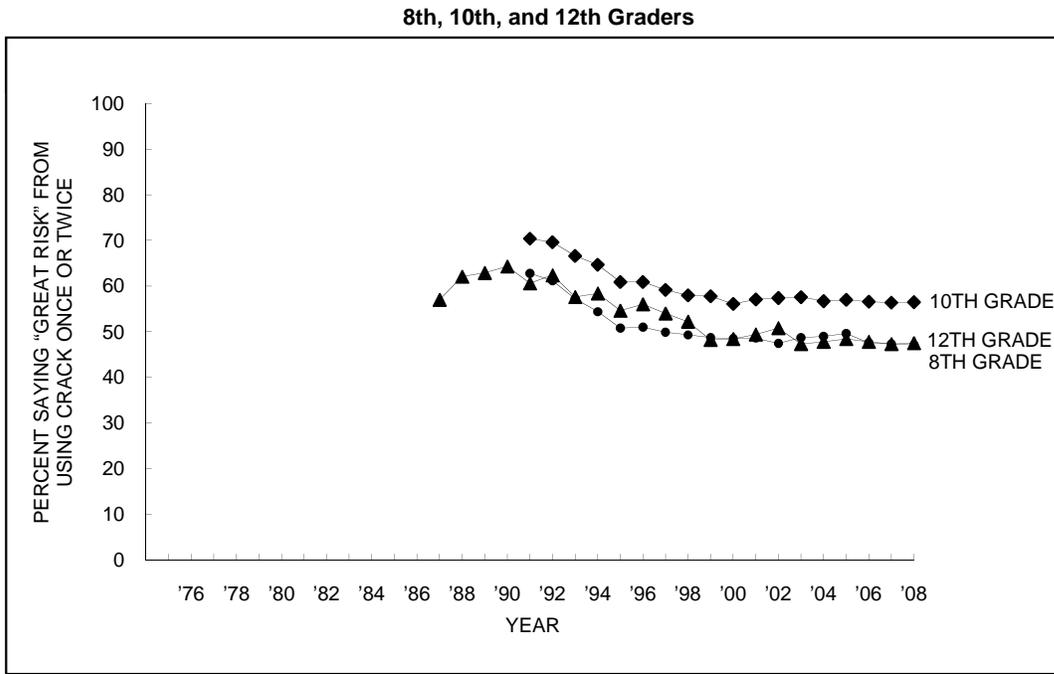
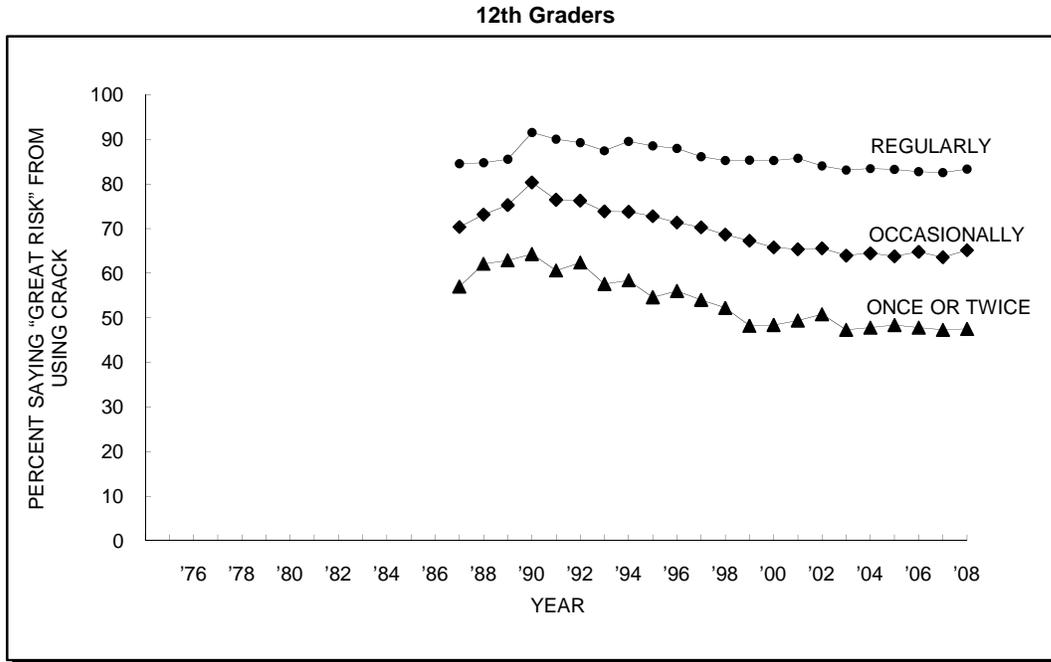
**FIGURE 8-2b**  
**Cocaine: Trends in Disapproval**  
**in Grades 8, 10, and 12**



*Source.* The Monitoring the Future study, the University of Michigan.

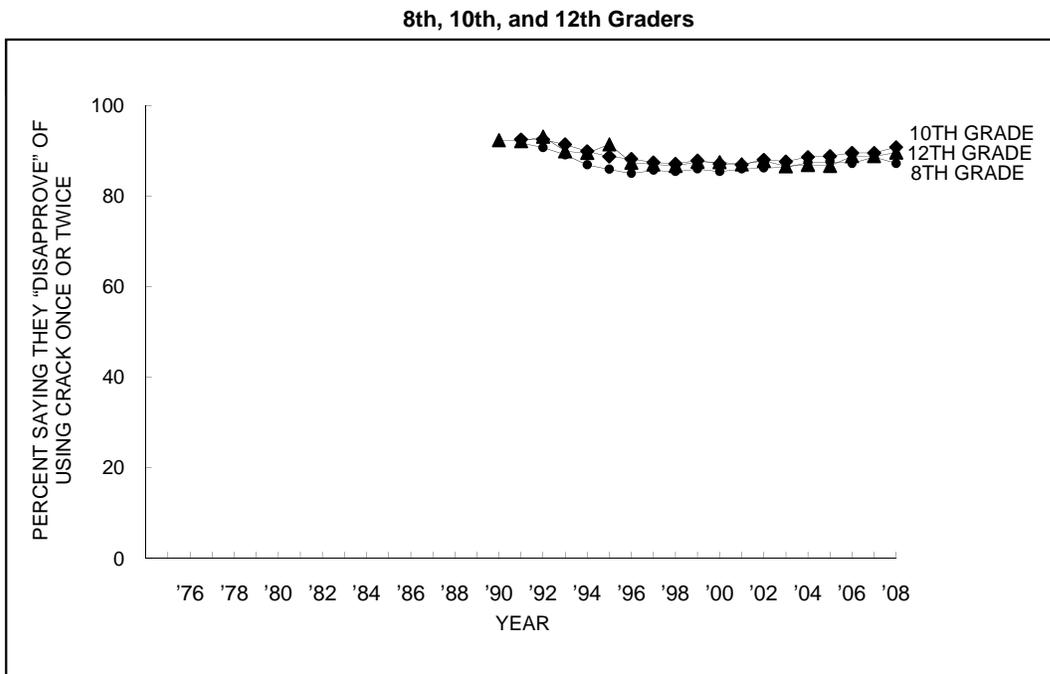
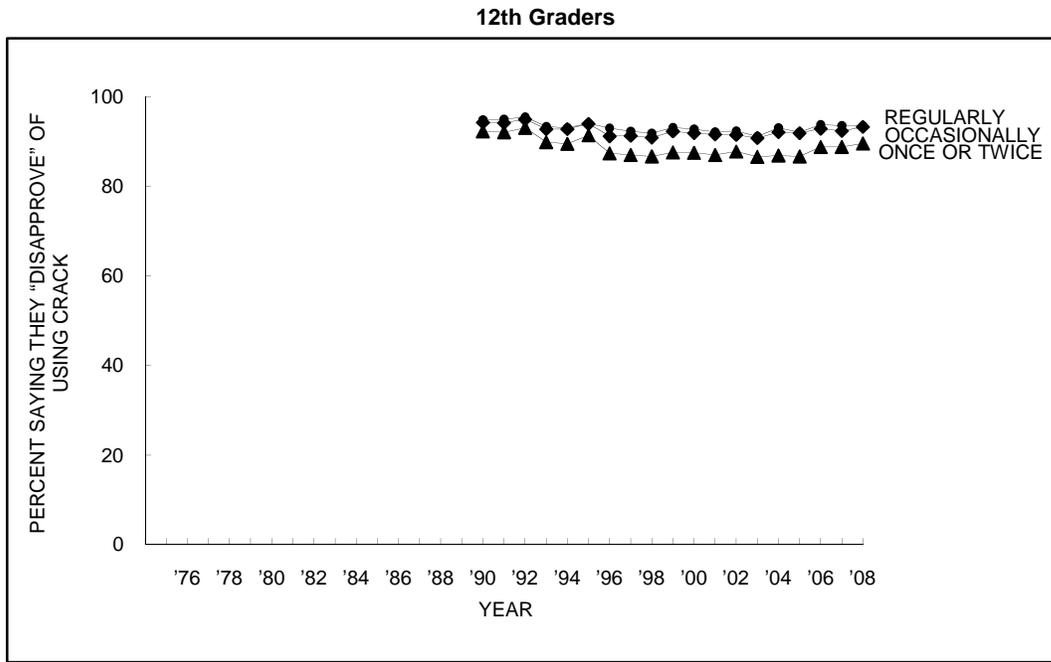
*Note.* Data presented above for 12th graders pertains to cocaine in general, while the data for 8th and 10th graders pertains to cocaine specifically in powder form.

**FIGURE 8-3a**  
**Crack: Trends in Perceived Harmfulness**  
**in Grades 8, 10, and 12**



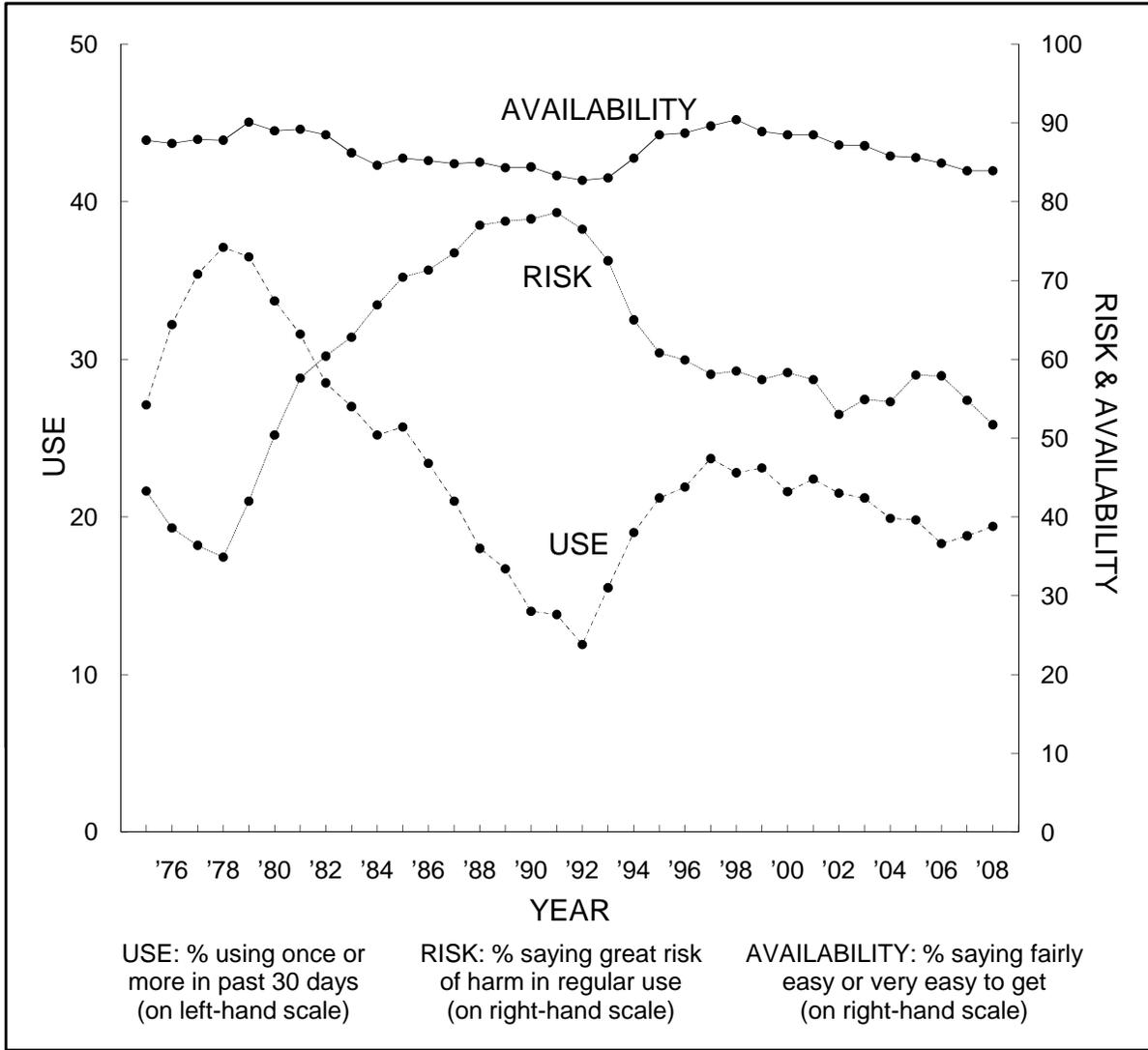
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-3b**  
**Crack: Trends in Disapproval**  
**in Grades 8, 10, and 12**



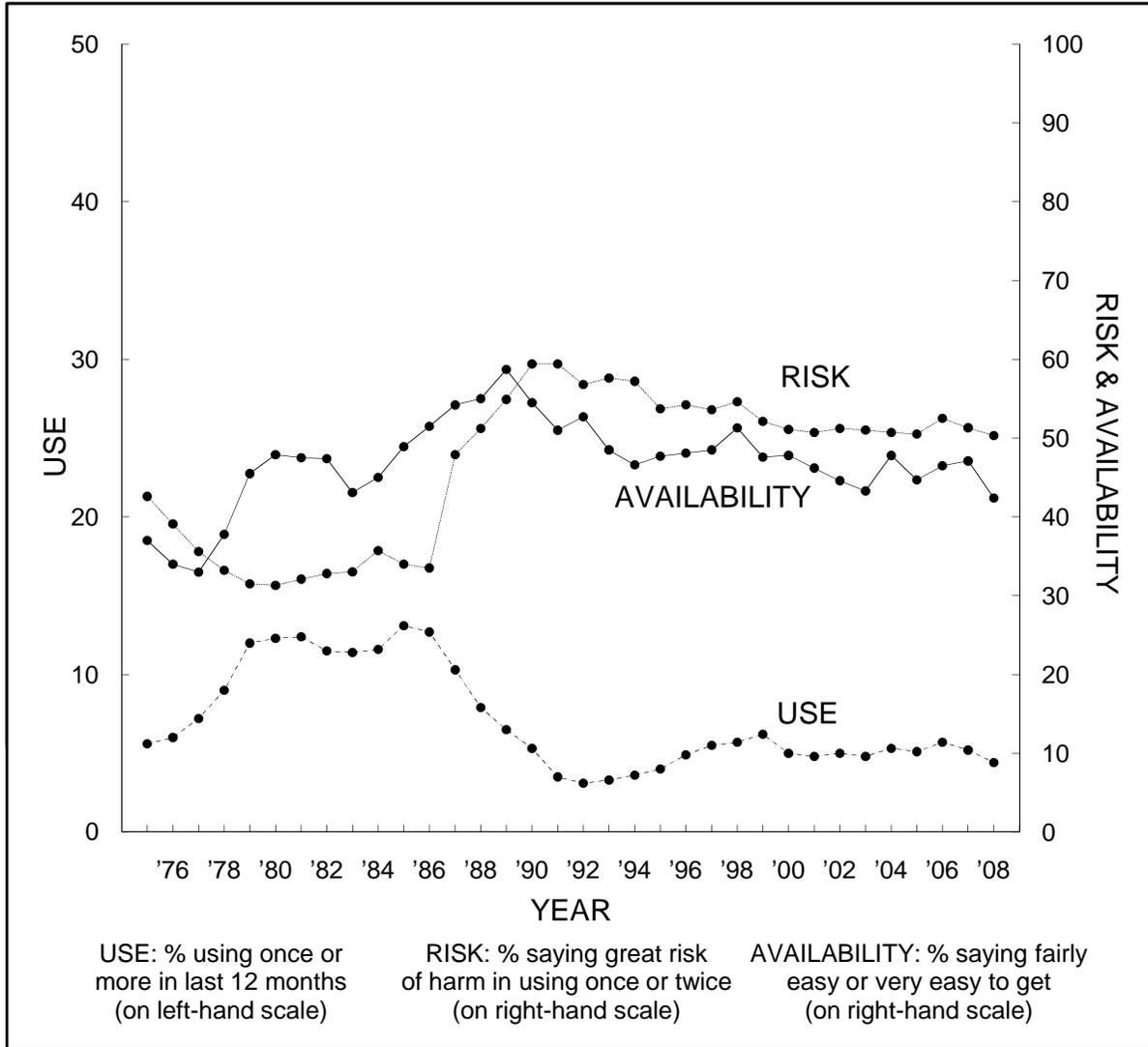
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-4**  
**Marijuana: Trends in Perceived Availability,**  
**Perceived Risk of Regular Use, and**  
**Prevalence of Use in Past 30 Days in Grade 12**



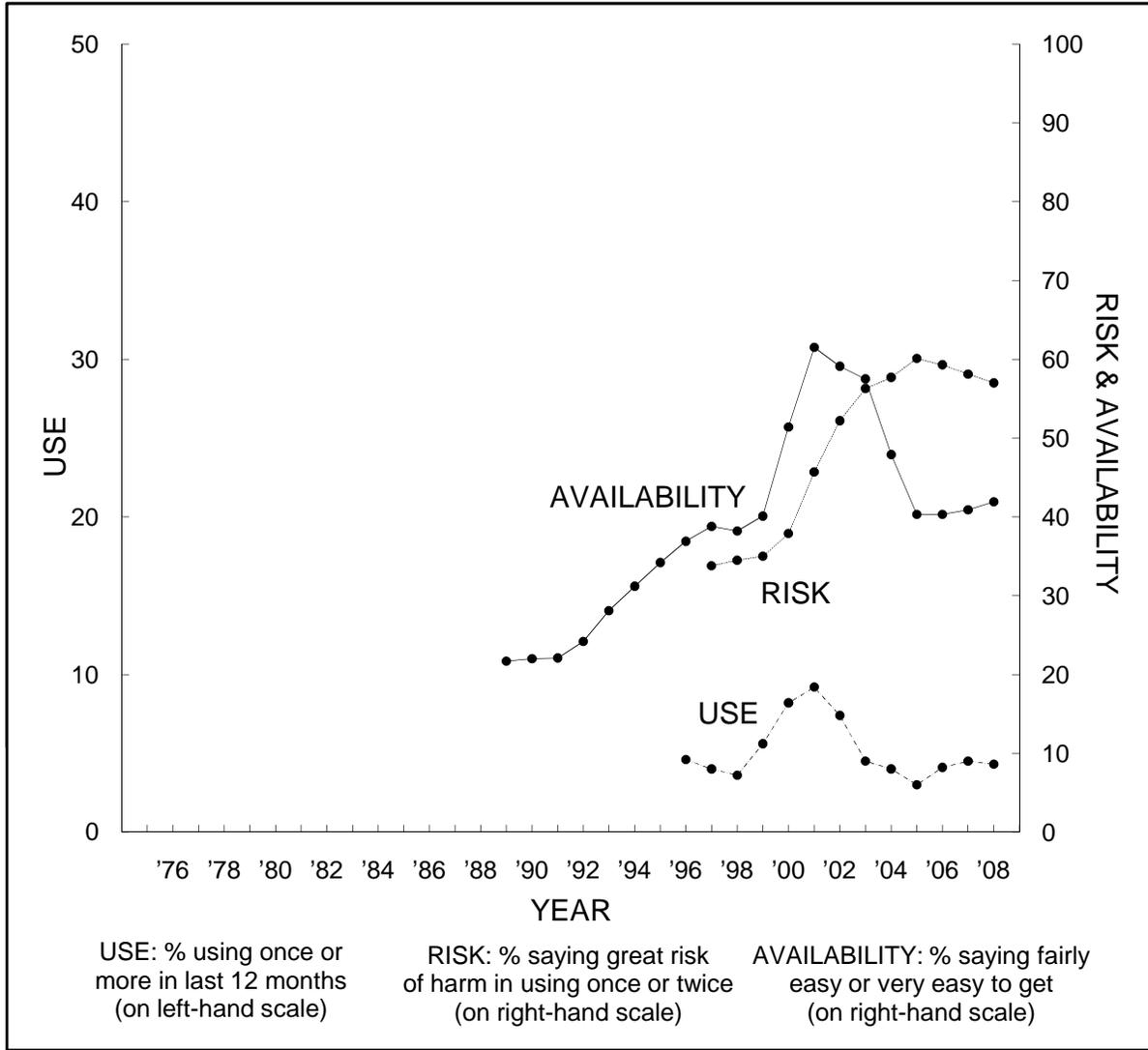
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-5**  
**Cocaine: Trends in Perceived Availability,**  
**Perceived Risk of Trying, and**  
**Prevalence of Use in Last 12 Months in Grade 12**



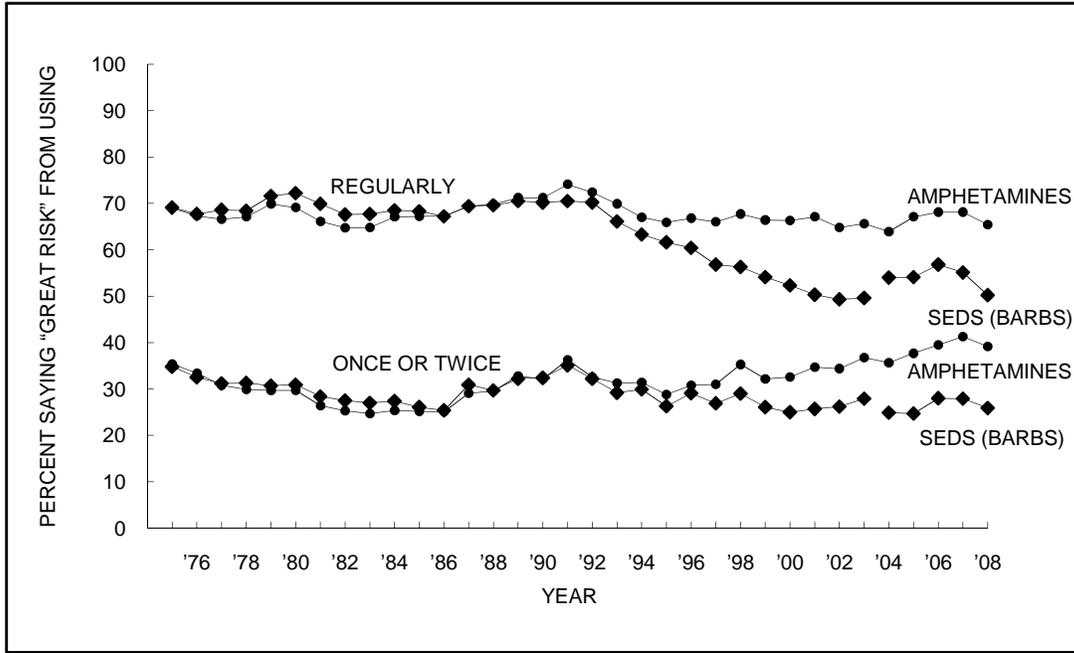
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-6**  
**Ecstasy (MDMA): Trends in Perceived Availability,**  
**Perceived Risk of Trying, and**  
**Prevalence of Use in Last 12 Months in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-7a**  
**Amphetamines and Sedatives (Barbiturates)\*: Trends in Perceived**  
**Harmfulness in Grade 12**



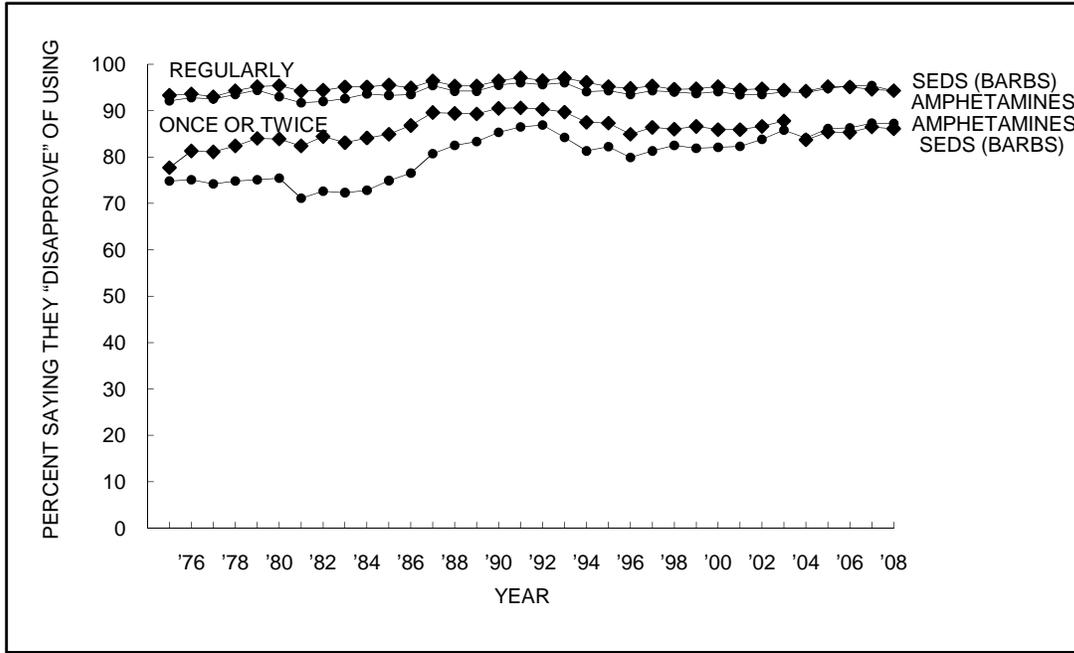
Source. The Monitoring the Future study, the University of Michigan.

Note. Data not available for 8th and 10th graders.

\*Beginning in 2004, a revised set of questions on sedatives (barbiturates) was introduced.

From 2004 on, data points are based on the revised question.

**FIGURE 8-7b**  
**Amphetamines and Sedatives (Barbiturates)\*: Trends in Disapproval**  
**in Grade 12**



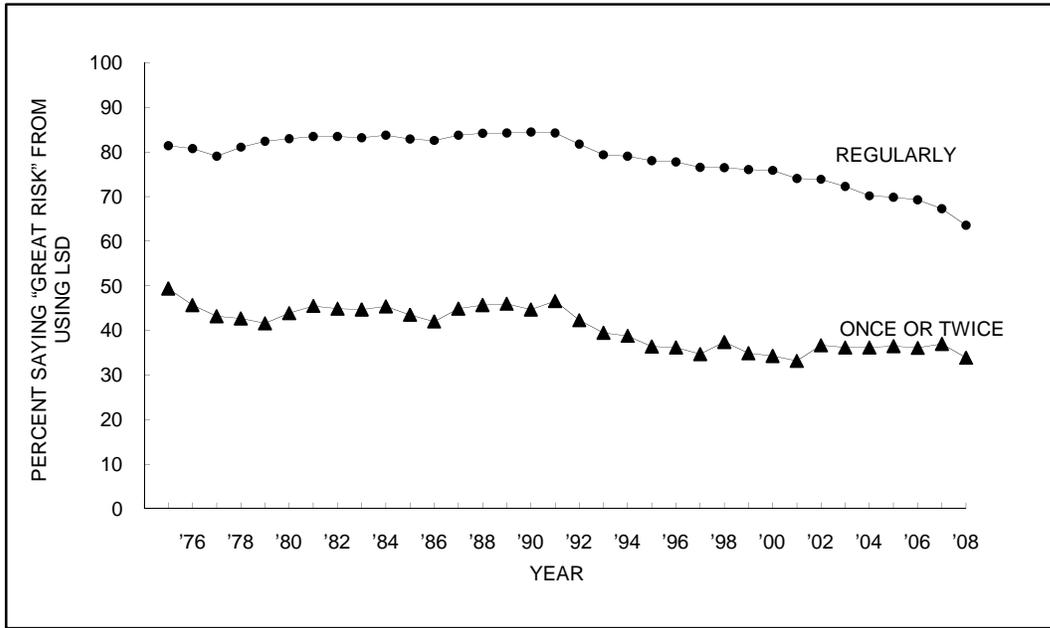
Source. The Monitoring the Future study, the University of Michigan.

Note. Data not available for 8th and 10th graders.

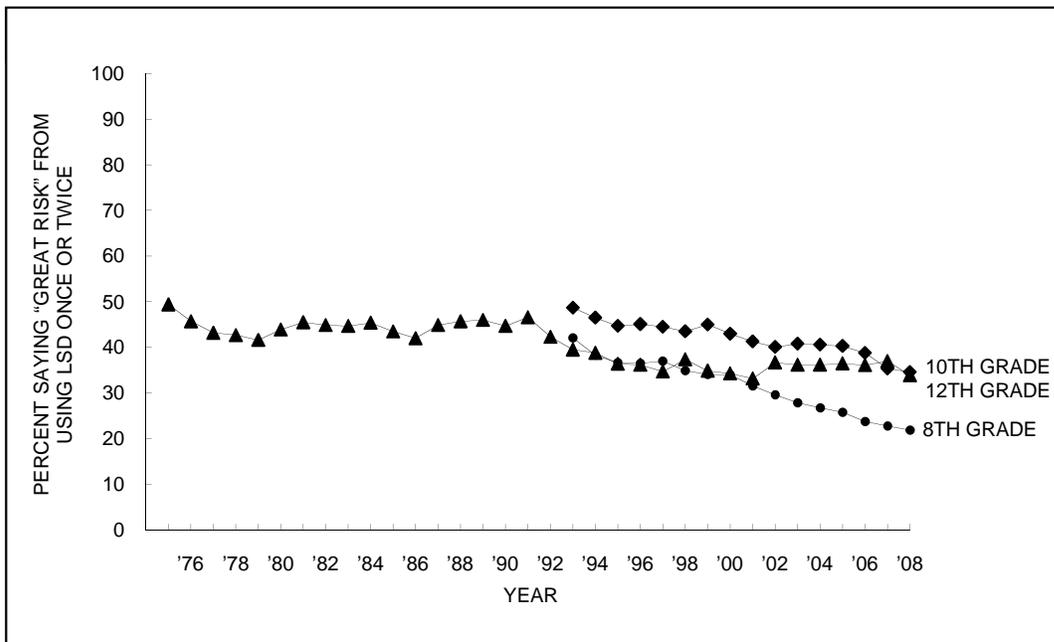
\*Beginning in 2004, a revised set of questions on sedatives (barbiturates) was introduced. From 2004 on, data points are based on the revised question.

**FIGURE 8-8a**  
**LSD: Trends in Perceived Harmfulness**  
**in Grades 8, 10, and 12**

**12th Graders**

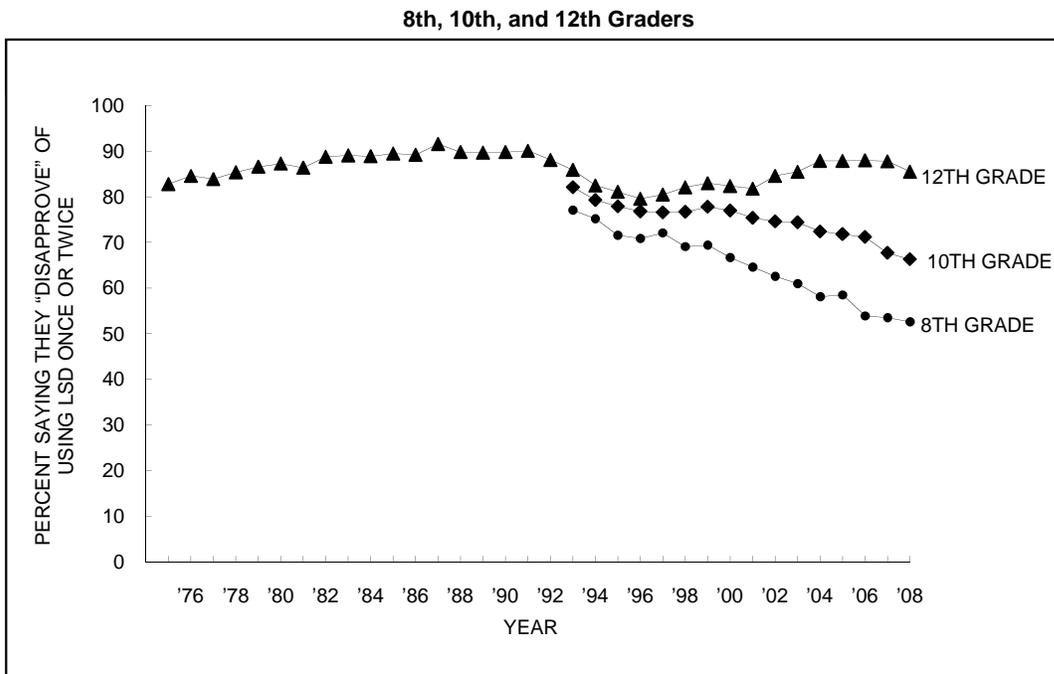
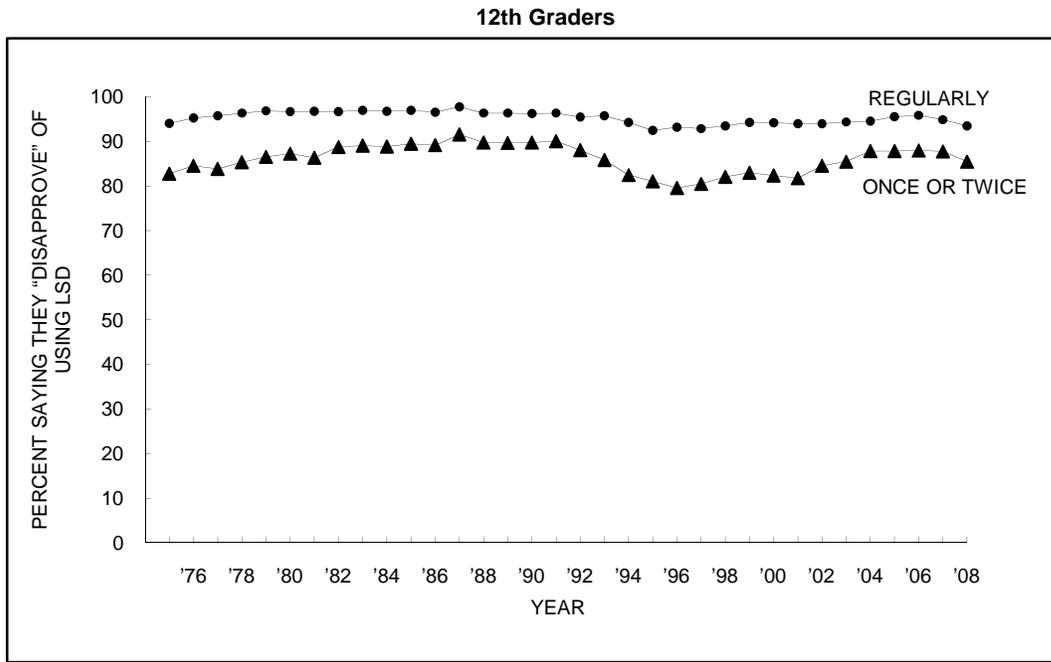


**8th, 10th, and 12th Graders**



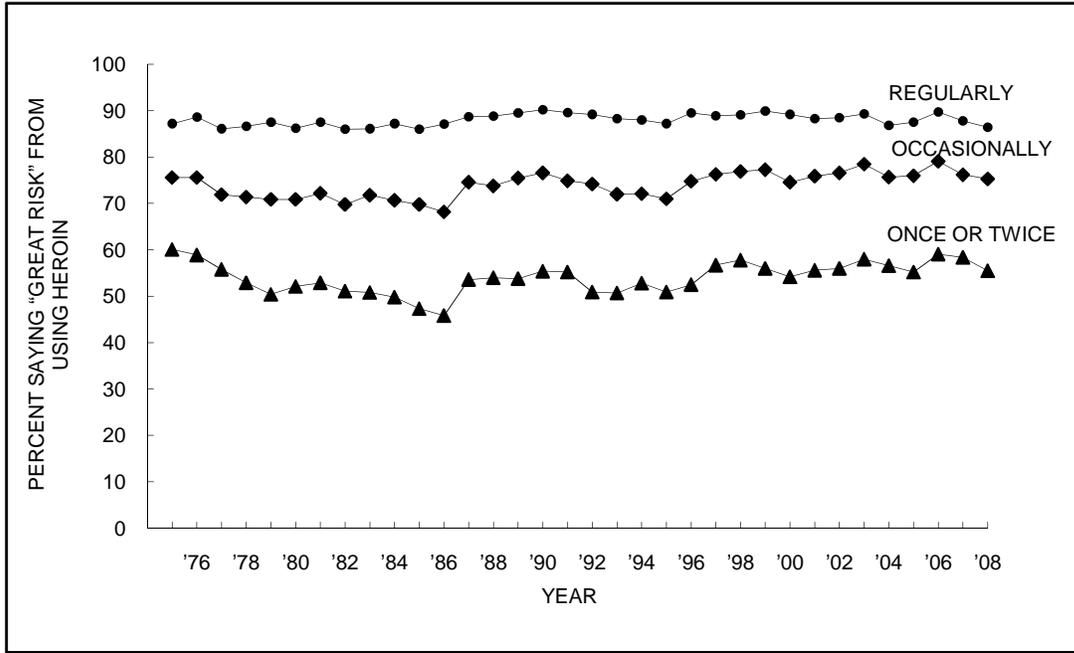
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-8b**  
**LSD: Trends in Disapproval**  
**in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

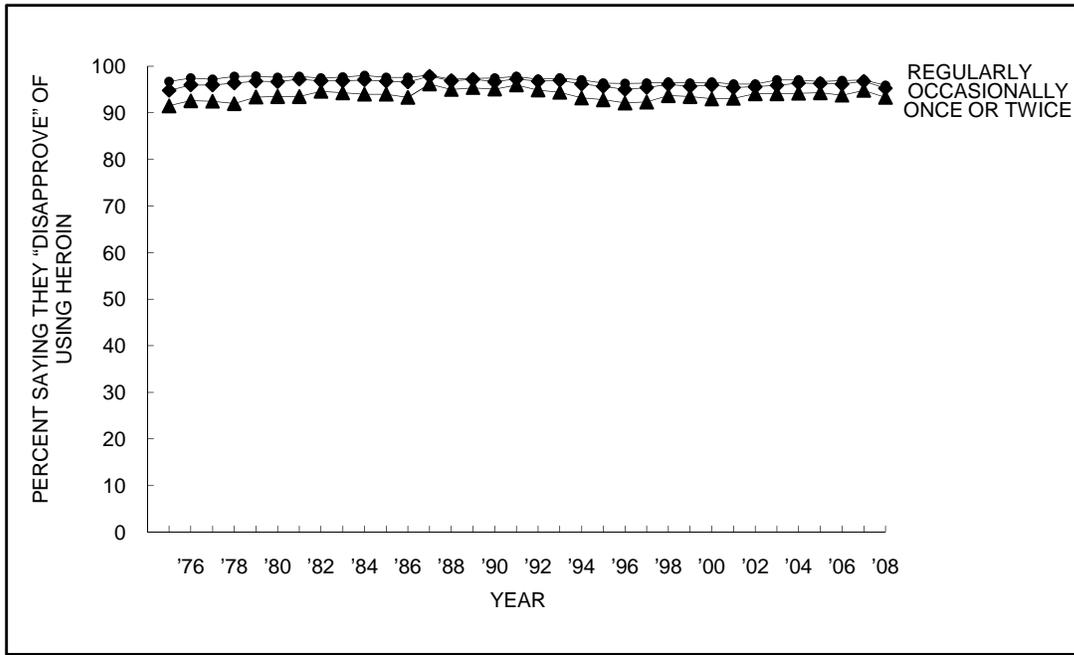
**FIGURE 8-9a**  
**Heroin: Trends in Perceived Harmfulness**  
**in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

Note. Data not available for 8th and 10th graders.

**FIGURE 8-9b**  
**Heroin: Trends in Disapproval**  
**in Grade 12**

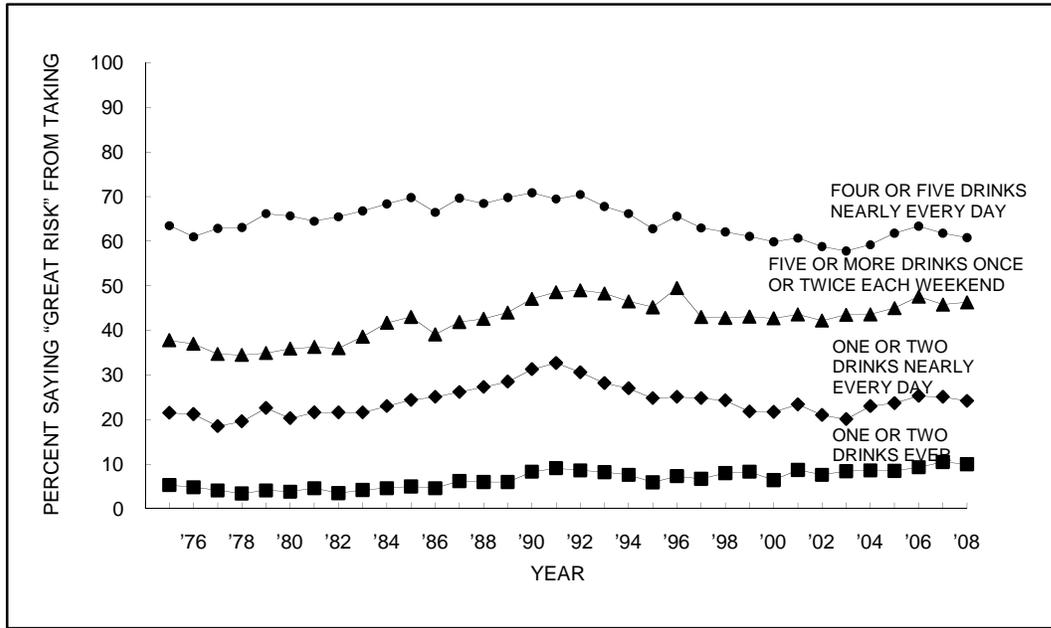


Source. The Monitoring the Future study, the University of Michigan.

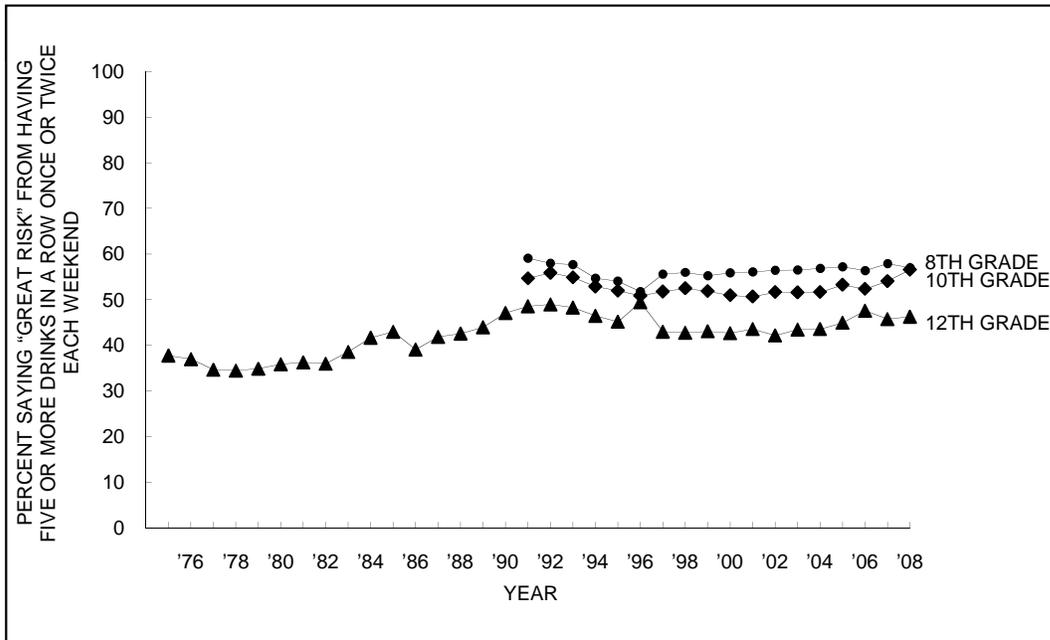
Note. Data not available for 8th and 10th graders.

**FIGURE 8-10a**  
**Alcohol: Trends in Perceived Harmfulness**  
**in Grades 8, 10, and 12**

**12th Graders**

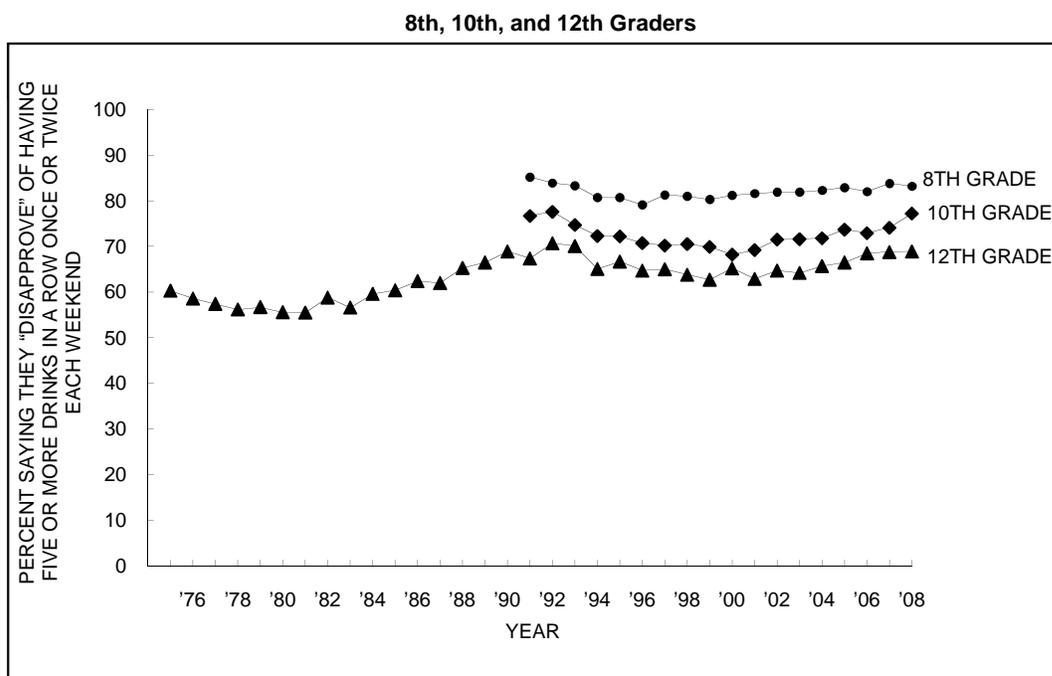
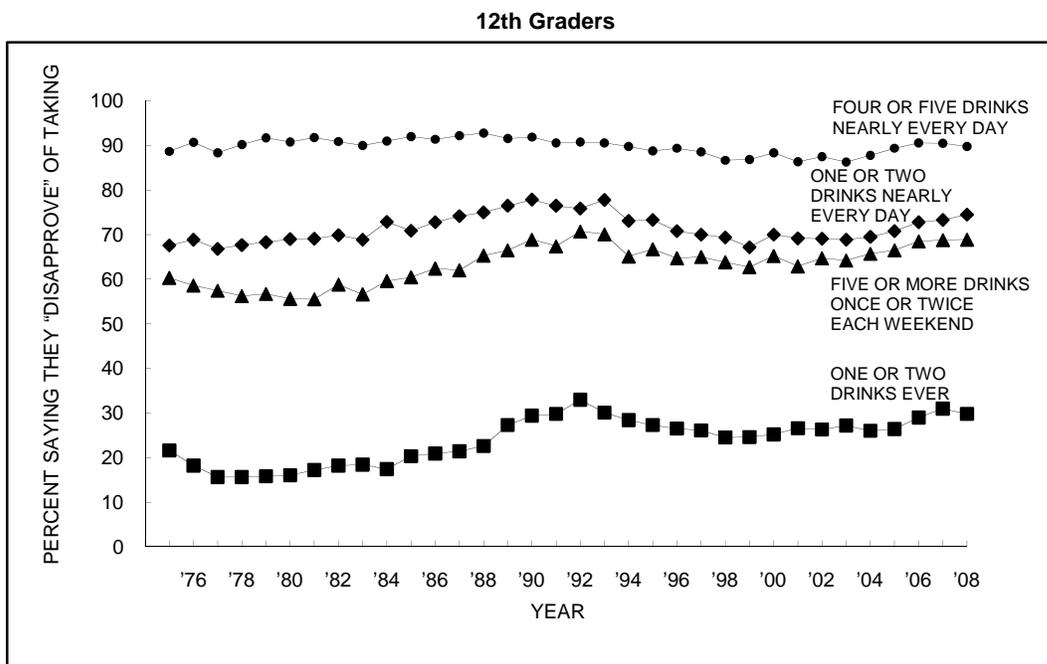


**8th, 10th, and 12th Graders**



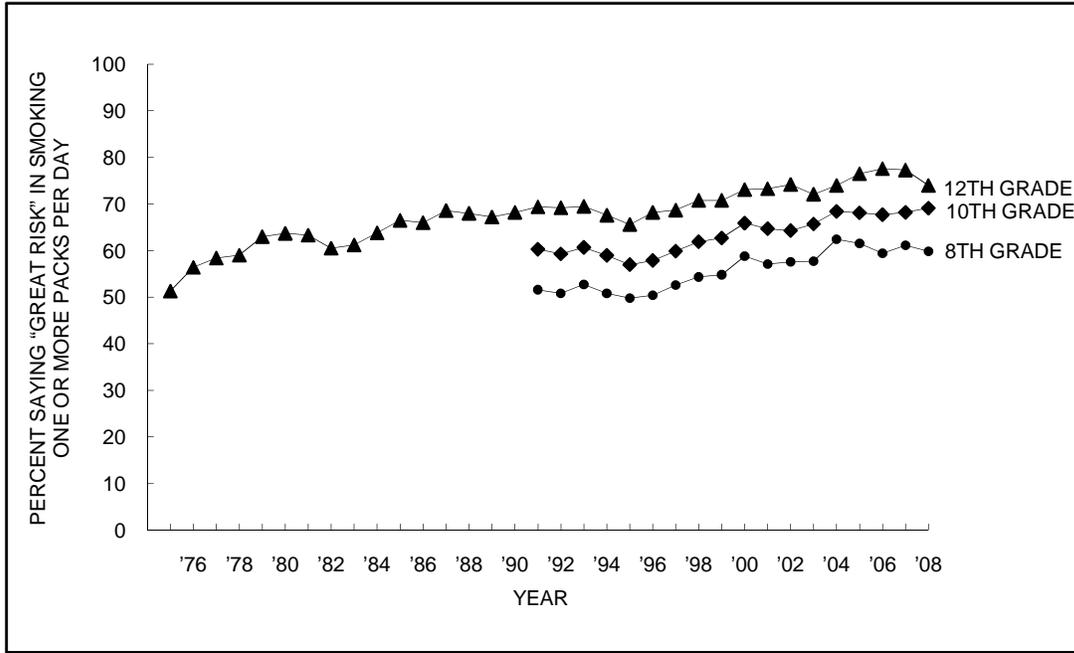
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-10b**  
**Alcohol: Trends in Disapproval**  
**in Grades 8, 10, and 12**



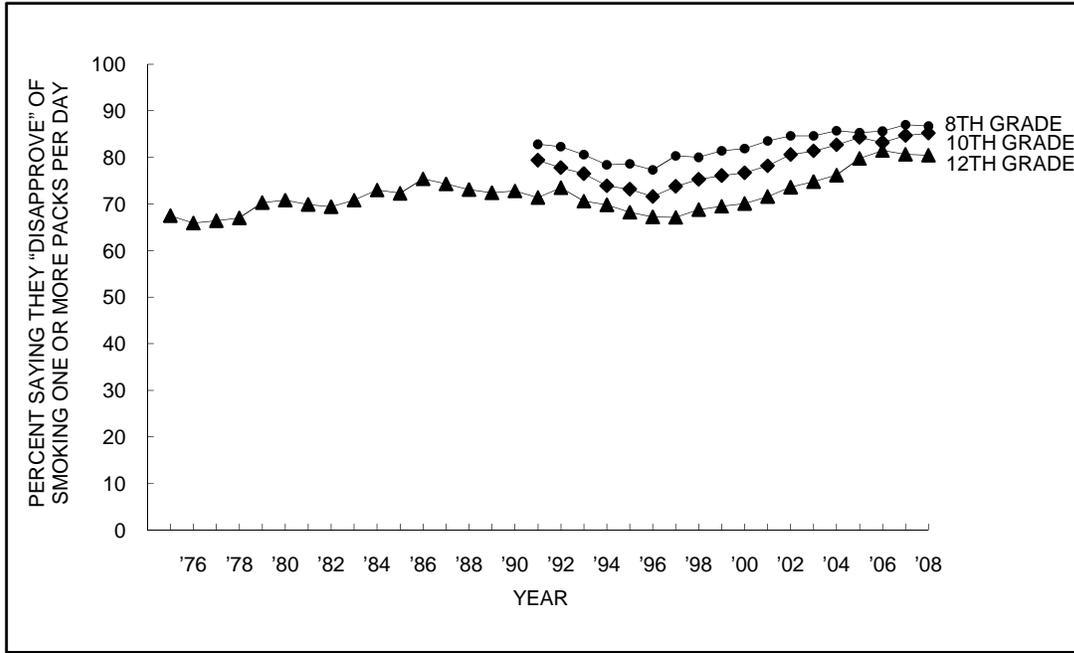
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-11a**  
**Cigarettes: Trends in Perceived Harmfulness of Smoking 1 or More Packs**  
**per Day in Grades 8, 10, and 12**



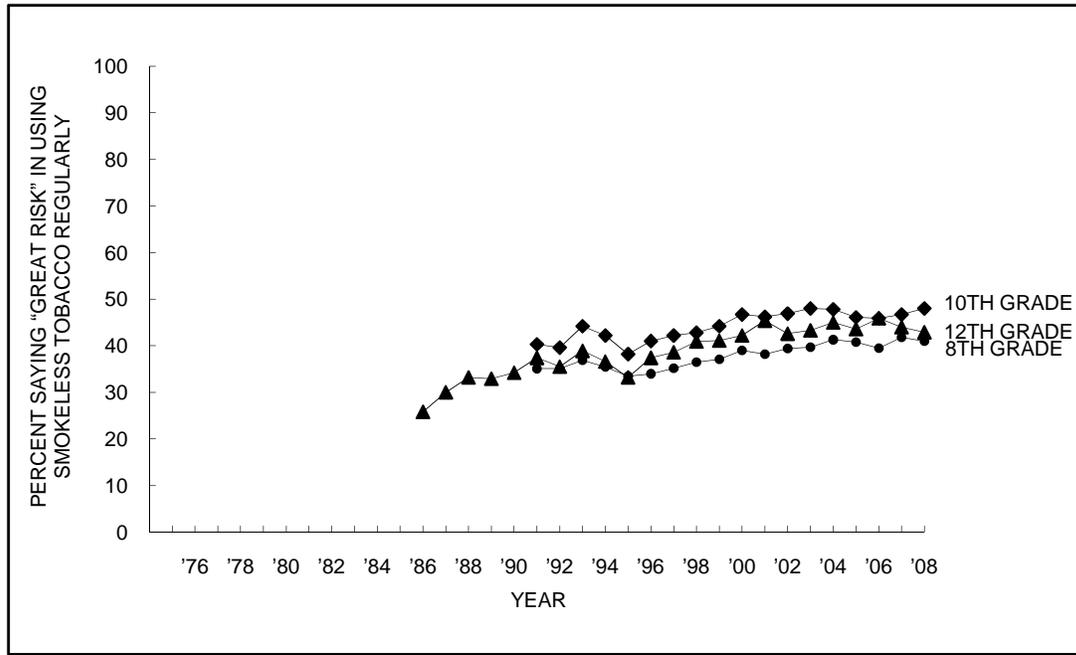
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-11b**  
**Cigarettes: Trends in Disapproval of Smoking 1 or More Packs**  
**per Day in Grades 8, 10, and 12**



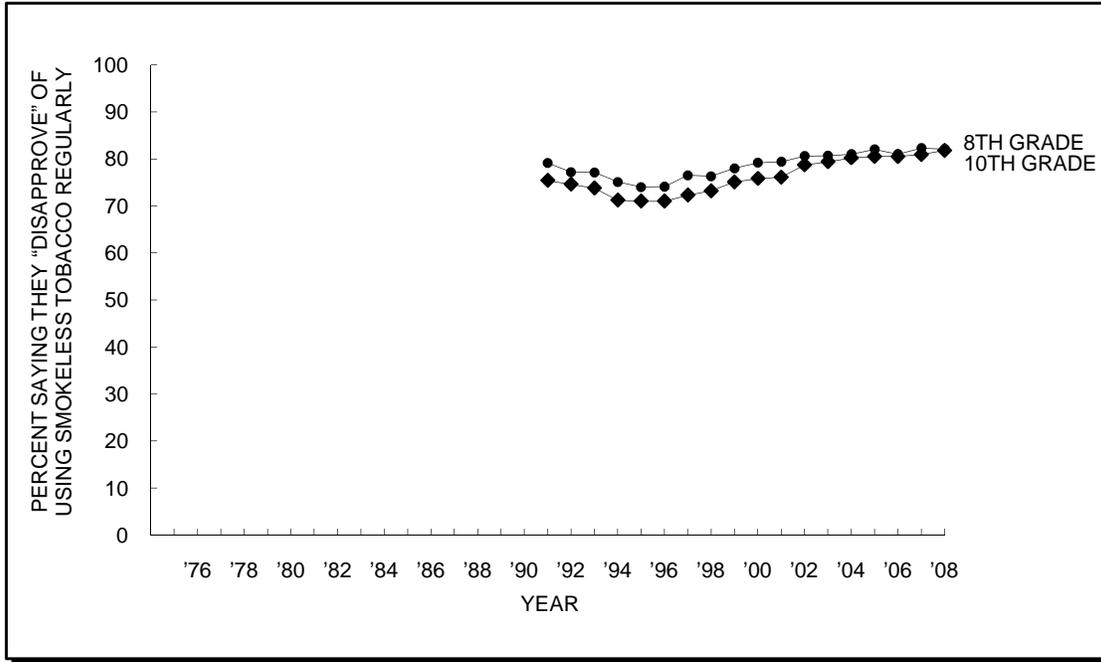
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-12a**  
**Smokeless Tobacco: Trends in Perceived Harmfulness of**  
**Regular Use in Grades 8, 10, and 12**



Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 8-12b**  
**Smokeless Tobacco: Trends in Disapproval of**  
**Regular Use in Grades 8 and 10**



*Source.* The Monitoring the Future study, the University of Michigan.

*Note.* Data not available for 12th graders.

## Chapter 9

## THE SOCIAL CONTEXT

The issue of illicit drug use is discussed extensively in the media, a topic of considerable interest and conversation among young people, and a matter about which parents often strongly communicate to their children. Young people are affected by the drug-taking behaviors and attitudes of their friends and acquaintances, as well as by the availability of various drugs. In this chapter we consider some forces in the social context that may influence attitudes and beliefs about drugs, as well as use.

Specifically, for 12th graders, we report measures of perceived disapproval of drug use by friends and parents, and the extent of exposure to drug use. For 8th, 10th, and 12th graders, we report the proportions of friends who use drugs and perceived availability of drugs.

Measures of perceived *parental* attitudes were included near the beginning of the study, in 1975–1979, but these measures were dropped because students’ responses varied little over time and across drugs. Even at the height of the drug epidemic in 1979, a large majority of 12th graders reported that they believed their parents would disapprove or strongly disapprove of their engaging in any of the drug use behaviors listed in Table 9-1. (The relevant early data on parents are displayed in Figures 9-1a, 9-1b, and 9-2, but are not discussed except in comparison to peer attitudes.) Thus, the data about parental attitudes presented in this chapter are based on those very early results. We have retained them in the current chapter to illustrate that drug use appears to have been one area in which the perceived position of parents approached unanimity.

## PERCEIVED ATTITUDES OF FRIENDS: TWELFTH GRADERS

## Perceptions of Friends’ Attitudes

Since the beginning of the study, a set of questions has asked 12th graders to estimate their friends’ attitudes about drug use (see Table 9-1). These questions ask, “*How do you think your close friends feel (or would feel) about you [using the specified drug at the specified level]?*” (These questions parallel the questions asked of students about their own attitudes, which are discussed in chapter 8.) Disapproval is defined here as the percent of respondents indicating that their close friends would either “disapprove” or “strongly disapprove” of their using each drug at the specified level.

- In 2008, over 90% of 12th graders reported that their friends would disapprove of their experimenting with (“trying once or twice”) *crack* (94%) or *cocaine powder* (92%). Nearly as many would disapprove of trying *cocaine* in general (89%), *amphetamines* (87%), or *LSD* (86%). Presumably, if *heroin* or *PCP* were on the list, they, too, would receive very high peer disapproval.

- Most 12th graders in 2008 (61%) thought their close friends would disapprove of them experimenting with *marijuana*, and more than three fourths (78%) reported that their friends would disapprove of them smoking marijuana regularly.
- About five sixths of all 2008 twelfth graders (83%) reported they would face peer disapproval if they *smoked a pack or more of cigarettes daily*.
- The proportion of 12th graders who anticipated disapproval from friends for alcohol use varied with level of consumption: 62% for *heavy drinking on weekends*, 75% for consuming *one or two drinks nearly every day*, and 85% for having *four or five drinks nearly every day*.

In sum, peer norms among 12th-grade students differ considerably for various drugs and also for varying degrees of involvement with those drugs, but overall they tend to be quite conservative. *The great majority of 12th graders have friendship circles that do not condone the use of illicit drugs other than marijuana, and three out of five (61%) believe that their friends would disapprove of their even trying marijuana.*

Although these questions are not included in the 8th- and 10th-grade questionnaires, there seems little doubt that these students would have reported at least as restrictive peer norms as the 12th graders, and quite likely more restrictive ones, based on the cross-grade comparisons in levels of personal disapproval (discussed in chapter 8). The one exception might be cigarette smoking, which exhibits less personal disapproval at lower grades.

### **A Comparison of the Attitudes of Parents, Peers, and Twelfth Graders**

A comparison of 12th graders' perceptions of drug use disapproval by their friends versus their parents for the classes of 1975 to 1979 (when comparison data are available) shows several interesting findings.

- First, there was rather little variability—between years or drugs—in students' perceptions of their *parents'* attitudes. As mentioned previously, nearly *all* 12th graders in each year said their parents would disapprove of any of the drug behaviors listed. However, *peer* norms varied considerably from drug to drug and also across time, thus helping to explain the variability in the respondents' own attitudes and use. While parental norms do not show much variance, we emphasize that this is quite different than saying that parental attitudes do not matter, or even that they matter less than peer attitudes.
- Despite differences in how students characterize disapproval of drug use by parents versus friends, they rank drug-specific disapproval similarly for the two groups.
- A comparison with 12th graders' own attitudes regarding drug use reveals that, on average, they are much more in accord with peers than parents, at least in the years in which both were measured (see Figures 9-1a, 9-1b, and 9-2). The differences between 12th graders' own disapproval ratings in 1979 and those attributed to their parents tended to be large, with parents seen as more conservative overall in relation to *every drug*, licit or illicit. The largest difference occurred in the case of *marijuana* experimentation, of

which only 34% of 12th graders in 1979 said they disapproved, versus 85% who said their parents would disapprove.

### Trends in Perceptions of Friends' Attitudes

A number of important changes in 12th graders' perceptions of peer attitudes have taken place over the life of the study. These shifts are presented graphically in Figures 9-1a, 9-1b, and 9-2. Adjusted trend lines have been used for data collected before 1980. We discovered that the deletion in 1980 of the parental attitude questions, which were located immediately preceding the questions about friends' attitudes, removed what we judged to be an artifactual depression of the ratings of friends' attitudes, a phenomenon known as a question-context effect. This effect was particularly evident in the trend lines dealing with friends' disapproval of alcohol use, where otherwise smooth trend lines showed abrupt upward shifts in 1980. It appears that when questions about parents' attitudes were present, respondents tended to understate peer disapproval in order to emphasize the *difference* between their parents' attitudes and their peers' attitudes. In the adjusted lines, we have attempted to correct for that artifactual depression in the 1975, 1977, and 1979 scores<sup>87</sup> and provide a more accurate picture of the change that took place then. Note that the question-context effect seems to have had more influence on the questions dealing with cigarettes and alcohol than on those dealing with illicit drugs. Aside from this change attributable to question context, a number of real and important changes have occurred in perception of friends' disapproval, as discussed below.

- For each level of *marijuana* use—trying once or twice, occasional use, and regular use—there was a *drop* in perceived disapproval of both parents and friends in the late 1970s. We know from our other findings that these perceptions of peer norms reflected actual shifts in the individual attitudes of peers—that is, disapproval of marijuana use was indeed decreasing among 12th graders (see Figure 9-1a). There is little reason to suppose that such perceptions were less accurate in reflecting shifts in parents' attitudes. Therefore, we conclude that the social norms regarding marijuana use among adolescents and adults had been relaxing before 1979. However, consistent with the reversal that began in 1980 for 12th graders' own attitudes, their perception of peer disapproval of marijuana use also began to rise and increased for more than a decade, through 1992. In 1993 another sharp reversal occurred, with the percentage of 12th graders saying that their friends would disapprove dropping by four to seven percentage points, depending on the level of use. Perceived peer disapproval dropped another nine to fourteen percentage points by 1997 before beginning to turn upward again between 1998 and 2001, and then dropping three to four percentage points in 2002. Perceived peer disapproval of trying or occasionally smoking marijuana increased each year since 2003 until both measures showed some decline in 2007 followed by slight increases in 2008.

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<sup>87</sup>The correction evolved as follows: We assumed that a more accurate estimate of the true change between 1979 and 1980 could be obtained by taking an average of the changes observed in the year prior and the year subsequent, rather than by taking the observed change (which we knew to contain the effect of a change in question context). We thus calculated an *adjusted* 1979–1980 change score by taking an average of one half the 1977–1979 change score (our best estimate of the 1978–1979 change) plus the 1980–1981 change score. This estimated change score was then subtracted from the observed change score for 1979–1980, the difference being our estimate of the amount by which peer disapproval of the behavior in question was being understated due to question context prior to 1980. The 1975, 1977, and 1979 observations were then adjusted upward by the amount of that correction factor.

- As is true for most of the illicit drugs other than marijuana, perceived peer disapproval of **amphetamines** has been quite high for the entire life of the study, though there have been some important fluctuations. From 1975 through 1980, relatively little change occurred in either self-reported attitudes or perceived peer attitudes toward trying amphetamines once or twice (see Figure 9-1b); then, in 1981, both measures showed significant and parallel dips in disapproval, and at the same time use rose sharply. From 1981 to 1992, disapproval rose fairly steadily as use declined. Between 1992 and 1996, both friends' disapproval and personal disapproval of experimental use decreased significantly as use increased. Friends' disapproval leveled in 1997 at 80%, but by 2006 was up to 87%, before leveling again in 2007 and 2008. Meanwhile, use remained fairly level through 2002, and has decreased in recent years.
- Peer disapproval of trying **LSD**, which had been high and relatively stable for some years, decreased steadily between 1988 and 1997 as use increased significantly (see Figure 9-1b). From 1998 through 2006 perceived peer disapproval increased to 90%, while use decreased substantially during that interval. However, in 2007 and again in 2008, peer disapproval declined while use increased slightly.
- Twelfth graders' own disapproval of experimental **cocaine** use dropped between 1976 and 1979, accompanied by an increase in use; then it rose very gradually through 1991 (see Figure 9-1b). Questions on friends' attitudes about cocaine use were added to the study in 1986. Between 1986 and 1992, the proportion of students saying that their close friends would disapprove of their experimenting with cocaine rose from 80% to 92%. This corresponds to an even larger increase in perceived risk and a precipitous drop in actual use, suggesting that fears of potential harm caused cocaine use to become less acceptable.<sup>88</sup> Perceived peer disapproval changed relatively little after 1992, and remains at 89% in 2008. (The perception of friends' disapproval of **crack cocaine**, first asked about in 1989, closely parallels the findings for cocaine in general, but at slightly higher levels of perceived disapproval.)
- With regard to **regular cigarette smoking**, the proportion of 12th graders saying that their friends would disapprove of their smoking a pack or more daily rose from 64% (adjusted) in 1975 to 74% in 1980 (see Figure 9-2), as use declined from 1977 to 1981. Through the next 12 years, perceived peer disapproval fluctuated by only a few percentage points and then dropped significantly between 1992 and 1995, from 76% to 69%, as actual use rose. Reported peer disapproval flattened from 1995 to 1998; since then it has generally been increasing. In 2008, peer disapproval of regular cigarette smoking reached 83%—the highest level in MTF's history. Clearly, smoking has become a less acceptable behavior among young people since 1998.

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<sup>88</sup>Johnston, L. D. (1991). Toward a theory of drug epidemics. In R. L. Donohew, H. Sypher, & W. Bukoski (Eds.), *Persuasive communication and drug abuse prevention* (pp. 93–132). Hillsdale, NJ: Lawrence Erlbaum. (Available online at <http://monitoringthefuture.org/pubs/chapters/ldj1991theory.pdf>). See also Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1990). Explaining the recent decline in cocaine use among young adults: Further evidence that perceived risks and disapproval lead to reduced drug use. *Journal of Health and Social Behavior*, 31, 173–184.

- For *alcohol*, perceived peer norms for *weekend binge drinking* generally moved in parallel with 12th graders' statements about their own personal disapproval. A slight decline in friends' disapproval occurred from the mid-1970s until the early 1980s, followed by a period of gradual increase between 1983 and 1992 (see Figure 9-2). During that 1983–1992 period, laws mandating an increase in the drinking age occurred in a number of states, an ad campaign was launched aimed at deterring drinking and driving, and a subsequent ad campaign was launched encouraging the use of designated drivers. Some divergence occurred when 12th graders' own attitudes became less tolerant while perceived peer norms changed more slowly, suggesting some collective ignorance of the extent to which peers disapproved of weekend binge drinking. Both measures declined some between 1992 and 1998. The proportion saying their close friends would disapprove dropped from 61% in 1992 to 56% in 1998, and then increased significantly to 60% in 2003, about where it has remained since (62% in 2008).
- Little systematic change occurred from 1975 to 1993 in perceived peer disapproval of *heavy daily drinking*. Following a slight decline between 1993 and 1997 (to 83%), this rate has remained fairly level since, standing at 85% in 2008. Having *one or two drinks nearly every day* saw some growth in peer disapproval between 1981 and 1990 (from 70% to 79%), but fell back some in the years since (to 73% in 2006) before rising to 75% in 2007 and 2008. Self-reports of disapproval have shown some upturn in recent years.

Finally, the very close tracking of *self-reported disapproval* with *reported friends' disapproval*—across all of the drugs about which both variables are asked of 12th graders—suggests that self-reported disapproval gives a very good approximation of perceived peer norms in the aggregate (see Figures 9-1a, 9-1b, and 9-2). This is valuable to know for two reasons: first, it may not be necessary for both to be measured in most surveys (and we did not include perceptions of peer attitudes in the questionnaires developed for 8th and 10th graders for that reason); and second, the self-reported disapproval provided by the 8th and 10th graders in this study should serve quite well in the aggregate to reflect perceived peer norms.

## FRIENDS' USE OF DRUGS

It is generally acknowledged that much youthful drug use is initiated through a peer social-learning process, and research has shown a high correlation between an individual's illicit drug use and that of his or her friends. Such a correlation can, and probably does, reflect several causal patterns: (a) a person with friends who use a drug will be more likely to try the drug; (b) conversely, the individual who is already using a drug will be more likely to introduce friends to the experience; and (c) users are more likely to establish friendships with other people who use.

Given the importance of exposure to drug use by others, it is useful to monitor students' associations with others taking drugs, as well as their perceptions about the extent to which their friends use drugs. For 12th graders, two sets of questions—each in a different questionnaire form and together covering nearly all categories of drug use addressed in this report—ask students to indicate for each drug (a) how often during the prior 12 months they were around people taking it to get high or for “kicks” (Table 9-2) and, separately, (b) what proportion of their own friends

use it (Tables 9-5a and 9-5b). As would be expected, respondents' answers to these two questions tend to be consistent with the respondents' self-reported drug use; thus, for example, 12th graders who have recently used marijuana are much more likely to report that they have often been around others getting high on marijuana and that most or all of their friends use. For 8th and 10th graders, questions on proportions of friends using the various drugs were included in the questionnaires (Tables 9-3 and 9-4); the results are discussed below in a separate section. Questions on exposure were not included for these grades.

### **Exposure to Drug Use by Friends and Others: Twelfth Graders, 2008**

A comparison of the aggregated responses about friends' use and being around people in the prior 12 months who were using various drugs to get high reveals a high degree of correspondence between these two indicators of exposure, even though these two questions appear in separate forms. For each drug, the proportion of respondents saying none of their friends use is fairly close to the proportion reporting that during the prior 12 months they have not been around anyone who was using that drug to get high. Similarly, the proportion reporting that most or all of their friends use a given drug bears a rough similarity to the proportion saying they have often been around people getting high on that drug.

- As would be expected, reports of exposure and friends' use closely parallel 12th graders' own use (compare Figures 4-1 and 9-4). It is no surprise that the highest levels of exposure involved *alcohol*; nearly one half (45%) of the 2008 twelfth graders said they have often been around people using it to get high. What may come as a surprise is that 25% of all 12th graders said that most or all of their friends *get drunk* at least once a week. (This *is* consistent, however, with the 25% of 12th-grade respondents reporting that they personally had taken five or more drinks in a row at least once during the prior two weeks.)
- After alcohol, students are exposed most frequently to *marijuana*. About two thirds of the 2008 twelfth graders (70%) reported having been around people using marijuana during the prior year. Some 27% said they have often been around people using it to get high, and another 23% said they have been exposed occasionally. On the question about friends' use, 20% said that most or all of their friends smoke marijuana, and 78% said that they have at least some friends who use the drug. *Indeed, only 22% of 12th graders in 2008 said that none of their friends used marijuana.*
- *Cocaine* and *hallucinogens other than LSD* rank next in exposure: 24% of 12th graders reported some exposure to use of either drug in the prior year. Twenty-five percent said they have friends who use cocaine and 29% said they have friends who use hallucinogens other than LSD.
- For the remaining illicit drugs, any exposure to use in the past year ranges from 23% for *amphetamines* down to 6.8% for *heroin*.
- Just over half of 12th graders (56%) reported *no* exposure to people using *any of the illicit drugs other than marijuana* during the prior year—which means that just under

half did have exposure to use. Only 28% of 12th graders reported no exposure to *any illicit drug* (including marijuana) during the prior year.

- One seventh (14%) of 12th graders reported that most or all of their friends smoke *cigarettes*, and the great majority (78%) reported having at least *some* friends who smoke.

### Friends' Use of Drugs: Eighth and Tenth Graders, 2008

While the questions about exposure to use were not included in the 8th- and 10th-grade questionnaires, data on friends' use were gathered.

- As would be expected, with few exceptions, 10th-grade students are less likely than 12th-graders to have friends who use, and 8th graders are less likely still (see Tables 9-3 and 9-4). For example, in 2008 for *marijuana*, 38% of 8th graders and 65% of 10th graders said they have friends who use it, compared to 78% of 12th graders. Still, that means that over one third of 8th graders—most of whom are 13 or 14 years old—do have friends who use marijuana.
- *Inhalants* are one important exception to the typical developmental trend. Consistent with our finding that current inhalant use is more prevalent at 8th grade than in 10th or 12th grades, 27% of 8th graders said they have some friends who use inhalants versus 21% of 10th graders and 18% of 12th graders.
- Exposure to *alcohol* use by friends is widespread, with 64% of 8th graders and 87% of 10th graders reporting having friends who use alcohol in 2008. In fact, 18% of 8th graders and 41% of 10th graders said that most or all of their friends drink, and the proportions saying that most or all of their friends *get drunk* at least once a week are 6% in 8th grade and 16% in 10th grade.
- Exposure to *cigarette smoking* by friends is also very high for these young people, with half (50%) of 8th graders and almost three quarters (71%) of 10th graders saying they have at least some friends who smoke.
- Considerably smaller proportions have friends who use *smokeless tobacco*: 25% of 8th graders and 42% of 10th graders in 2008.

In sum, today's American adolescents—even in middle school—have a high degree of exposure to illicit drug use among their peers, whether or not they use illicit drugs themselves. They also have a very high level of exposure to smoking, drinking, and drunkenness.

### TRENDS IN EXPOSURE TO DRUG USE AND FRIENDS' USE OF DRUGS

The extent of American adolescents' exposure to licit and illicit drug use has not been a constant; important changes have occurred over the past 33 years. Table 9-2 presents long-term trends in

reported exposure to the use of various drugs by 12th graders, and Tables 9-3, 9-4, and 9-5 present trends in reported friends' use of the various drugs for all three grades.

### Trends in Exposure to Drug Use by Friends and Others: Twelfth Graders

- Between 1976 and 1978, twelfth graders' reports of exposure to *marijuana* use increased along with self-reported monthly use. Both measures stabilized in 1979, and then both dropped steadily so that the proportion saying they were often around people using marijuana decreased by more than half between 1979 and 1992 (from 39% to 16%). After 1992, however, this reported level of exposure significantly increased, reaching 33% in 1997, and paralleled the significant rise in self-reported use. By 2007 the proportion reporting frequent exposure declined some to 25% among 12th graders, and use declined some, as well. Actual marijuana use, as well as frequent exposure to use, increased some in 2008, but not significantly.
- The proportion of 12th graders exposed to *cocaine* use showed a consistent increase from 1976 to 1979, as self-reported use also rose. After 1979, there was little change in either measure, until both increased in 1985 and 1986, corresponding to peaks in self-reported use. From 1986 through 1993, twelfth graders' exposure to cocaine use dropped appreciably, with the proportion saying they had any friends who used cocaine falling from 46% in 1986 to 25% in 1993 (see Tables 9-5a and 9-5b). Self-reported prior-year prevalence fell by three quarters during this same interval. Then self-reported cocaine use doubled between 1992 and 1999, and the proportion reporting that most or all of their friends used cocaine also nearly doubled (from 1.5% to 2.9%). Both remained fairly level through 2007. In 2008, the proportion of 12th graders saying most or all of their friends used cocaine dropped (from 2.1% in 2007 to 1.2% in 2008), and the proportion saying any friends used dropped significantly (from 30% to 25%).
- The proportion of 12th graders having any friends who used *amphetamines* rose from 41% to 51% between 1979 and 1982, paralleling a sharp increase in self-reported use during that period. The proportion saying they were around people using amphetamines "to get high or for kicks" also jumped substantially between 1980 and 1982 (by nine percentage points).<sup>89</sup> It then fell continually—a full 26 percentage points—between 1982 and 1992 (to 25%), as self-reported use declined quite substantially. From 1992 to 1997, both self-reported use and exposure to use increased and then leveled. Both have shown some decline since 2001.
- Although we did not ask students about their own use of *ecstasy (MDMA)* until 1996, we did ask about friends' use beginning in 1990. That measure stayed fairly stable at 11% to 13% between 1990, when it was first measured, and 1993. There was a substantial increase between 1993 and 1997 (from 13% to 28%) in the proportion of 12th graders reporting having at least some friends who were using ecstasy. Little change occurred

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<sup>89</sup>This finding was important because it indicated that a substantial part of the increase observed in self-reported amphetamine use was due to influences other than simply an increase in the use of over-the-counter diet pills or stay-awake pills, which presumably are not used to get high. Obviously, more young people were using stimulants for recreational purposes. Of course, the question still remains of whether the active ingredients in those stimulants really were amphetamines.

after this until 2000, when friends' use jumped dramatically to 37%, along with a concurrent increase in self-reported use. Reported use by friends peaked at 42% in 2001, coinciding with a peak in self-reported use. Then, in each year from 2002 to 2005, use by friends declined significantly (to 23% by 2005) while self-reported use decreased by more than two thirds from its highest point in 2001. Use by friends stands at 25% in 2008.

- For all of the other illicit drugs (*inhalants*, *nitrite inhalants*, *LSD*, *other hallucinogens*, *tranquilizers*, *sedatives* [*barbiturates*], *PCP*, and *methaqualone*), trends in exposure and/or friends' use have generally paralleled the trends in self-reported use.
- The proportion saying that most or all of their friends smoke *cigarettes* dropped steadily and substantially between 1976 and 1981, from 37% to 22%. During this period, self-reported use also dropped markedly, and more 12th graders perceived their friends as disapproving of regular smoking. After 1981, friends' use and self-reported use remained relatively stable until a significant increase in 1993 in the proportion who said most or all of their friends smoke cigarettes. Friends' use continued to rise, peaking at 34% in 1997, with self-reported smoking following a similar pattern. However, 1998 was a turnaround year for 12th graders: smoking rates started to drop, as did reported friends' use. Both dropped substantially until 2003, when only 20% said that most or all of their friends smoke, a rate that held at 21% for 2004. Both measures declined again after 2004. In 2008, the proportion of 12th graders who said that most or all of their friends smoke cigarettes was 14%, the lowest value for this measure since the study began in 1975. In 2008, the proportion saying that *any* of their friends smoke was at 78%, well below the highest level reported in the study (95% in 1975), and the recent high levels of 90% in 1997 and 1998.
- From 1975 through 1990, the proportion reporting heavy drinking exceeded the proportion reporting that most or all of their friends *get drunk* at least once a week, sometimes by a considerable margin (for example, by 12 percentage points in 1981, 41% versus 29%). Since 1991, the two measures have tracked fairly closely. The most impressive facts here are that in 2008, one fourth (25%) of 12th graders said that most or all of their friends get drunk at least once a week—a historical low—and the same proportion said they personally had been binge drinking in the prior two weeks. Only about one in four (24%) said that *none* of their friends get drunk at least once a week.

***Implications for validity of self-reported usage questions.*** We have noted a high degree of concurrence in the aggregate-level data presented in this report among 12th graders' self-reports of their own drug use, their friends' use, and their own exposure to such use. Drug-to-drug comparisons in any given year across these three measures tend to be highly parallel, as are the changes from year to year.<sup>90</sup> We take this consistency as additional evidence of the validity of the self-report data (and also of the trends in the self-report data), because respondents should have

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<sup>90</sup>Those minor instances of noncorrespondence may well result from the larger sampling errors in our estimates of these environmental variables, which are measured on a sample size one fifth or one sixth the size of the self-reported usage measures. They may also result, of course, from a lag between a change in reality and students' realization of that change.

little reason to distort answers on use by unidentified friends or their general exposure to use. Figure 9-3 illustrates the high degree of cross-time correspondence between the proportion of 12th graders saying they personally used marijuana in the 30 days prior to the survey and those saying most or all of their friends use marijuana. We believe that this close correspondence provides persuasive evidence that the changing social acceptability of drug use has not affected the truthfulness of self-reports of use.

### Trends in Friends' Drug Use: Eighth and Tenth Graders

As with 12th graders, data on friends' use among 8th and 10th graders (available since 1991) show trends that are highly consistent with trends in self-reported use. Questions on friends' use are included in all 8th- and 10th-grade questionnaire forms, providing very large sample sizes. Selected trend results for these students are discussed below, with comparisons to 12th graders when salient, and are presented in Tables 9-3 and 9-4.

- Paralleling the increase in use between 1992 and 1996, there were large increases in the proportions saying any of their friends smoke *marijuana*. Between 1993 and 1994, friends' use rose by 10 percentage points among 8th graders and 11 percentage points among 10th graders, and another 10 percentage points in both grades between 1994 and 1996. Among both 8th and 10th graders, friends' use declined between 1996 and 2004, with little change since through 2008.
- In all three grades, the proportions reporting having friends who use *inhalants* rose consistently from 1991 through 1996 or 1997, again coinciding with rises in self-reported usage. From 1996 through 2002, friends' use generally declined. In 2003, both self-reported use and friends' use among 8th graders increased, while both measures continued to decrease among 10th and 12th graders. Between 2004 and 2008, annual changes were inconsistent and varied some by grade, but there was little net change, with 27% of 8th graders and 18% of 12th graders at both points reporting any friends who use; there was a slight increase among 10th graders, from 18% to 21%.
- The rate of self-reported *drunkenness* increased slightly in both 8th and 10th grades between 1992 and 1996, as did the proportion saying they have any friends who get drunk weekly. Here, too, both measures then declined some among 8th graders between 1997 and 2001, while changing little among 10th and 12th graders. All grades have since shown some continual decline in self-reported drunkenness and reported friends' drunkenness, with the greatest change observed among 8th graders and with the inflection points staggered across grades from 1999 for 8th graders to 2001 among 12th graders
- The data from 8th and 10th graders showed a steadily increasing proportion of friends smoking *cigarettes* between 1991 and 1996, and a considerable increase in self-reported smoking. In 1997, both measures showed a slight reversal in both grades—a reversal that has continued into 2008, including a significant drop in self-reported use among 8th and 10th graders. In 1996, 78% of 8th graders reported having any friends who smoked, but by 2008 that proportion had fallen to 50%, the lowest level recorded by the study so far.

## PERCEIVED AVAILABILITY OF DRUGS

One set of questions asks respondents how difficult they think it would be to obtain each of a number of different drugs if they wanted it. The answers range across five categories from “probably impossible” to “very easy.”<sup>91</sup> We use the term “perceived availability” in discussing the responses to these questions because it is the person’s perception that is being measured. We recognize that availability is multidimensional, and respondents may consider a variety of factors in their answers, including knowing where to get access, the difficulty of getting to an access place, and possibly even the monetary cost. We suspect, however, that for most respondents, what we are measuring is perceived access, with little or no consideration of monetary cost.

While no systematic effort has been undertaken to directly assess the validity of these measures (because such an assessment would involve actual attempts to obtain drugs), it must be said that the measures do have a rather high level of face validity, particularly since it is the subjective reality of perceived availability being measured. It also seems quite reasonable to assume that, to a considerable extent, perceived availability tracks actual availability. In addition, differences in reported availability across drugs, which generally correspond to reported prevalence of use, provide further evidence of validity.

### Perceived Availability of Drugs, 2008: All Grades

Substantial differences were found in perceived availability of the various drugs. In general, the more widely used drugs are reported to be available by higher proportions of the age group, as would be expected (see Tables 9-6, 9-7, and 9-8). Also, older age groups generally perceive drugs to be more available. For example, in 2008, 39% of 8th graders said *marijuana* would be fairly easy or very easy to get, versus 67% of 10th graders and 84% of 12th graders. In fact, for the other drugs included in the study, the proportion of students saying they are available to them is generally about twice as high among 12th graders compared to 8th graders, and three times as high for *ecstasy*. Both associations are consistent with the notion that availability is largely attained through friendship circles. The differences among age groups may also reflect less willingness and/or motivation on the part of those who deal drugs to establish contact with younger adolescents. Because many *inhalants*—such as glues, butane, and aerosols—are universally available, we do not ask about their availability. See Table 9-8 for the full list of drugs included in the questions for 12th graders; a few of these were not asked of the younger students.

- Measures on the availability of *cigarettes* are not included in the 12th-grade questionnaires because we have assumed that they are almost universally available to this age group. However, data on this measure is collected from 8th and 10th graders, which clearly shows that cigarettes are readily available to most of them. In 2008, 57% of 8th graders and 77% of 10th graders thought that cigarettes would be fairly easy or very easy for them to get if they wanted some.

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<sup>91</sup>In the 8th- and 10th-grade questionnaires, an additional answer category of “can’t say, drug unfamiliar” is offered; respondents who chose this answer are included in the calculation of percentages. Generally, fewer than 20% of respondents selected this answer.

- The great majority of teens also see *alcohol* as readily available: in 2008, 64% of 8th graders, 81% of 10th graders, and 92% of 12th graders said it would be fairly easy or very easy to get.
- Far fewer 8th graders report that illicit drugs are easily accessible. Even so, *marijuana* was described as readily available by 39% of 8th graders in 2008, followed by *amphetamines* (21%), *crack* and *cocaine powder* (both at 20%), *sedatives (barbiturates)* (18%), *steroids* (17%), *tranquilizers* (15%), *ecstasy (MDMA)* (14%), *heroin* and *crystal methamphetamine (ice)* (both at 13%), *narcotics other than heroin* (12%), *LSD* (11%), and *PCP* (10%).
- *Marijuana* appears to be readily available to almost all 12th graders; in 2008, 84% reported that they think it would be very easy or fairly easy for them to get it—nearly twice the number who reported ever having used it (43%).
- After marijuana, 12th-grade students indicated that *amphetamines* are among the easiest drugs to obtain (48%).
- Between 35% and 43% of 12th graders perceived *hallucinogens other than LSD* (43%); *cocaine* and *ecstasy* (both at 42%); *cocaine powder* and *sedatives (barbiturates)* (both at 39%); and *crack*, *steroids*, and *narcotics other than heroin* (all at 35%) as readily available.
- *LSD*, *heroin*, *crystal methamphetamine*, *tranquilizers*, and *PCP* were reported as readily available by smaller but still substantial minorities of 12th graders in 2008 (29%, 25%, 23%, 22%, and 21%, respectively).
- Even drugs with lower usage rates, such as the *nitrite inhalants*, are seen as available by substantial numbers of 12th graders (17% in 2008).
- Of the 12th graders who reported having used a drug in the prior year, about 70% on average say that the drug would be fairly easy or very easy for them to get.

### Trends in Perceived Availability for Twelfth Graders

Trend data on availability for 12th graders are presented in Table 9-8 and Figures 9-5a through 9-5c. A glance at the three figures will show some substantial fluctuations in the perceived availability of most drugs over the 33 years covered by the study.

- *Marijuana* has been the most consistently available illicit drug, but even it showed some small variations over the years (see Figure 9-5a). For the first time since the study began in 1975, marijuana showed a small but statistically significant decline in perceived availability between 1982 and 1984 (down four percentage points to 85%), undoubtedly reflecting the reduced proportion of 12th graders who reported having friends who were users. Perceived availability leveled over the next four years, followed by a slight decline between 1988 and 1992, then a moderate increase (to 90%) between 1992 and 1998,

which corresponded to a sharp increase in the proportion of friends using marijuana. Between 1999 and 2001 availability held steady at 89%, then declined a bit to 84% by 2007, where it remained in 2008. What is most noteworthy, however, is how little change has occurred in the proportion of 12th graders who say that marijuana is fairly or very easy to get. *By this measure, marijuana has been almost universally available to American 12th graders (from 83% to 90%) over the past 33 years.*

- The perceived availability of **amphetamines** jumped 13 percentage points between 1977 and 1982 (to 71%), but then dropped back gradually by 14 percentage points between 1982 and 1991 (to 57%) (see Figure 9-5a). Then, between 1991 and 1995, perceived availability increased steadily, reaching 63% in 1995, followed by a significant decrease to 59% in 1996. Since 1998, perceived availability of amphetamines has generally declined, reaching 48% in 2008, the lowest level since the study began in 1975.
- The perceived availability of **sedatives (barbiturates)** (see Figure 9-5b) fell from 1975 to 1980 by 11 percentage points, but then jumped 6 percentage points from 1980 to 1981, when look-alikes were common. From 1982 to 1991 a long gradual decline of 13 points occurred, parallel to a long-term drop in the number of sedative (barbiturate) users. Perceived availability rose slightly, along with use, in the early 1990s; but it then fell back again between 1993 and 2001 (to 36%), even though use continued to increase slightly through 2002. In 2003 both use and availability showed some (not statistically significant) decline. In 2004, the question text was changed (as described in footnote “c” of Table 9-8), apparently causing an increase in reported availability; thus, the trend between 2003 and 2004 cannot be estimated. Based on the new question, availability has declined some, from 46% in 2004 to 39% by 2008.
- Between 1977 and 1980—a period of increased overall **cocaine** use—there was a substantial increase (15 percentage points) in the perceived availability of cocaine among 12th graders (see Table 9-8 and Figure 9-5a). Perceived availability then leveled and even dropped some in 1983, before rising sharply and steadily through 1989. It is noteworthy that, after 1986, reported availability continued to rise as actual use of cocaine dropped sharply through 1993. Because perceived availability increased between 1986 and 1989, we are inclined to discount reduction in supply as an explanation for the significant and important decline in cocaine use observed during that period.

Between 1989 and 1994, perceived availability of cocaine decreased significantly—by 12 percentage points—perhaps reflecting the impact of the greatly reduced proportion of 12th graders who had friends using cocaine. (Friends’ use dropped by 11 percentage points during that interval.) From 1994 to 1998, use and perceived availability of cocaine increased slightly. Availability declined some between 1999 (48%) and 2003 (43%), before rising to 47% by 2007 (while use has held fairly steady). In 2008 perceived availability dropped significantly (to 42%), coinciding with a nonsignificant decrease in use.

- Questions on the perceived availability of **crack** were added to the 12th-grade questionnaires in 1987; since then, it has fluctuated between 35% and 47%, with

availability generally lower in the mid-2000s than it was in the late 1990s (see Figure 9-5a). It is generally seen as available by slightly fewer students than is powder cocaine.

- Use and perceived availability of *tranquilizers* both declined fairly steadily among 12th graders over the 15-year interval between 1977 and 1992 (see Figure 9-5b). In fact, by 2008 the proportion of 12th graders who thought tranquilizers were readily available had fallen by two thirds—from 72% in 1975 to 22% in 2008. Despite that decline in perceived availability, tranquilizer *use* among 12th graders had been slowly rising through most of the 1990s through 2002, followed by a slight decline in use since. This is another example where changes in availability could not explain the trends in use.
- The perceived availability of *LSD* fell sharply in the first several years covered by the study (1975–1978), perhaps reflecting the end of a longer term steep decline (see Figure 9-5c). Perceived availability then leveled for a while before dropping further in the first half of the 1980s. Between 1986 and 1995, a substantial increase in the perceived availability of LSD occurred among 12th graders, rising from 29% to 54% (the highest level in over two decades). After 1995, there was considerable decline in perceived availability (to 29% in 2005, where it has remained since, matching the previous low point reached in 1986), accompanied by a substantial decline in use. Because perceived risk and disapproval of LSD use did not move in ways that could explain the sharp drop in use during that period, it seems likely that decreased availability drove use down. There was no further change in availability in 2007 and 2008, whereas use increased slightly during that period.
- The perceived availability of *hallucinogens other than LSD* followed a very similar trajectory to that of LSD from 1975 through 1986 (see Figure 9-5c), but quite a different one thereafter. From 1987 to 1995 there was only a gradual rise in perceived availability of hallucinogens other than LSD, in contrast to the sharp rise for LSD. From 1995 to 2000, the availability of LSD showed a general decline (from 54% to 47%), while the availability of other hallucinogens changed very little (from 36% to 35%). While LSD and the other hallucinogens, taken as a set, were about equally available in the late 1970s, LSD availability was substantially higher in the 1990s. The availability of LSD declined again in 2001 (to 45%), while the availability of other hallucinogens showed an apparent sharp increase, likely due to a question change. (In 2001 the question text changed from “other psychedelics” to “other hallucinogens,” and the term “shrooms” was added to the list of examples. After this change, this class of drugs was actually reported to be slightly more available than LSD.) Between 2001 and 2004, availability remained fairly level (while LSD availability fell), followed by a significant drop in 2005 and little change since (to 43% in 2008). LSD is now substantially less available than the other hallucinogens taken as a class.
- The perceived availability of *ecstasy* rose quite dramatically among 12th graders during the 1990s (see Figure 9-5d). From 1989, when availability was first measured for this drug, through 1991, only 22% of 12th graders reported easy access. Availability rose steadily thereafter to 39% by 1997, where it remained for a few years. However, availability jumped dramatically in 2000 to 51% and again in 2001 to 62%—nearly three

times the 1991 level—an increase that probably played an important role in the sharp increase in *use* after 1998. In 2002, availability of ecstasy declined for the first time in several years. But while use dropped quite sharply between 2001 and 2003, perceived availability declined only slightly in that interval and did not show a sharp decline until 2004, when it dropped by 10 percentage points. This was followed by another significant decline in perceived availability (eight percentage points) and a nonsignificant decrease in use in 2005. This suggests that a reduction in availability was not key to the important downturn in ecstasy use; rather, the fall in perceived availability may simply have resulted from fewer 12 graders having friends who were users. In fact, friends' use of ecstasy dropped significantly in 2005. In 2006, there was no significant change in perceived availability, friends' use, or own use; all three measures showed some increase in 2007, but none was significant. In 2008, perceived availability and friends' use continued to rise while self-reported use leveled.

- Self-reported use of **PCP** among 12th graders dropped substantially between 1979 and 1987 before stabilizing at a very low level and then decreasing slightly between 2000 and 2006. However, perceived availability rose from 23% in 1987 (when it was first measured) to 32% in 1992, and then changed very little through 1998 before starting to decline gradually. It stood at 21% in 2008. Again, it appears that availability was not the determining factor in the shifts in use of this drug.
- There has been a fairly wide fluctuation in the reported availability of **heroin** during the study, with a rise from the early 1980s through the mid-1990s, and a decline from the late 1990s through 2004. In 2008 there was little further change in use, but perceived availability showed a significant decline. The stability of heroin use during the 1980s and early 1990s, despite a substantial increase in availability, is worthy of note. It suggests that availability alone is not sufficient to stimulate use (though it may well affect the consumption pattern of established users). It was not until the 1990s that methods for taking heroin other than injection began to be widely known, as purity continued to increase. The view that these methods were less dangerous probably removed an important deterrent for at least some teenagers.
- Much like heroin, **narcotics other than heroin** showed a gradual upward shift in perceived availability among 12th graders, from 26% in 1978 to 38% in 1989 (see Figure 9-5b). Some decline in 1991 was followed by a second period of gradual increase from 1991 through 2000 (to 44%). Perceived availability then fell back to 35% by 2008. Use of narcotics other than heroin grew substantially during the 1990s through 2002, before leveling. Unfortunately, the availability question for narcotics other than heroin does not address the issue of changes in the availability of specific drugs within this general class, like OxyContin and Vicodin. It seems quite likely that they had different trends in availability than the class as a whole.

As illustrated in Figure 9-5b, *sedatives (barbiturates)* and *tranquilizers* were much more available to 12th graders in 1975 compared to 2008, while the availability of *heroin* and *narcotics other than heroin* is very similar between 1975 and 2008.<sup>92</sup>

- *Steroid* availability was quite high (at 47%) among 12th graders from the point of first measurement in 1991 through about 2002 (46%), before some decline began to occur, reaching 40% in 2007. There was a significant decline in perceived availability of steroids in 2008 (to 35%).

### Trends in Perceived Availability for Eighth and Tenth Graders

Data on the perceived availability of drugs was first gathered from 8th and 10th graders in 1992. For most of the illegal drugs, perceived availability among these students increased during the first half of the 1990s, peaked around 1996 or 1997, leveled or began dropping thereafter, and reached a low in 2007 among 8th graders and in 2008 among 10th graders. These changes generally parallel fluctuations in use. The trend data on perceived availability are presented in Tables 9-6 and 9-7.

- Availability of *ecstasy (MDMA)* was first measured for 8th and 10th graders in 2001. In 2002, both use and availability declined some. Among 8th graders, availability declined from 2001 (24%) through 2007 (13%) before inching up to 14% in 2008, while among 10th graders availability declined between 2002 (41%) and 2008 (27%). As with the 12th graders, the decline in availability seemed to lag behind the decline in use for this drug.
- Between 1992 and 1996, the proportion of students seeing *marijuana* as readily available rose sharply, from 42% to 55% among 8th graders, and from 65% to 81% for 10th graders. Since 1996, perceived availability has shown declines in both grades, although there was some increase among 8th graders in 2008.
- In the mid-1990s, the perceived availability of several other illicit drugs (*LSD*, *crack*, *powdered cocaine*, *heroin*, and *amphetamines*) rose modestly among 8th and 10th graders as their use of these drugs increased. (Use is not measured in these grades for *PCP* and *narcotics other than heroin*; but availability is, and it rose also.) Both grades then showed some decline in the availability of these drugs, and most have continued to decline since.
- Availability of *LSD* dropped sharply in the early 2000s, coinciding with a steep decline in use among 8th and 10th graders. In recent years both perceived availability and use have leveled. As stated above, because perceived risk and disapproval did not move in a way that could explain this decline in use, but availability did, we are inclined to believe that a change in availability was driving use in this case.
- *Sedatives (barbiturates)* and *tranquilizers* did not show any increase in perceived availability in the early 1990s in 8th or 10th grade, but both drugs did show a decline

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<sup>92</sup>Figure 9-5b shows a sharp increase in the availability of sedatives (barbiturates) in 2004, but this shift may have been caused by a change in question wording.

after 1995 or 1996 until about 2000, when availability leveled. In both grades, perceived availability for both classes of drugs has shown some modest further decline since about 2002.

- **Crystal methamphetamine** is the drug that has generally been least available to 8th and 10th graders. For the 8th graders, availability was level from 1992 to 1998 at around 16%, and declined slightly through 2008 (13%). For 10th graders, availability increased from 1992 (19%) to 1997 (23%), declined in the late 1990s, stayed fairly level in the early 2000s, and has been dropping since 2005, including a significant drop in 2008.
- After holding fairly steady at very high levels for some years, the availability of **cigarettes** to 8th and 10th graders began to decline modestly after 1996, very likely as a result of increased enforcement of laws prohibiting sale to minors under the Synar Amendment and FDA regulations. Those declines continued among 8th graders, including a significant decrease in 2007, with the proportion saying that they could get cigarettes fairly or very easily falling from 77% in 1996 to 56% in 2007. Over the same interval, the decline among 10th graders was from 91% to 78%, also including a significant decrease in 2007. In 2008, perceived availability among 8th graders increased slightly to 57%. Tenth graders declined slightly in 2008, to 77%.
- **Alcohol** has shown some declines in availability among 8th graders, from 76% in 1992 to 62% in 2007. This drop was followed by a significant increase to 64% in 2008. For 10th graders availability is down modestly from the peak level of 90% in 1996 to 81% in 2008. Even after these modest declines, alcohol clearly remains accessible to the great majority of underage teens.
- The availability of anabolic **steroids** changed rather little among 8th and 10th graders between 1991 and about 2000 or 2001; since then there has been a relatively steady decline (from 23% in 2001 to 17% in 2008 among 8th graders, and from 35% in 2000 to 25% among 10th graders).

### The Importance of Supply Reduction Versus Demand Reduction

Overall, supply reduction—that is, reducing the availability of drugs—does not appear to have played as major a role as many had assumed in three of the four most important downturns in illicit drug use that have occurred to date, namely, those for **marijuana**, **cocaine**, and **ecstasy** (see Figures 8-4, 8-5, and 8-6). In the case of cocaine, perceived availability actually rose during much of the period of downturn in use. (These data are corroborated by data from the Drug Enforcement Administration on trends in the price and purity of cocaine on the streets.<sup>93</sup>) For **marijuana**, perceived availability has remained very high for 12th graders over the past 33 years, while use dropped substantially from 1979 through 1992. Perceived availability for ecstasy did increase in parallel with increasing use in the 1990s, but the decline phase for use appears to have been driven much more by changing beliefs about the dangers of ecstasy than by any sharp downturn in availability. Similarly, **amphetamine** use declined appreciably from 1981 to 1992,

<sup>93</sup>Caulkins, J. P. (1994). *Developing price series for cocaine*. Santa Monica, CA: RAND.

with only a modest corresponding change in perceived availability. Finally, until 1995, *heroin* use had not risen among 12th graders even though availability had increased substantially.

- What *did* change dramatically were young peoples' beliefs about the dangers of using *marijuana*, *cocaine*, and *ecstasy*. We believe that increases in perceived risk led to a decrease in use directly through their impact on young people's demand for these drugs and indirectly through their impact on personal disapproval and, subsequently, peer norms. Because the perceived risk of *amphetamine* use was changing little when amphetamine use was declining substantially (1981–1986), other factors must have helped to account for the decline in demand for that class of drugs—quite conceivably some displacement by cocaine. Because three classes of drugs (marijuana, cocaine, and amphetamines) have shown *different* patterns of change, it is highly unlikely that a general factor (e.g., a broad shift against drug use) can explain their various trends.
- The increase in *marijuana* use in the 1990s among 12th graders added more compelling evidence to this interpretation. It was *both* preceded and accompanied by a decrease in perceived risk. (Between 1991 and 1997, the perceived risk of regular marijuana use declined 21 percentage points.) Peer disapproval dropped sharply from 1993 through 1997, *after* perceived risk began to change, consistent with our interpretation that perceived risk can be an important determinant of disapproval. Perceived availability remained fairly constant from 1991 to 1993 and then increased seven percentage points through 1998.
- We do think that the expansion in the world supply of *heroin*, particularly in the 1990s, had the effect of dramatically raising the purity of heroin available on the streets, thus allowing for new means of ingestion. The advent of new forms of heroin, rather than any change in respondents' beliefs, very likely contributed to the fairly sharp increase in heroin use in the 1990s. Evidence from this study, showing that a significant portion of the self-reported heroin users in recent years are using by means other than injection, lends credibility to this interpretation. The dramatic decline in *LSD* use in the early to mid-2000s is also not explainable by means of concurrent changes in perceived risk or disapproval; but availability did decline sharply during this period.

We should also note that other factors, such as price, could play an important role. Analyses of MTF data have shown, for example, that price probably played an important role in the decline of marijuana use in the 1980s, and in changes in cigarette use in the 1990s.<sup>94, 95</sup>

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<sup>94</sup>Pacula, R. L., Grossman, M., Chaloupka, F. J., O'Malley, P. M., Johnston, L. D., & Farrelly, M. C. (2001). Marijuana and youth. In J. Gruber (Ed.), *Risky behavior among youths: An economic analysis* (pp. 271–326). Chicago: The University of Chicago Press. Also appears as Working Paper No. 7703, National Bureau of Economic Research, Inc. (2000).

<sup>95</sup>Tauras, J. A., O'Malley, P. M., & Johnston, L. D. (2001). *Effects of price and access laws on teenage smoking initiation: A national longitudinal analysis*. (ImpacTeen/Youth, Education, and Society Research Paper No. 2.) Chicago, IL: University of Illinois at Chicago and Ann Arbor, MI: The University of Michigan, Institute for Social Research.

**TABLE 9-1**  
**Trends in Proportion of Friends Disapproving of Drug Use for 12th Graders**

How do you think your close friends feel (or would feel) about you . . .	Percentage saying friends disapprove <sup>a</sup>																
	1975 <sup>b</sup>	1976	1977 <sup>b</sup>	1978	1979 <sup>b</sup>	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Trying marijuana once or twice	44.3	—	41.8	—	40.9	42.6	46.4	50.3	52.0	54.1	54.7	56.7	58.0	62.9	63.7	70.3	69.7
Smoking marijuana occasionally	54.8	—	49.0	—	48.2	50.6	55.9	57.4	59.9	62.9	64.2	64.4	67.0	72.1	71.1	76.4	75.8
Smoking marijuana regularly	75.0	—	69.1	—	70.2	72.0	75.0	74.7	77.6	79.2	81.0	82.3	82.9	85.5	84.9	86.7	85.9
Trying LSD once or twice	85.6	—	86.6	—	87.6	87.4	86.5	87.8	87.8	87.6	88.6	89.0	87.9	89.5	88.4	87.9	87.9
Trying cocaine once or twice	—	—	—	—	—	—	—	—	—	—	—	79.6	83.9	88.1	88.9	90.5	91.8
Taking cocaine occasionally	—	—	—	—	—	—	—	—	—	—	—	87.3	89.7	92.1	92.1	94.2	94.7
Trying crack once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.2	95.0	94.4
Taking crack occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95.7	96.5	95.7
Trying cocaine powder once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91.7	93.4	93.3
Taking cocaine powder occasionally	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94.0	95.0	94.8
Trying an amphetamine once or twice	78.8	—	80.3	—	81.0	78.9	74.4	75.7	76.8	77.0	77.0	79.4	80.0	82.3	84.1	84.2	85.3
Taking one or two drinks neatly every day	67.2	—	71.0	—	71.0	70.5	69.5	71.9	71.7	73.6	75.4	75.9	71.8	74.9	76.4	79.0	76.6
Taking four or five drinks neatly every day	89.2	—	88.1	—	88.5	87.9	86.4	86.6	86.0	86.1	88.2	87.4	85.6	87.1	87.2	88.2	86.4
Having five or more drinks once or twice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
each weekend	55.0	—	53.4	—	51.3	50.6	50.3	51.2	50.6	51.3	55.9	54.9	52.4	54.0	56.4	59.0	58.1
Smoking one or more packs of cigarettes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
per day	63.6	—	68.3	—	73.4	74.4	73.8	70.3	72.2	73.9	73.7	76.2	74.2	76.4	74.4	75.3	74.0
<b>Approximate weighted N =</b>	<b>2,488</b>	—	<b>2,615</b>	—	<b>2,716</b>	<b>2,766</b>	<b>3,120</b>	<b>3,024</b>	<b>2,722</b>	<b>2,721</b>	<b>2,688</b>	<b>2,639</b>	<b>2,815</b>	<b>2,778</b>	<b>2,400</b>	<b>2,184</b>	<b>2,160</b>

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

<sup>b</sup>These numbers have been adjusted to correct for a lack of comparability of question context among administrations. (See text for discussion.)

(Table continued on next page.)

**TABLE 9-1 (cont.)  
Trends in Proportion of Friends Disapproving of Drug Use for 12th Graders**

How do you think your close friends feel (or would feel) about you . . .	Percentage saying friends disapprove <sup>a</sup>																2007- 2008	2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2008
Trying marijuana once or twice	73.1	66.6	62.7	58.1	55.8	53.0	53.8	55.1	58.1	57.6	54.1	58.4	59.5	60.9	62.3	60.4	60.8	+0.4
Smoking marijuana occasionally	79.2	73.8	69.1	65.4	63.1	59.9	60.4	61.6	63.9	64.3	60.3	64.2	65.0	67.6	68.1	65.8	66.3	+0.6
Smoking marijuana regularly	88.0	83.5	80.6	78.9	76.1	74.1	74.7	74.5	76.1	77.8	75.3	77.0	77.3	79.5	79.8	78.3	78.0	-0.4
Trying LSD once or twice	87.3	83.5	83.4	82.6	80.8	79.3	81.7	83.2	84.7	85.5	84.9	87.5	87.3	88.4	89.5	88.4	86.3	-2.1
Trying cocaine once or twice	92.2	91.1	91.4	91.1	89.2	87.3	88.8	88.7	90.2	89.3	89.1	91.2	87.9	89.0	88.7	89.6	88.7	-0.9
Taking cocaine occasionally	94.4	93.7	93.9	93.8	92.5	90.8	92.2	91.8	92.8	92.2	92.2	93.0	91.0	92.3	92.4	93.1	92.0	-1.1
Trying crack once or twice	94.6	95.1	93.9	93.8	93.0	92.3	93.7	93.9	94.6	92.3	93.1	94.5	92.2	92.8	93.5	93.2	93.6	+0.4
Taking crack occasionally	95.9	96.4	95.3	96.1	94.7	94.8	96.2	96.0	96.9	95.0	94.7	95.6	94.3	95.5	95.3	95.0	95.4	+0.4
Trying cocaine powder once or twice	94.0	94.2	93.2	93.5	92.1	91.4	91.9	91.8	93.3	91.9	92.3	92.7	90.9	91.1	91.9	91.8	92.4	+0.6
Taking cocaine powder occasionally	94.8	95.2	94.7	95.3	93.6	93.9	94.5	94.0	96.3	93.7	93.8	94.1	92.9	94.1	94.6	93.9	94.2	+0.3
Trying an amphetamine once or twice	85.7	83.2	84.5	81.9	80.6	80.4	82.6	83.0	84.1	83.8	83.3	85.9	84.7	86.1	86.7	87.3	87.1	-0.2
Taking one or two drinks nearly every day	77.9	76.8	75.8	72.6	72.9	71.5	72.3	71.7	71.6	73.4	71.6	74.7	72.8	74.0	73.2	74.5	75.2	+0.7
Taking four or five drinks nearly every day	87.4	87.2	85.2	84.1	82.6	82.5	82.8	82.2	82.8	84.4	80.1	83.1	82.9	82.7	83.3	84.8	84.7	-0.1
Having five or more drinks once or twice each weekend	60.8	58.5	59.1	58.0	57.8	56.4	55.5	57.6	57.7	57.8	55.6	60.3	59.4	59.9	60.6	60.0	62.1	+2.1
Smoking one or more packs of cigarettes per day	76.2	71.8	72.4	69.2	69.3	68.5	69.0	71.2	72.6	74.5	75.7	79.2	78.6	81.1	81.2	81.4	82.5	+1.1
<b>Approximate weighted N =</b>	<b>2,229</b>	<b>2,220</b>	<b>2,149</b>	<b>2,177</b>	<b>2,030</b>	<b>2,095</b>	<b>2,037</b>	<b>1,945</b>	<b>1,775</b>	<b>1,862</b>	<b>1,820</b>	<b>2,133</b>	<b>2,208</b>	<b>2,183</b>	<b>2,188</b>	<b>2,161</b>	<b>2,090</b>	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. Percentages are shown for categories (2) and (3) combined.

**TABLE 9-2**  
**Trends in 12th Graders' Exposure to Drug Use**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>During the LAST 12 MONTHS, how often have you been around people who were taking each of the following to get high or for "kicks"?</i>																		
Any illicit drug <sup>a</sup>	—	17.4	16.5	15.1	15.0	15.7	17.3	18.6	20.6	22.1	22.3	24.5	26.1	28.7	31.4	32.4	35.8	
% saying not at all	—	34.8	39.0	40.7	40.4	36.3	36.1	31.4	29.8	28.3	27.2	26.3	23.3	20.8	22.0	20.7	18.2	
% saying often	—	44.9	44.2	44.7	41.7	41.5	37.4	37.5	40.6	40.2	40.7	44.7	48.3	52.2	52.9	54.6	60.0	
Any illicit drug other than marijuana <sup>a</sup>	—	11.8	13.5	12.1	13.7	14.1	17.1	16.6	14.2	14.6	12.9	12.1	10.2	9.6	10.7	9.2	7.9	
% saying not at all	—	20.5	19.0	17.3	17.0	18.0	19.8	22.1	23.8	25.6	26.5	28.0	29.6	33.0	35.2	36.6	40.4	
% saying often	—	32.5	37.0	39.0	38.9	33.8	33.1	28.0	26.1	24.8	24.2	24.0	20.6	17.9	19.5	17.8	16.0	
LSD	—	78.8	80.0	81.9	81.9	82.8	82.6	83.9	86.2	87.5	86.8	86.9	87.1	86.6	85.0	85.1	84.3	
% saying not at all	—	2.2	2.0	1.8	2.0	1.4	2.0	1.9	1.4	1.5	1.3	1.6	1.8	1.6	2.2	2.6	2.9	
% saying often	—	76.5	76.7	76.7	77.6	79.6	82.4	83.2	86.9	87.3	87.5	88.2	90.0	91.0	91.2	90.6	90.6	
Other hallucinogens <sup>b</sup>	—	3.1	3.2	2.9	2.2	2.2	2.0	2.6	1.1	1.7	1.4	1.5	1.2	1.1	1.3	1.2	1.3	
% saying not at all	—	77.0	73.4	69.8	64.0	62.3	63.7	65.1	66.7	64.4	61.7	62.6	65.1	69.8	69.8	72.3	78.7	
% saying often	—	3.0	3.7	4.6	6.8	5.9	6.6	6.6	5.2	6.7	7.1	7.8	5.9	5.1	5.4	4.7	3.4	
Heroin	—	91.4	90.3	91.8	92.4	92.6	93.4	92.9	94.9	94.0	94.5	94.0	94.2	94.3	93.5	94.6	94.9	
% saying not at all	—	0.8	1.1	0.9	0.7	0.4	0.6	1.0	0.7	1.1	0.5	1.0	0.9	0.8	1.0	0.5	0.9	
% saying often	—	81.9	81.3	81.8	82.0	80.4	82.5	81.5	82.7	82.0	81.6	84.4	85.6	85.2	86.2	85.8	88.7	
Narcotics other than heroin	—	1.8	2.4	2.0	1.7	1.7	1.7	2.4	2.2	2.0	1.8	2.1	1.7	1.7	1.7	1.6	1.4	
% saying not at all	—	59.6	60.3	60.9	58.1	59.2	50.5	49.8	53.9	55.0	59.0	63.5	68.3	72.1	72.6	71.7	76.4	
% saying often	—	6.8	7.9	6.7	7.4	8.3	12.1	12.3	10.1	9.0	6.5	5.8	4.5	4.1	4.7	4.1	3.1	
Sedatives (barbiturates) <sup>c</sup>	—	69.0	70.0	73.5	73.6	74.8	74.1	74.3	77.5	78.8	81.1	84.2	86.9	87.6	88.2	86.7	90.0	
% saying not at all	—	4.5	5.0	3.4	3.3	3.4	4.0	4.3	3.0	2.7	1.7	2.1	1.5	1.4	1.7	1.7	1.2	
% saying often	—	67.7	66.0	67.5	67.5	70.9	71.0	73.4	76.5	76.9	76.6	80.4	81.6	81.8	84.9	83.7	85.8	
Tranquilizers <sup>d</sup>	—	5.5	6.3	4.9	4.3	3.2	4.2	3.5	2.9	2.9	2.2	2.5	2.6	2.2	2.1	1.9	1.4	
% saying not at all	—	6.0	5.6	5.5	5.2	5.3	6.0	6.0	6.0	6.0	6.0	5.9	6.1	6.9	7.7	6.4	8.3	
% saying often	—	57.1	60.8	60.8	61.2	60.2	61.0	59.3	60.2	58.7	59.5	58.0	58.7	56.4	55.5	56.1	54.5	
Alcohol	—	2,950	3,075	3,682	3,253	3,259	3,608	3,645	3,334	3,238	3,252	3,078	3,296	3,300	2,795	2,556	2,525	
Approximate weighted N =																		

(Table continued on next page.)

**TABLE 9-2 (cont.)**  
**Trends in 12th Graders' Exposure to Drug Use**  
 (Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<i>During the LAST 12 MONTHS, how often have you been around people who were taking each of the following to get high or for "kicks"?</i>																		
Any illicit drug <sup>a</sup>	38.7	33.9	29.2	24.7	22.0	21.2	22.8	22.1	24.0	23.5	23.5	26.4	25.7	27.0	26.3	29.2	28.1	-1.1
% saying not at all	18.0	24.0	29.3	32.3	33.8	34.7	33.2	35.6	32.6	33.6	32.6	31.8	30.3	29.9	29.7	27.8	28.6	+0.8
Any illicit drug other than marijuana <sup>a</sup>	58.4	57.4	54.7	52.8	50.3	52.1	52.7	53.5	52.8	50.1	50.7	53.7	51.7	54.1	54.7	54.6	56.2	+1.6
% saying not at all	7.5	9.6	9.4	11.1	12.1	11.7	9.9	11.7	10.5	11.9	12.6	10.8	11.4	10.6	11.4	10.8	8.2	-2.6 s
Marijuana	43.2	39.0	32.8	27.3	24.4	23.2	24.5	24.2	26.2	25.1	25.8	28.6	27.8	29.2	28.6	31.6	30.2	-1.4
% saying not at all	15.6	20.9	27.6	30.7	31.8	32.9	31.4	34.4	30.3	30.8	30.7	30.4	28.0	27.0	27.8	25.1	27.0	+1.9
LSD	82.2	79.0	75.8	73.9	72.4	74.1	76.9	76.4	78.0	78.4	82.8	85.8	87.6	89.2	88.4	87.6	87.9	+0.2
% saying not at all	3.0	3.9	4.2	6.1	4.7	5.1	3.2	4.1	3.3	2.8	2.6	1.8	1.6	1.5	1.9	1.7	0.8	-0.8 s
% saying often	90.3	87.9	86.0	84.2	83.4	82.2	84.1	82.3	83.7†	71.9	73.6	74.2	75.2	75.7	76.2	76.5	76.4	-0.2
Other hallucinogens <sup>b</sup>	1.1	1.9	2.3	2.5	2.7	2.8	1.7	2.7	2.1†	3.6	4.5	3.2	3.2	2.6	4.1	3.0	1.9	-1.1
% saying not at all	80.2	80.8	81.2	78.4	75.0	74.4	73.4	74.2	75.8	75.5	75.1	75.2	75.6	74.3	71.8	74.8	75.9	+1.2
% saying often	2.7	2.9	2.5	3.2	4.0	4.2	3.7	4.6	4.6	4.5	5.3	5.0	4.7	4.2	5.4	4.6	3.6	-1.0
Cocaine	94.6	94.3	92.7	92.1	91.4	90.9	91.3	91.9	90.9	91.3	91.7	92.7	93.4	92.7	91.1	91.4	93.2	+1.8
% saying not at all	0.7	1.1	0.7	1.2	1.6	1.2	0.9	1.3	1.5	0.7	1.3	1.2	1.2	0.8	1.7	1.1	0.8	-0.3
% saying often	88.9	87.6	85.1	84.5	81.5	79.6	79.3	78.1	78.9	78.4	77.5	78.2	79.7	81.0	81.1	81.1	83.7	+2.6
Narcotics other than heroin	1.3	1.7	1.7	2.1	3.4	2.5	2.8	3.9	2.9	3.0	3.8	3.0	3.3	2.6	3.4	3.4	2.1	-1.3 s
% saying not at all	75.5	75.3	71.8	71.9	68.5	69.0	70.1	69.9	70.5	68.5	69.4	72.6	72.8	73.6	73.4	76.2	76.7	+0.5
% saying often	3.0	3.9	4.1	4.5	5.6	5.2	4.7	6.3	4.4	6.0	6.4	4.9	5.3	4.1	5.6	4.3	3.0	-1.3
Amphetamines	89.8	88.1	87.0	85.5	84.5	83.9	83.9	82.9	83.7	82.9	82.3	85.2†	78.5	79.6	78.7	81.2	83.3	+2.2
% saying not at all	1.1	1.6	1.7	2.0	2.9	2.5	2.7	3.8	2.7	2.7	4.6	2.8†	4.1	3.7	3.9	3.9	2.1	-1.7 ss
Sedatives (barbiturates) <sup>c</sup>	87.3	86.2	83.5	84.3	82.1	81.1	82.7	81.8	82.3†	76.2	77.3	79.0	77.9	79.1	78.2	80.7	80.1	-0.6
% saying not at all	1.9	1.7	1.8	2.3	3.5	3.2	2.8	3.7	3.5†	4.9	5.8	4.2	4.1	4.5	5.4	4.9	3.7	-1.3
% saying often	9.4	8.2	10.0	8.8	8.5	8.6	7.8	8.2	9.3	9.2	10.5	11.7	12.4	12.6	12.4	13.5	14.3	+0.8
Alcohol	53.1	51.9	54.0	54.0	54.5	53.9	54.5	53.5	50.2	52.7	50.8	49.0	48.2	49.1	47.8	46.4	45.4	-1.0
% saying not at all	2.630	2,730	2,581	2,608	2,407	2,595	2,541	2,312	2,153	2,147	2,162	2,454	2,456	2,469	2,372	2,448	2,332	
Approximate weighted N =																		

(Table continued on next page.)

**TABLE 9-2 (cont.)**  
**Trends in 12th Graders' Exposure to Drug Use**

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"‡" indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>The data presented here were derived from responses to questions on the drugs included in this table. "Any illicit drug" includes exposure to any of the drugs presented in this table with the exception of alcohol. In 2001 the question text was changed from "other psychedelics" to "other hallucinogens" and "shrooms" was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

<sup>b</sup>In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates" and the list of examples was changed from "downers, gooballs, redds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

<sup>d</sup>In 2001 for tranquilizers, Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

**TABLE 9-3**  
**Trends in Friends' Use of Drugs as Estimated by 8th Graders**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007- 2008	
																		change	
<i>How many of your friends would you estimate . . .</i>																			
Smoke marijuana																			
% saying any	21.9	25.1	30.8	41.1	46.1	50.8	50.8	46.7	44.4	42.6	46.1	42.3	40.9	38.3	38.7	38.1	35.6	37.5	+1.9
% saying most or all	3.3	4.1	6.0	10.5	12.7	15.2	13.8	12.6	12.1	10.4	11.4	10.0	9.4	7.8	9.1	8.9	7.7	8.0	+0.3
Use inhalants																			
% saying any	20.5	23.1	26.3	29.2	32.1	32.3	32.9	31.9	31.0	29.0	29.3	25.7	27.8	27.4	28.1	28.8	25.8	27.1	+1.3
% saying most or all	2.4	2.9	3.7	4.2	5.0	5.2	4.8	4.5	4.7	4.0	3.9	3.4	4.0	4.0	4.2	4.5	3.6	3.6	-0.1
Take crack																			
% saying any	8.6	10.9	12.5	15.2	17.7	18.5	19.3	19.2	18.5	18.1	18.9	17.4	17.2	15.8	16.7	17.0	15.2	16.1	+0.9
% saying most or all	0.9	1.0	1.3	1.6	1.6	2.0	1.8	1.9	1.9	1.6	2.0	1.6	1.7	1.7	1.7	1.8	1.6	1.4	-0.1
Take cocaine powder																			
% saying any	8.4	10.7	12.1	14.3	16.2	17.4	17.6	17.1	16.7	16.1	16.3	14.8	14.9	13.8	15.0	15.6	13.4	14.6	+1.2
% saying most or all	0.9	1.1	1.3	1.7	1.6	1.7	1.6	2.0	1.8	1.6	1.8	1.7	1.6	1.6	1.5	1.8	1.5	1.4	0.0
Take heroin																			
% saying any	6.1	7.3	8.9	10.3	11.6	12.0	12.2	11.8	11.4	10.9	11.2	10.5	10.2	9.4	9.8	10.3	8.9	9.3	+0.4
% saying most or all	0.7	0.9	0.9	1.3	1.3	1.4	1.2	1.3	1.3	1.1	1.4	1.3	1.0	1.2	1.1	1.1	1.1	1.1	0.0
Drink alcoholic beverages																			
% saying any	72.1	76.4	75.7	77.0	75.9	77.1	75.8	74.6	73.4	72.7	72.3	68.1	65.4	65.9	63.9	64.7	63.7	64.1	+0.4
% saying most or all	21.0	23.7	25.5	27.4	27.5	28.8	25.9	25.0	24.9	23.6	22.7	20.1	19.6	19.3	17.6	19.1	17.6	17.9	+0.3
Get drunk at least once a week																			
% saying any	42.8	48.0	48.0	50.3	48.7	51.2	48.3	47.6	48.7	46.6	45.5	42.3	40.6	39.8	38.4	40.5	39.5	39.3	-0.2
% saying most or all	7.2	8.4	9.0	10.6	9.9	10.9	9.3	8.8	9.6	9.1	8.6	7.4	7.7	7.1	6.6	6.6	6.6	6.2	-0.4
Smoke cigarettes																			
% saying any	67.7	72.4	73.8	76.1	76.1	78.1	76.9	75.2	70.9	67.9	64.2	58.6	56.0	54.0	52.2	51.7	49.7	49.6	-0.1
% saying most or all	11.8	14.4	16.7	19.0	20.5	22.5	19.7	19.4	16.4	13.0	10.6	9.0	8.9	8.1	7.5	7.5	6.1	5.7	-0.3
Use smokeless tobacco																			
% saying any	36.5	37.5	37.3	38.6	37.8	37.9	34.5	32.7	30.0	28.0	27.3	24.5	25.1	24.9	23.3	25.5	24.6	25.1	+0.5
% saying most or all	3.8	4.2	3.8	4.8	4.7	5.1	3.5	3.5	3.5	2.6	2.9	2.5	2.9	3.0	2.5	2.7	2.6	2.7	+0.1
Approximate <i>wtd. N</i> =	16,000	16,600	16,500	15,800	15,300	16,100	16,100	16,000	10,100	10,000	9,700	9,200	10,400	10,500	10,400	10,200	9,900	9,600	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

In 2000, this set of questions was removed from one of the four forms in which it appeared, which resulted in a slight adjustment in the average change scores that year. To correct for this,

although this set of questions was asked in all four forms in 1999, the data presented here for 1999 are from only the three forms in which the questions are still asked.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

**TABLE 9-4**  
**Trends in Friends' Use of Drugs as Estimated by 10th Graders**

(Entries are percentages.)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change	
<i>How many of your friends would you estimate . . .</i>																				
Smoke marijuana																				
% saying any	48.3	45.9	52.7	63.4	68.5	73.5	73.4	70.4	70.5	70.6	72.8	69.6	68.0	66.2	66.2	66.3	66.4	64.6	-1.8	
% saying most or all	7.9	8.0	11.2	18.0	21.3	26.4	25.0	23.5	23.3	22.4	23.8	23.3	21.8	19.2	19.5	18.5	17.8	18.9	+1.1	
Use inhalants																				
% saying any	17.3	17.8	21.1	23.6	25.3	25.7	23.7	22.8	21.4	20.6	21.4	19.3	18.8	18.4	18.7	20.6	21.2	21.1	-0.2	
% saying most or all	1.4	1.5	1.8	2.0	2.1	2.2	2.2	2.5	2.1	2.2	1.8	2.1	1.9	1.7	2.0	2.2	2.1	2.2	+0.1	
Take crack																				
% saying any	13.2	13.2	15.1	17.3	19.8	21.4	22.0	22.2	21.2	21.1	21.4	21.0	19.3	18.7	19.6	20.5	20.1	19.4	-0.6	
% saying most or all	0.8	0.7	0.9	1.0	1.2	1.2	1.5	1.7	1.6	1.5	1.5	1.8	1.5	1.4	1.5	1.3	1.5	1.4	-0.1	
Take cocaine powder																				
% saying any	14.7	14.1	15.4	17.3	19.7	21.7	22.5	23.0	21.0	21.2	20.9	20.5	18.5	19.0	19.8	20.9	21.2	20.2	-1.0	
% saying most or all	0.8	0.8	0.8	1.1	1.3	1.4	1.7	2.0	1.9	1.7	1.5	2.0	1.5	1.4	1.5	1.6	1.5	1.4	-0.2	
Take heroin																				
% saying any	7.8	8.1	9.3	10.5	11.1	11.7	11.8	11.5	10.7	10.1	11.4	10.3	9.9	9.0	9.8	10.1	9.9	10.6	+0.7	
% saying most or all	0.6	0.6	0.7	0.6	0.8	0.7	0.9	1.0	1.0	0.8	0.9	1.2	1.0	0.8	1.0	0.9	0.9	1.1	+0.2	
Drink alcoholic beverages																				
% saying any	92.9	91.3	91.8	92.8	92.2	92.4	92.2	91.4	91.4	92.0	91.3	89.4	87.5	87.7	88.0	88.1	88.2	87.0	-1.2	
% saying most or all	49.6	48.2	49.9	50.3	50.7	53.4	50.7	50.1	50.3	52.0	50.2	45.7	44.9	44.5	43.9	46.2	44.7	41.3	-3.4 s	
Get drunk at least once a week																				
% saying any	75.1	72.6	74.5	76.9	75.3	76.7	76.2	74.9	75.9	77.3	76.4	73.1	72.1	71.1	71.1	72.8	73.5	70.1	-3.3 s	
% saying most or all	19.3	18.6	20.2	20.3	20.6	23.1	21.8	21.2	22.8	23.5	22.4	19.9	20.9	19.0	18.3	20.5	19.7	16.1	-3.6 ss	
Smoke cigarettes																				
% saying any	81.2	82.0	85.4	86.3	88.0	89.3	88.1	87.1	85.4	84.6	82.7	77.2	75.1	73.9	73.6	72.5	72.1	70.7	-1.4	
% saying most or all	18.2	18.7	22.8	24.7	27.8	32.8	29.3	27.8	25.9	21.2	19.3	15.8	14.2	13.4	12.6	13.0	11.8	10.5	-1.3	
Use smokeless tobacco																				
% saying any	53.1	53.1	57.5	58.4	57.9	55.0	52.0	47.5	44.8	42.3	45.5	41.8	38.6	37.6	41.5	45.3	44.5	41.6	-2.9	
% saying most or all	7.5	7.3	7.7	7.6	7.3	6.0	6.4	5.8	4.7	4.6	5.2	5.2	4.4	4.5	5.6	5.8	5.1	4.8	-0.4	
Approximate <i>wtd. N</i> =	14,300	14,000	14,600	15,000	16,100	14,800	14,700	14,400	8,700	9,100	9,000	9,100	10,100	10,500	10,400	10,500	10,300	9,700		

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

In 2000, this set of questions was removed from one of the four forms in which it appeared, which resulted in a slight adjustment in the average change scores that year. To correct for this,

although this set of questions was asked in all four forms in 1999, the data presented here for 1999 are from only the three forms in which the questions are still asked.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

**TABLE 9-5a**  
**Trends in Friends' Use of Drugs as Estimated by 12th Graders**

(Entries are percentages.)



	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
<i>How many of your friends would you estimate . . .</i>																		
Take any illicit drug <sup>a</sup>	85.8	84.6	86.9	87.5	89.0	87.5	85.4	86.3	82.6	81.0	82.4	82.2	81.7	79.1	76.9	71.0	69.1	
% saying any	31.9	31.7	33.2	36.3	37.0	32.5	29.8	26.5	23.8	20.9	22.7	21.5	18.6	15.8	15.7	11.6	11.7	
Take any illicit drug other than marijuana <sup>a</sup>	66.7	55.5	57.5	56.4	61.3	62.4	63.3	64.7	61.2	61.3	61.8	63.3	62.4	56.5	56.2	50.1	46.3	
% saying most or all	10.6	8.9	7.7	8.5	10.4	11.1	11.9	10.9	11.0	10.3	10.4	10.3	9.2	6.9	7.7	5.1	4.6	
Smoke marijuana	83.0	82.9	85.9	86.1	87.6	86.4	83.0	84.4	80.3	77.7	79.5	79.2	78.4	75.3	72.5	68.3	65.8	
% saying most or all	30.3	30.6	32.3	35.3	35.5	31.3	27.7	23.8	21.7	18.3	19.8	18.2	15.8	13.6	13.4	10.1	10.0	
Use inhalants	24.3	18.6	18.9	20.0	19.1	17.8	16.5	18.4	16.1	19.3	21.2	22.4	24.7	20.8	22.1	20.0	19.2	
% saying any	1.1	1.1	1.0	1.1	1.1	1.2	0.9	1.3	1.1	1.1	1.5	2.0	1.9	1.2	1.9	1.0	0.7	
% saying most or all																		
Use nitrites																		
% saying any					21.6	19.0	17.4	17.5	14.5	15.0	15.6	18.0	18.3	13.6	13.3	10.4	8.9	
% saying most or all					1.9	1.3	1.2	0.9	0.7	1.2	1.0	1.2	1.3	0.7	0.9	0.6	0.4	
Take LSD	36.5	30.6	31.9	29.9	28.9	28.1	28.5	27.8	24.0	23.9	24.4	24.5	25.3	24.1	25.2	25.0	23.4	
% saying any	2.7	2.8	3.0	2.0	1.9	1.8	2.2	2.4	1.4	2.0	1.5	1.8	1.6	1.5	2.4	1.9	1.7	
Take other hallucinogens <sup>b</sup>	41.2	30.3	31.4	29.2	28.2	28.2	26.3	25.6	22.1	21.3	22.0	22.3	21.7	17.8	18.1	15.9	15.1	
% saying any	4.7	3.0	2.8	2.0	2.2	2.2	2.1	1.9	1.6	1.9	1.4	1.3	1.2	0.9	1.4	1.0	0.8	
Take PCP																		
% saying any					27.8	22.2	17.2	17.3	14.2	14.2	15.9	16.1	15.5	13.5	14.7	13.0	12.0	
% saying most or all					1.7	1.6	0.9	0.9	1.1	1.1	1.2	1.2	1.1	0.8	1.2	0.5	0.5	
Take ecstasy (MDMA)																		
% saying any																12.4	11.9	
% saying most or all																2.2	1.7	
Take cocaine	33.6	28.8	30.1	33.2	38.9	41.6	40.1	40.7	37.6	38.9	43.8	45.6	43.7	37.7	37.4	31.7	26.8	
% saying any	3.4	3.2	3.6	4.0	6.0	6.1	6.3	4.9	5.1	5.1	5.8	6.2	5.1	3.4	3.7	2.1	1.5	
% saying most or all																		
Take crack																		
% saying any													27.4	25.4	26.1	19.2	17.6	
% saying most or all													2.2	1.1	2.1	0.6	0.6	
Take cocaine powder																		
% saying any																25.3	24.6	
% saying most or all																2.3	2.5	
Approximate weighted N =	2,640	2,697	2,788	3,247	2,933	2,987	3,307	3,303	3,095	2,945	2,971	2,798	2,948	2,961	2,587	2,361	2,339	

(Table continued on next page.)

**TABLE 9-5a (cont.)**  
**Trends in Friends' Use of Drugs as Estimated by 12th Graders**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007- 2008 change
<i>How many of your friends would you estimate . . .</i>																	
Take any illicit drug <sup>a</sup>																	
% saying any	67.3	71.0	78.3	78.6	80.6	83.4	84.6	82.0	82.0	82.8	81.8	80.7	81.2	79.8	78.8	77.7	80.1 +2.4
% saying most or all	12.0	15.5	20.3	21.7	23.8	23.7	25.9	25.5	24.5	25.2	23.1	23.5	23.0	20.2	20.9	21.7	21.3 -0.4
Take any illicit drug other than marijuana <sup>a</sup>																	
% saying any	47.1	48.7	53.7	53.7	54.5	55.1	55.6	51.2	52.5	55.0	54.3	50.0	51.4	51.3	51.0	50.0	49.3 -0.7
% saying most or all	5.3	7.1	7.1	7.7	8.9	7.0	8.9	7.4	7.4	7.0	6.1	6.7	7.3	6.7	5.3	6.5	5.3 -1.2
Smoke marijuana																	
% saying any	63.1	67.4	75.6	76.1	78.0	81.4	83.2	80.7	80.5	81.2	79.4	78.9	79.5	77.4	76.4	74.8	78.2 +3.4 s
% saying most or all	10.3	13.9	18.9	20.7	22.2	22.5	23.8	24.2	23.2	24.0	21.4	21.7	21.1	17.9	19.6	19.2	19.9 +0.7
Use inhalants																	
% saying any	22.2	23.7	26.5	27.5	27.2	27.4	25.9	21.6	23.5	22.2	21.0	17.5	17.9	18.1	19.0	17.9	18.0 +0.1
% saying most or all	1.8	1.8	2.0	2.0	2.4	1.9	2.7	1.8	1.4	1.4	1.2	1.1	1.2	2.0	1.2	1.6	1.1 -0.6
Use nitrites																	
% saying any	9.0	10.7	10.0	10.7	11.2	11.9	12.9	10.9	11.0	11.9	11.2	8.5	9.4	9.1	8.1	7.7	7.3 -0.4
% saying most or all	0.7	0.7	0.8	0.8	0.8	0.7	1.0	0.7	1.0	0.6	0.8	1.0	1.2	1.0	0.5	0.7	0.5 -0.2
Take LSD																	
% saying any	28.1	31.3	34.1	36.9	37.9	36.5	36.8	32.2	31.9	32.2	28.6	21.9	23.5	19.5	18.7	18.3	20.9 +2.7
% saying most or all	2.4	3.8	4.2	4.8	5.0	3.7	4.7	3.9	3.1	2.9	1.7	1.9	1.5	1.5	0.8	1.2	1.1 0.0
Take other hallucinogens <sup>b</sup>																	
% saying any	17.0	19.3	21.4	23.8	26.4	26.3	27.4	22.5	24.0†	35.4	33.6	30.1	31.9	31.0	30.1	30.1	29.4 -0.8
% saying most or all	1.0	1.7	2.2	2.2	2.3	2.6	3.1	2.4	2.4†	2.9	2.3	2.4	2.6	2.2	1.7	1.7	1.8 +0.1
Take PCP																	
% saying any	12.7	15.6	15.5	18.3	20.3	19.7	20.2	16.8	17.5	19.1	17.2	13.6	11.8	10.1	10.6	9.4	9.4 0.0
% saying most or all	0.9	1.9	1.2	1.2	1.3	1.4	1.6	1.5	1.7	1.3	1.0	1.5	1.1	1.0	0.5	0.8	0.5 -0.2
Take ecstasy (MDMA)																	
% saying any	10.7	12.8	15.9	20.7	24.2	27.7	24.5	26.7	37.3	41.9	38.0	34.2	28.9	23.1	23.1	23.6	24.7 +1.1
% saying most or all	2.1	1.2	1.7	2.8	3.0	2.6	2.5	2.7	4.8	5.2	3.7	2.7	3.2	2.5	1.9	2.1	2.4 +0.3
Take cocaine																	
% saying any	26.3	24.5	26.1	24.8	28.1	28.5	31.2	27.8	27.2	27.1	26.8	23.8	29.3	28.1	29.7	29.7	25.2 -4.5 ss
% saying most or all	1.5	2.1	1.5	2.0	2.2	2.0	3.2	2.9	2.0	1.7	1.7	2.4	2.3	2.3	1.9	2.1	1.2 -0.9
Take crack																	
% saying any	17.8	17.9	20.0	19.2	21.6	22.2	24.4	19.0	21.4	23.4	21.5	18.7	22.5	22.9	22.3	21.8	19.1 -2.8
% saying most or all	0.7	0.9	1.0	1.1	0.9	1.1	1.7	1.5	1.4	0.8	0.8	1.4	1.6	1.6	1.0	1.3	1.1 -0.2
Take cocaine powder																	
% saying any	19.7	18.1	20.7	19.2	22.8	24.8	22.9	22.0	21.3	20.1	22.4	23.2	25.4	23.2	22.8	22.3	22.6 +0.3
% saying most or all	2.0	1.6	1.9	1.7	1.9	2.0	1.9	1.9	1.8	1.5	1.9	1.9	3.3	1.7	1.7	1.8	1.5 -0.3
Approximate weighted N =	2,373	2,410	2,337	2,379	2,156	2,292	2,313	2,060	1,838	1,923	1,968	2,233	2,271	2,266	2,217	2,253	2,125

(List of drugs continued in Table 9-5b.)

**TABLE 9-5b**  
**Trends in Friends' Use of Drugs as Estimated by 12th Graders**

(Entries are percentages.)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991		
<i>How many of your friends would you estimate . . .</i>																			
Take heroin																			
% saying any	15.2	13.6	12.9	14.3	12.9	13.0	12.5	13.2	12.0	13.0	14.5	15.3	13.9	12.4	14.0	11.4	11.4	11.4	
% saying most or all	0.7	0.8	0.7	0.9	0.5	1.0	0.5	0.7	0.8	0.8	0.9	1.1	0.9	0.7	1.1	0.4	0.4	0.4	
Take other narcotics																			
% saying any	28.8	24.1	23.7	23.2	23.1	22.4	23.1	23.9	20.8	21.4	22.8	21.8	23.2	19.2	19.2	17.2	13.7	13.7	
% saying most or all	2.1	2.2	1.7	1.4	1.5	1.7	1.5	1.4	1.4	1.6	1.4	1.8	1.4	1.2	1.4	0.9	0.5	0.5	
Take amphetamines																			
% saying any	51.0	42.2	41.3	40.7	40.7	43.9	48.8	50.6	46.1	45.1	43.3	41.8	39.5	33.4	33.5	28.7	24.3	24.3	
% saying most or all	5.9	5.6	4.1	4.7	4.3	4.8	6.4	5.4	5.1	4.5	3.4	3.4	2.6	1.9	2.6	1.9	1.3	1.3	
Take crystal methamphetamine (ice)																			
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.1	10.2
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.7	1.0
Take sedatives (barbiturates) <sup>c</sup>																			
% saying any	45.0	36.3	34.7	32.5	30.7	30.5	31.1	31.3	28.3	26.6	27.1	25.6	24.3	19.7	20.3	17.4	14.8	14.8	14.8
% saying most or all	4.3	3.5	3.0	2.3	2.1	2.6	2.1	1.8	1.7	1.7	1.6	1.4	1.1	1.1	1.4	0.6	0.5	0.5	0.5
Take quaaludes																			
% saying any	31.7	27.0	28.3	27.0	27.7	32.5	35.0	35.5	29.7	26.1	26.0	23.5	22.0	17.1	16.6	14.3	12.0	12.0	12.0
% saying most or all	3.0	1.8	2.9	2.2	2.8	3.6	3.6	2.6	2.6	1.7	1.3	1.6	1.0	1.0	1.3	0.8	0.5	0.5	0.5
Take tranquilizers <sup>d</sup>																			
% saying any	45.6	36.3	37.8	34.8	32.0	29.7	29.5	29.9	26.7	26.6	25.8	24.2	23.3	19.9	18.0	14.9	13.5	13.5	13.5
% saying most or all	3.5	3.1	2.7	1.8	2.0	1.9	1.4	1.1	1.2	1.5	1.2	1.3	1.0	0.7	1.5	0.5	0.4	0.4	0.4
Drink alcoholic beverages																			
% saying any	96.7	95.1	94.4	94.9	95.4	96.1	94.7	95.7	95.5	94.6	94.6	95.6	95.4	95.7	95.1	92.0	91.2	91.2	91.2
% saying most or all	68.4	64.7	66.2	68.9	68.5	68.9	67.7	69.7	69.0	66.6	66.0	68.0	71.8	68.1	67.1	60.5	58.6	58.6	58.6
Get drunk at least once a week																			
% saying any	82.4	80.7	81.0	82.0	83.3	83.1	81.8	83.1	83.9	81.5	82.5	84.7	85.6	84.4	82.8	79.2	79.8	79.8	79.8
% saying most or all	30.1	26.6	27.6	30.2	32.0	30.1	29.4	29.9	31.0	29.6	29.9	31.8	31.3	29.6	31.1	27.5	29.7	29.7	29.7
Smoke cigarettes																			
% saying any	95.2	93.7	93.7	93.1	92.1	90.6	88.5	88.3	87.0	86.0	87.0	87.8	88.3	87.7	86.5	84.9	85.7	85.7	85.7
% saying most or all	41.5	36.7	33.9	32.2	28.6	23.3	22.4	24.1	22.4	19.2	22.8	21.5	21.0	20.2	23.1	21.4	21.8	21.8	21.8
Take steroids																			
% saying any	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
% saying most or all	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Approximate weighted N =</i>	2,640	2,697	2,788	3,247	2,933	2,987	3,307	3,303	3,095	2,945	2,971	2,798	2,948	2,961	2,587	2,361	2,339	2,339	2,339

(Table continued on next page.)



**TABLE 9-5b (cont.)**  
**Trends in Friends' Use of Drugs as Estimated by 12th Graders**

(Entries are percentages.)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007- 2008 change
<i>How many of your friends would you estimate . . .</i>																	
Take heroin																	
% saying any	13.2	13.3	14.3	14.5	15.6	15.6	16.5	12.7	14.9	13.1	12.9	10.3	12.7	13.1	12.8	12.9	11.2 -1.7
% saying most or all	0.7	1.1	1.0	1.1	0.9	0.8	1.3	1.0	1.1	0.9	0.7	0.9	0.9	1.1	0.8	1.4	0.7 -0.8
Take other narcotics																	
% saying any	14.9	16.1	18.5	19.5	21.8	22.2	24.8	22.9	23.1	24.0	27.5	21.6	24.6	21.4	23.0	20.7	20.6 -0.1
% saying most or all	1.1	1.2	1.0	1.6	1.5	1.4	2.9	1.8	2.0	2.0	2.1	2.4	2.4	1.9	1.9	2.6	1.3 -1.3 s
Take amphetamines																	
% saying any	24.3	27.5	28.1	30.3	32.2	32.7	33.8	30.8	32.9	33.2	34.4	28.1	31.4	28.8	29.0	27.4	27.3 -0.1
% saying most or all	1.3	2.0	1.8	2.0	2.8	2.4	3.4	2.8	3.1	2.2	2.4	2.1	2.9	2.2	2.0	2.4	1.8 -0.6
Take crystal methamphetamine (ice)																	
% saying any	8.9	9.4	11.8	12.9	15.9	18.6	16.8	15.7	16.9	17.0	17.5	16.2	17.8	14.3	13.4	11.9	10.9 -1.0
% saying most or all	1.5	1.2	1.5	1.7	1.5	2.3	2.1	1.1	2.0	1.6	2.0	1.8	3.0	1.9	1.2	0.8	1.4 +0.6
Take sedatives (barbiturates) <sup>c</sup>																	
% saying any	16.4	17.8	18.2	17.8	21.6	20.4	22.8	20.9	21.6	22.1	25.3	18.1†	25.2	22.3	22.5	20.8	19.8 -1.0
% saying most or all	0.6	1.0	1.1	1.4	1.6	1.1	2.5	1.4	1.7	1.1	1.7	1.9†	2.0	1.8	1.3	1.6	1.3 -0.4
Take quaaludes																	
% saying any	13.1	14.2	14.2	15.5	18.1	16.1	17.4	15.5	16.2	17.8	18.0	14.2	16.6	13.6	13.4	13.6	11.2 -2.4
% saying most or all	0.8	1.1	1.1	1.3	1.7	1.1	2.0	1.4	1.4	1.2	1.2	1.2	1.6	1.3	1.3	1.6	0.8 -0.9 s
Take tranquilizers <sup>d</sup>																	
% saying any	14.6	15.5	16.5	15.8	18.1	17.9	19.7	16.4	19.4	18.6	21.2	17.2	18.3	16.9	15.3	15.5	15.0 -0.5
% saying most or all	0.7	0.9	0.9	1.1	1.4	0.8	2.3	1.3	2.1	1.3	1.6	1.5	1.7	1.6	1.2	1.8	1.2 -0.6
Drink alcoholic beverages																	
% saying any	90.5	88.9	90.1	90.9	89.6	90.7	91.2	90.2	89.8	89.2	88.0	87.9	87.8	87.2	86.0	85.1	85.2 +0.1
% saying most or all	56.9	57.0	59.6	56.4	56.4	60.9	61.0	58.2	57.2	59.2	53.7	53.1	53.9	55.3	52.4	52.0	51.6 -0.4
Get drunk at least once a week																	
% saying any	79.9	79.2	81.4	78.9	78.5	82.4	81.1	81.5	79.5	79.6	78.3	77.3	79.0	78.7	77.4	75.5	76.2 +0.7
% saying most or all	28.6	27.6	28.4	27.4	29.0	30.9	31.7	30.1	32.4	32.7	28.3	27.1	27.6	28.5	27.7	27.0	25.2 -1.8
Smoke cigarettes																	
% saying any	84.4	84.8	88.1	87.9	88.3	89.9	89.5	89.3	87.2	86.8	85.4	83.3	83.7	81.8	81.4	77.1	78.4 +1.3
% saying most or all	21.4	25.0	25.3	27.5	30.4	34.4	33.9	31.1	28.2	25.0	23.0	19.6	20.6	16.7	15.8	16.4	13.9 -2.5
Take steroids																	
% saying any	21.5	19.0	18.1	19.5	17.9	18.9	18.3	20.0	19.8	21.7	21.6	21.1	22.8	19.1	19.8	20.1	19.4 -0.7
% saying most or all	1.7	0.9	1.2	1.3	0.8	1.7	1.4	0.9	1.9	1.2	1.5	1.5	2.6	1.5	0.9	1.2	1.3 +0.1
Approximate weighted N =	2,373	2,410	2,337	2,379	2,156	2,292	2,313	2,060	1,838	1,923	1,968	2,233	2,271	2,266	2,217	2,253	2,125

(Table continued on next page.)

**TABLES 9-5a and 9-5b (cont.)**  
**Trends in Friends' Use of Drugs as Estimated by 12th Graders**

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"±" indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These estimates were derived from responses to the questions listed. "Any illicit drug" includes all drugs listed except ecstasy (MDMA), cocaine powder, crystal methamphetamine (ice), alcohol, get drunk, cigarettes, and steroids. PCP and the nitrites were not included from 1975 to 1978. Crack was not included from 1975 to 1986.

<sup>b</sup>In 2001 the question text was changed from "other psychedelics" to "other hallucinogens" and "shrooms" was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

<sup>c</sup>In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates" and the list of examples was changed from "downers, goofballs, redds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

<sup>d</sup>In 2001 for tranquilizers, Xanax was added to the list of examples. This change likely explains the discontinuity in the 2001 results.

**TABLE 9-6**  
**Trends in Availability of Drugs as Perceived by 8th Graders**

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Percentage saying "fairly easy" or "very easy" to get <sup>a</sup>																			2007-2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008			
Marijuana	42.3	43.8	49.9	52.4	54.8	54.2	50.6	48.4	47.0	48.1	46.6	44.8	41.0	41.1	39.6	37.4	39.3	+1.9		
LSD	21.5	21.8	21.8	23.5	23.6	22.7	19.3	18.3	17.0	17.6	15.2	14.0	12.3	11.5	10.8	10.5	10.9	+0.4		
PCP <sup>b</sup>	18.0	18.5	17.7	19.0	19.6	19.2	17.5	17.1	16.0	15.4	14.1	13.7	11.4	11.0	10.5	9.5	10.1	+0.6		
Ecstasy (MDMA) <sup>b</sup>	—	—	—	—	—	—	—	—	—	23.8	22.8	21.6	16.6	15.6	14.5	13.4	14.1	+0.7		
Crack	25.6	25.9	26.9	28.7	27.9	27.5	26.5	25.9	24.9	24.4	23.7	22.5	20.6	20.8	20.9	19.7	20.2	+0.5		
Cocaine powder	25.7	25.9	26.4	27.8	27.2	26.9	25.7	25.0	23.9	23.9	22.5	21.6	19.4	19.9	20.2	19.0	19.5	+0.4		
Heroin	19.7	19.8	19.4	21.1	20.6	19.8	18.0	17.5	16.5	16.9	16.0	15.6	14.1	13.2	13.0	12.6	13.3	+0.7		
Narcotics other than Heroin <sup>b</sup>	19.8	19.0	18.3	20.3	20.0	20.6	17.1	16.2	15.6	15.0	14.7	15.0	12.4	12.9	13.0	11.7	12.1	+0.4		
Amphetamines	32.2	31.4	31.0	33.4	32.6	30.6	27.3	25.9	25.5	26.2	24.4	24.4	21.9	21.0	20.7	19.9	21.3	+1.4		
Crystal methamphetamine (Ice) <sup>b</sup>	16.0	15.1	14.1	16.0	16.3	15.7	16.0	14.7	14.9	13.9	13.3	14.1	11.9	13.5	14.5	12.1	12.8	+0.7		
Sedatives (Barbiturates)	27.4	26.1	25.3	26.5	25.6	24.4	21.1	20.8	19.7	20.7	19.4	19.3	18.0	17.6	17.3	16.8	17.5	+0.7		
Tranquilizers	22.9	21.4	20.4	21.3	20.4	19.6	18.1	17.3	16.2	17.8	16.9	17.3	15.8	14.8	14.4	14.4	15.4	+0.9		
Alcohol	76.2	73.9	74.5	74.9	75.3	74.9	73.1	72.3	70.6	70.6	67.9	67.0	64.9	64.2	63.0	62.0	64.1	+2.1 ss		
Cigarettes	77.8	75.5	76.1	76.4	76.9	76.0	73.6	71.5	68.7	67.7	64.3	63.1	60.3	59.1	58.0	55.6	57.4	+1.8 s		
Steroids	24.0	22.7	23.1	23.8	24.1	23.6	22.3	22.6	22.3	23.1	22.0	21.7	19.7	18.1	17.1	17.0	16.8	-0.2		
<b>Approximate weighted N =</b>	<b>8,355</b>	<b>16,775</b>	<b>16,119</b>	<b>15,496</b>	<b>16,318</b>	<b>16,482</b>	<b>16,208</b>	<b>15,397</b>	<b>15,180</b>	<b>14,804</b>	<b>13,972</b>	<b>15,583</b>	<b>15,944</b>	<b>15,730</b>	<b>15,502</b>	<b>15,043</b>	<b>14,482</b>			

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, (5) Very easy, and (6) Can't say, drug unfamiliar.

<sup>b</sup>Beginning in 1993, data based on one of two of forms; N is one half of N indicated.

**TABLE 9-7**  
**Trends in Availability of Drugs as Perceived by 10th Graders**

	Percentage saying "fairly easy" or "very easy" to get <sup>a</sup>																	2007- 2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<i>How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?</i>																		
Marijuana	65.2	68.4	75.0	78.1	81.1	80.5	77.9	78.2	77.7	77.4	75.9	73.9	73.3	72.6	70.7	69.0	67.4	-1.7
LSD	33.6	35.8	36.1	39.8	41.0	38.3	34.0	34.3	32.9	31.2	26.8	23.1	21.6	20.7	19.2	19.0	19.3	+0.2
PCP <sup>b</sup>	23.7	23.4	23.8	24.7	26.8	24.8	23.9	24.5	25.0	21.6	20.8	19.4	18.0	18.1	15.8	15.4	14.4	-1.0
Ecstasy (MDMA) <sup>b</sup>	—	—	—	—	—	—	—	—	—	41.4	41.0	36.3	31.2	30.2	27.4	27.7	26.7	-1.1
Crack	33.7	33.0	34.2	34.6	36.4	36.0	36.3	36.5	34.0	30.6	31.3	29.6	30.6	31.0	29.9	29.0	27.2	-1.8 s
Cocaine powder	35.0	34.1	34.5	35.3	36.9	37.1	36.8	36.7	34.5	31.0	31.8	29.6	31.2	31.5	30.7	30.0	28.2	-1.8 s
Heroin	24.3	24.3	24.7	24.6	24.8	24.4	23.0	23.7	22.3	20.1	19.9	18.8	18.7	19.3	17.4	17.3	17.2	-0.1
Narcotics other than Heroin <sup>b</sup>	26.9	24.9	26.9	27.8	29.4	29.0	26.1	26.6	27.2	25.8	25.4	23.5	23.1	23.6	22.2	21.5	20.3	-1.2
Amphetamines	43.4	46.4	46.6	47.7	47.2	44.6	41.0	41.3	40.9	40.6	39.6	36.1	35.7	35.6	34.7	33.3	32.0	-1.3
Crystal methamphetamine (ice) <sup>b</sup>	18.8	16.4	17.8	20.7	22.6	22.9	22.1	21.8	22.8	19.9	20.5	19.0	19.5	21.6	20.8	18.8	15.8	-2.9 ss
Sedatives (Barbiturates)	38.0	38.8	38.3	38.8	38.1	35.6	32.7	33.2	32.4	32.8	32.4	28.8	30.0	29.7	29.9	28.2	26.9	-1.3
Tranquilizers	31.6	30.5	29.8	30.6	30.3	28.7	26.5	26.8	27.6	28.5	28.3	25.6	25.6	25.4	25.1	24.9	24.1	-0.8
Alcohol	88.6	88.9	89.8	89.7	90.4	89.0	88.0	88.2	87.7	87.7	84.8	83.4	84.3	83.7	83.1	82.6	81.1	-1.5 s
Cigarettes	89.1	89.4	90.3	90.7	91.3	89.6	88.1	88.3	86.8	86.3	83.3	80.7	81.4	81.5	79.5	78.2	76.5	-1.8 ss
Steroids	37.6	33.6	33.6	34.8	34.8	34.2	33.0	35.9	35.4	33.1	33.2	30.6	29.6	29.7	30.2	27.7	24.5	-3.2 sss
<b>Approximate weighted N =</b>	<b>7,014</b>	<b>14,652</b>	<b>15,192</b>	<b>16,209</b>	<b>14,887</b>	<b>14,856</b>	<b>14,423</b>	<b>13,112</b>	<b>13,690</b>	<b>13,578</b>	<b>13,694</b>	<b>15,255</b>	<b>15,806</b>	<b>15,636</b>	<b>15,804</b>	<b>15,511</b>	<b>14,634</b>	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

<sup>a</sup>Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>b</sup>Answer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, (5) Very easy, and (6) Can't say, drug unfamiliar.

<sup>c</sup>Beginning in 1993, data based on one of two of forms; N is one half of N indicated.



**TABLE 9-8 (cont.)  
Trends in Availability of Drugs as Perceived in Grade 12**

How difficult do you think it would be for you to get each of the following types of drugs, if you wanted some?	Percentage saying "fairly easy" or "very easy" to get <sup>a</sup>																	2007-2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Marijuana	82.7	83.0	85.5	88.5	88.7	89.6	90.4	88.9	88.5	88.5	87.2	87.1	85.8	85.6	84.9	83.9	83.9	-0.1
Amyl/butyl nitrites	25.9	25.9	26.7	26.0	23.9	23.8	25.1	21.4	23.3	22.5	22.3	19.7	20.0	19.7	18.4	18.1	16.9	-1.1
LSD	44.5	49.2	50.8	53.8	51.3	50.7	48.8	44.7	46.9	44.7	39.6	33.6	33.1	28.6	29.0	28.7	28.5	-0.2
Some other hallucinogen <sup>b</sup>	29.9	33.5	33.8	35.8	33.9	33.9	35.1	29.5	34.5 <sup>†</sup>	48.5	47.7	47.2	49.4	45.0	43.9	43.7	42.8	-0.8
PCP	31.7	31.7	31.4	31.0	30.5	30.0	30.7	26.7	28.8	27.2	25.8	21.9	24.2	23.2	23.1	21.0	20.6	-0.4
Ecstasy (MDMA)	24.2	28.1	31.2	34.2	36.9	38.8	38.2	40.1	51.4	61.5	59.1	57.5	47.9	40.3	40.3	40.9	41.9	+1.0
Cocaine	52.7	48.5	46.6	47.7	48.1	48.5	51.3	47.6	47.8	46.2	44.6	43.3	47.8	44.7	46.5	47.1	42.4	-4.7 ss
Crack	43.5	43.6	40.5	41.9	40.7	40.6	43.8	41.1	42.6	40.2	38.5	35.3	39.2	39.3	38.8	37.5	35.2	-2.3
Cocaine powder	48.0	45.4	43.7	43.8	44.4	43.3	45.7	43.7	44.6	40.7	40.2	37.4	41.7	41.6	42.5	41.2	38.9	-2.3
Heroin	34.9	33.7	34.1	35.1	32.2	33.8	35.6	32.1	33.5	32.3	29.0	27.9	29.6	27.3	27.4	29.7	25.4	-4.2 ss
Some other narcotic (including methadone)	37.1	37.5	38.0	39.8	40.0	38.9	42.8	40.8	43.9	40.5	44.0	39.3	40.2	39.2	39.6	37.3	34.9	-2.4
Amphetamines	58.8	61.5	62.0	62.8	59.4	59.8	60.8	58.1	57.1	57.1	57.4	55.0	55.4	51.2	52.9	49.6	47.9	-1.7
Crystal methamphetamine (ice)	26.0	26.6	25.6	27.0	26.9	27.6	29.8	27.6	27.8	28.3	28.3	26.1	26.7	27.2	26.7	25.1	23.3	-1.8
Sedatives (barbiturates) <sup>c</sup>	44.0	44.5	43.3	42.3	41.4	40.0	40.7	37.9	37.4	35.7	36.6	35.3 <sup>†</sup>	46.3	44.4	43.8	41.7	38.8	-2.9
Tranquilizers	40.9	41.1	39.2	37.8	36.0	35.4	36.2	32.7	33.8	33.1	32.9	29.8	30.1	25.7	24.4	23.6	22.4	-1.2
Alcohol	—	—	—	—	—	—	—	—	95.0	94.8	94.3	94.7	94.2	93.0	92.5	92.2	92.2	+0.1
Steroids	46.8	44.8	42.9	45.5	40.3	41.7	44.5	44.6	44.8	44.4	45.5	40.7	42.6	39.7	41.1	40.1	35.2	-4.9 ss
<b>Approximate weighted N = 2,586 2,670 2,526 2,552 2,340 2,517 2,520 2,215 2,095 2,120 2,138 2,391 2,169 2,161 2,131 2,420 2,276</b>																		

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

"†" indicates some change in the question. See relevant footnote for that drug.

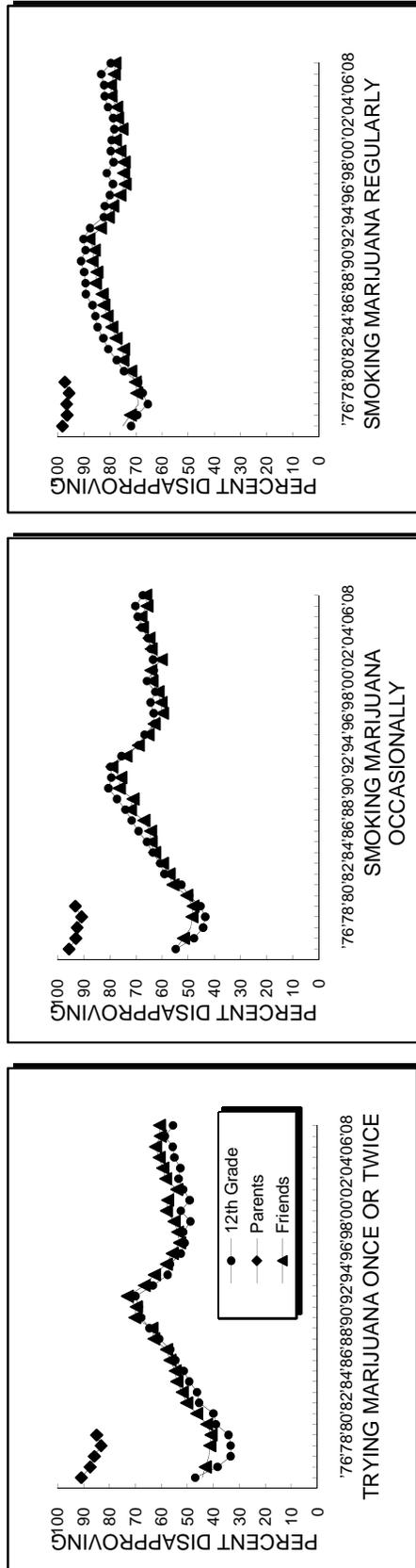
Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Answer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, and (5) Very easy.

<sup>b</sup>In 2001 the question text was changed from "other psychedelics" to "other hallucinogens" and "shrooms" was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

<sup>c</sup>In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates" and the list of examples was changed from "downers, goofballs, redds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

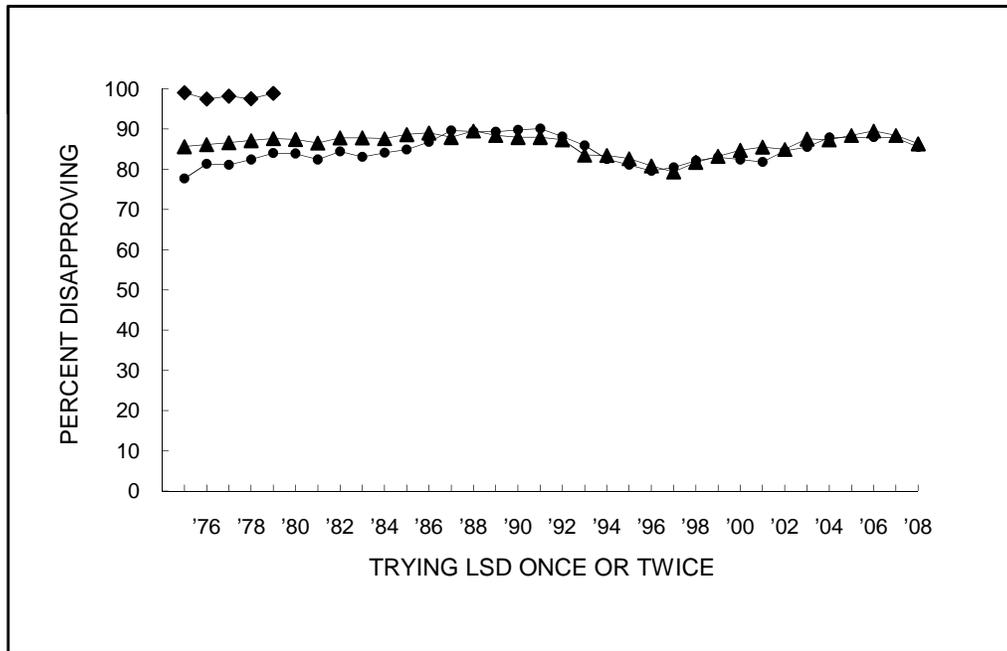
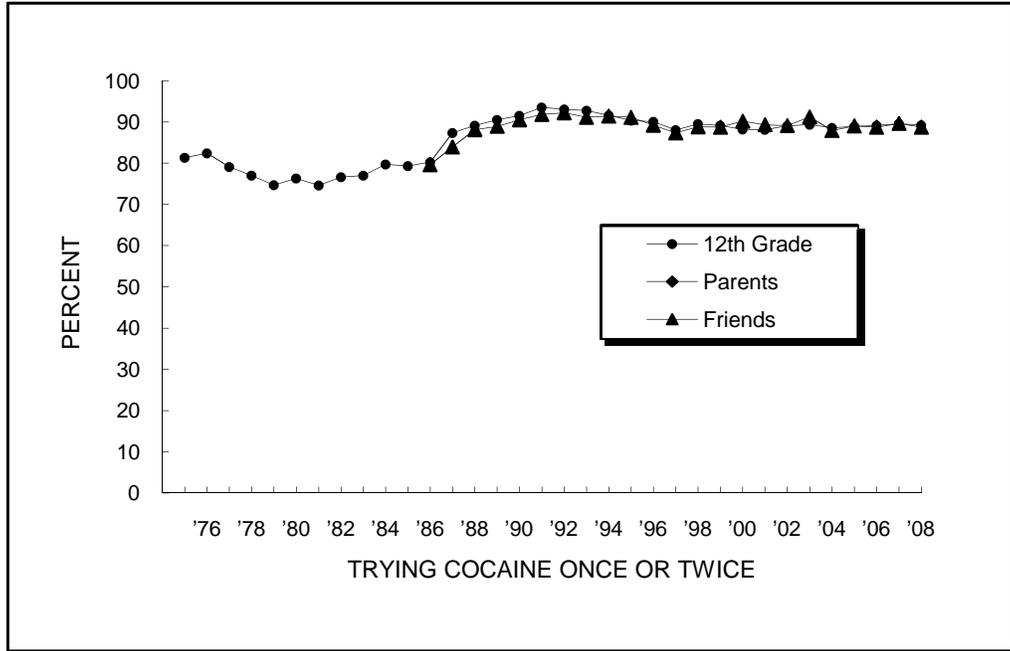
**FIGURE 9-1a**  
**Marijuana: Trends in Disapproval**  
**12th Graders, Parents, and Friends**



Source. The Monitoring the Future study, the University of Michigan.

Note. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years. (See text for discussion.)

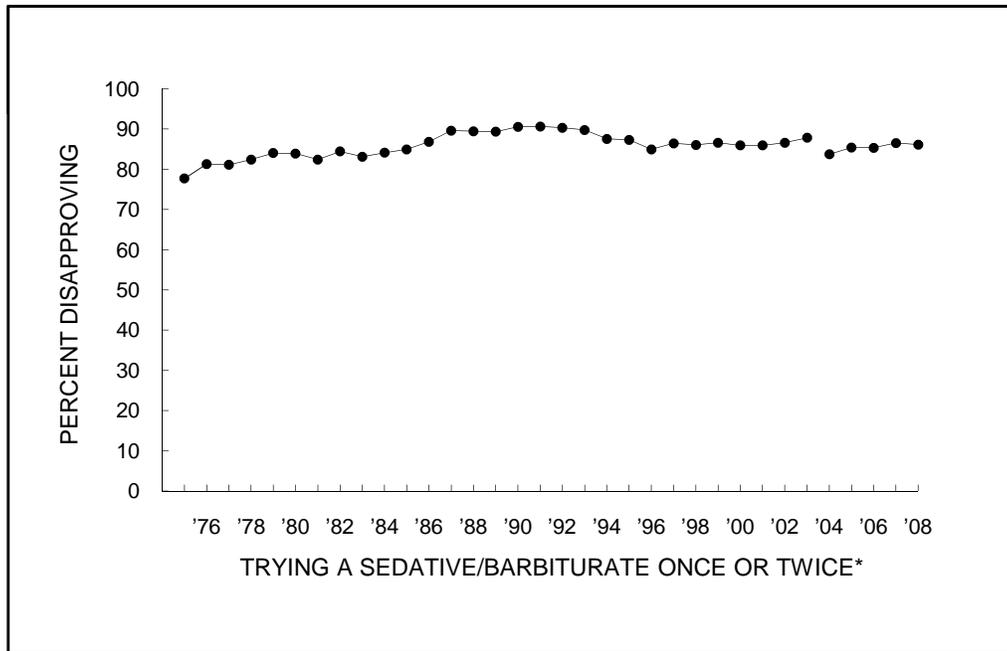
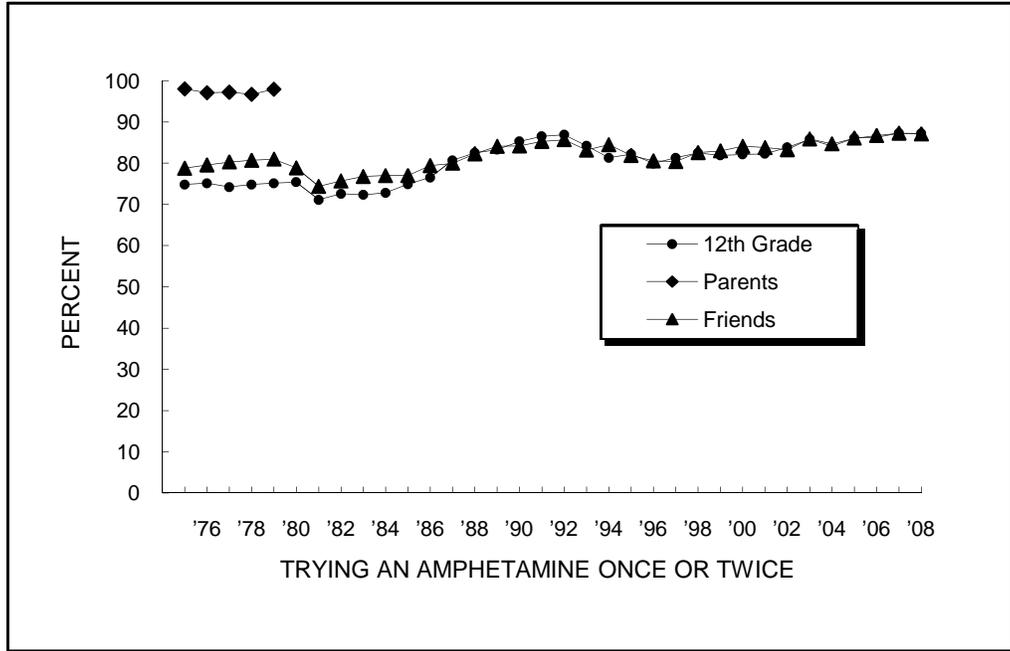
**FIGURE 9-1b**  
**Cocaine and LSD: Trends in Disapproval**  
**12th Graders, Parents, and Friends**



Source. The Monitoring the Future study, the University of Michigan.

Note. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question text between administration years.

**FIGURE 9-1c**  
**Amphetamines and Sedatives (Barbiturates): Trends in Disapproval**  
**12th Graders, Parents, and Friends**

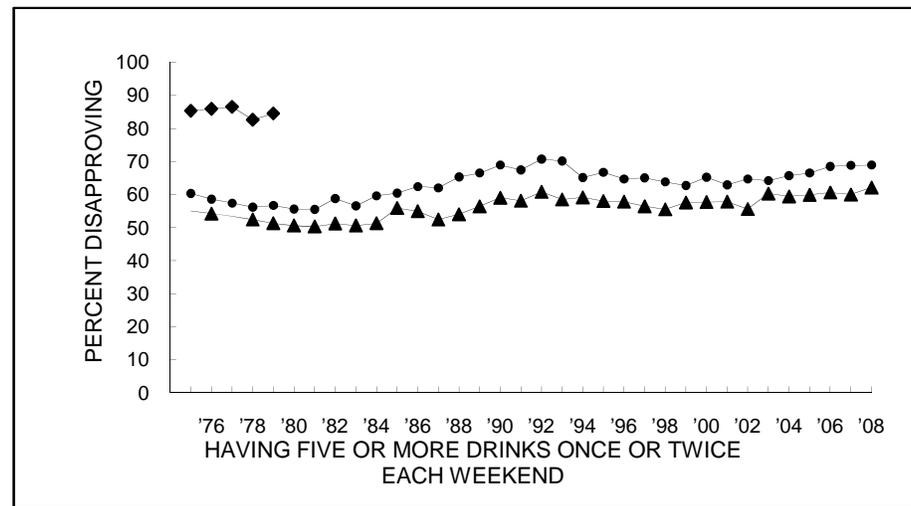
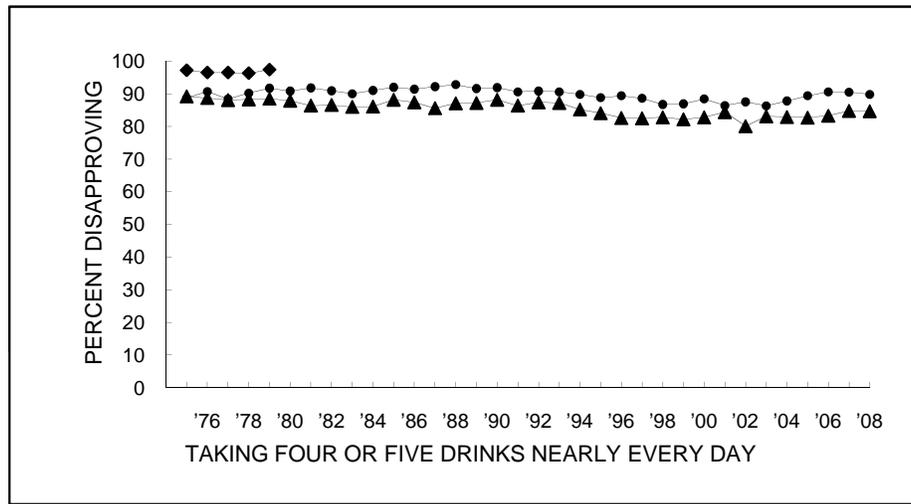
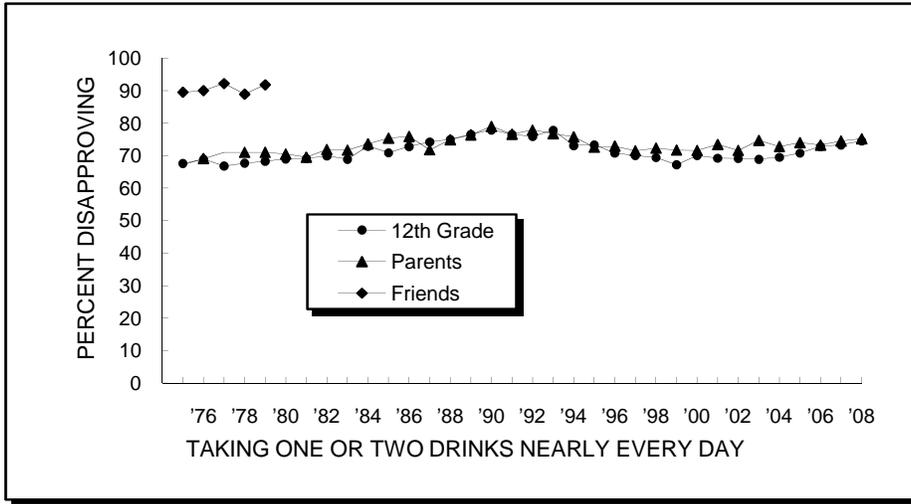


Source. The Monitoring the Future study, the University of Michigan.

Note. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question text between administration years.

\*In 2004 the question text was changed from "barbiturates" to "sedatives/barbiturates," and the list of examples was changed from "downers, goofballs, reds, yellows, etc." to just "downers." These changes likely explain the discontinuity in the 2004 results.

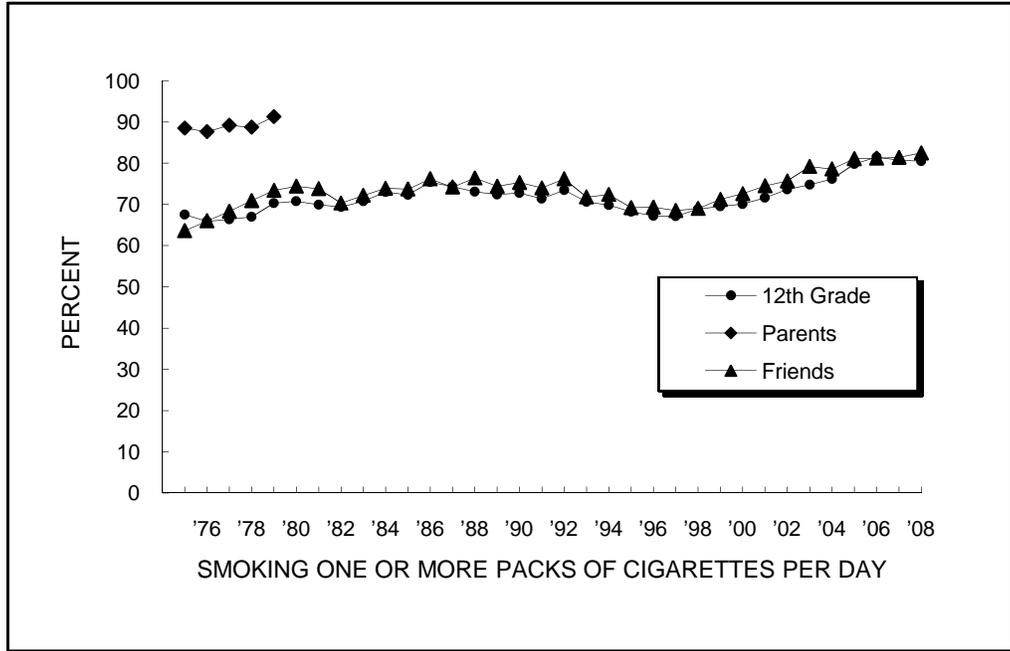
**FIGURE 9-2a**  
**Alcohol: Trends in Disapproval**  
**12th Graders, Parents, and Friends**



Source. The Monitoring the Future study, the University of Michigan.

Note. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question context between administration years.

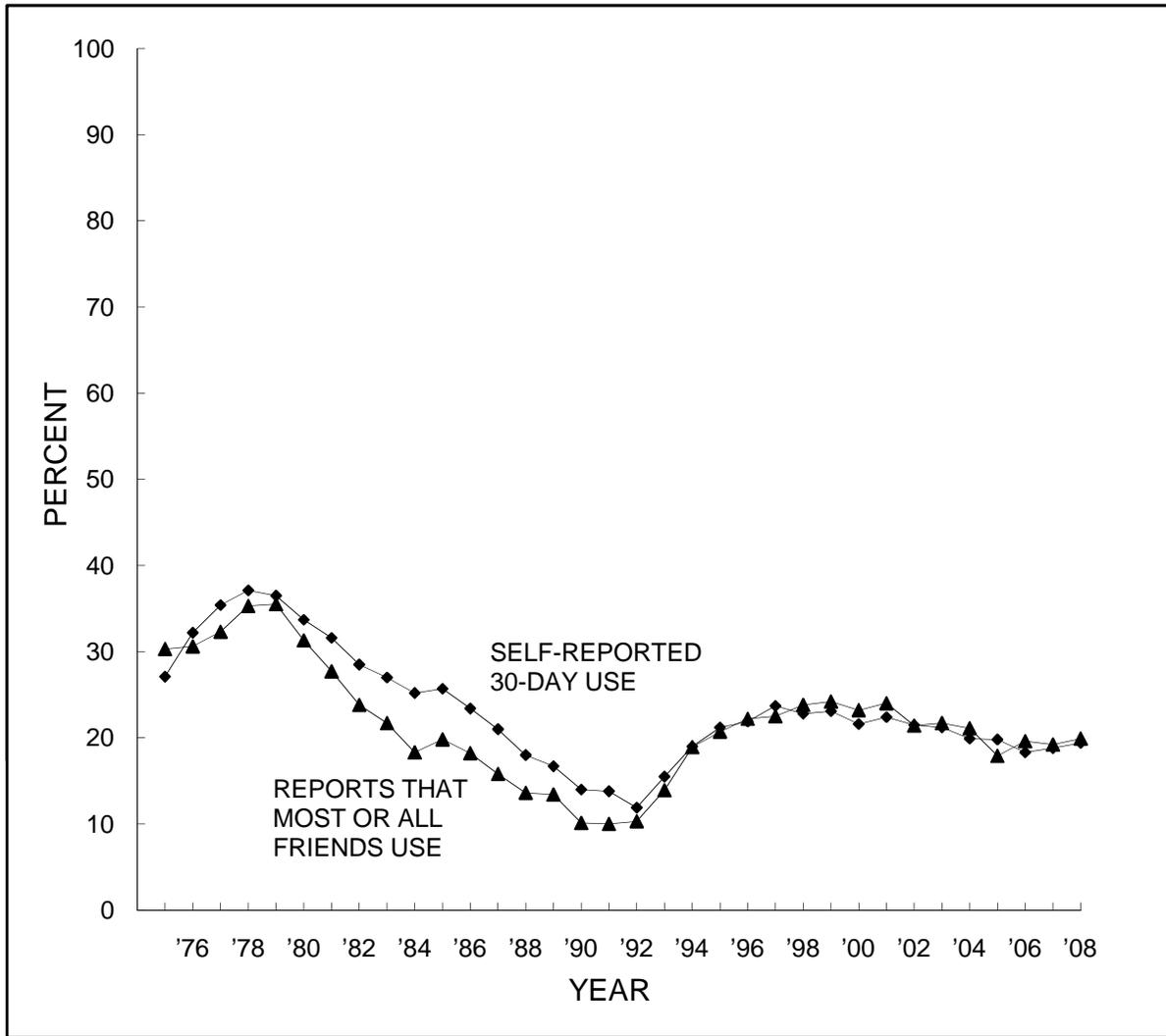
**FIGURE 9-2b**  
**Cigarettes: Trends in Disapproval**  
**12th Graders, Parents, and Friends**



Source. The Monitoring the Future study, the University of Michigan.

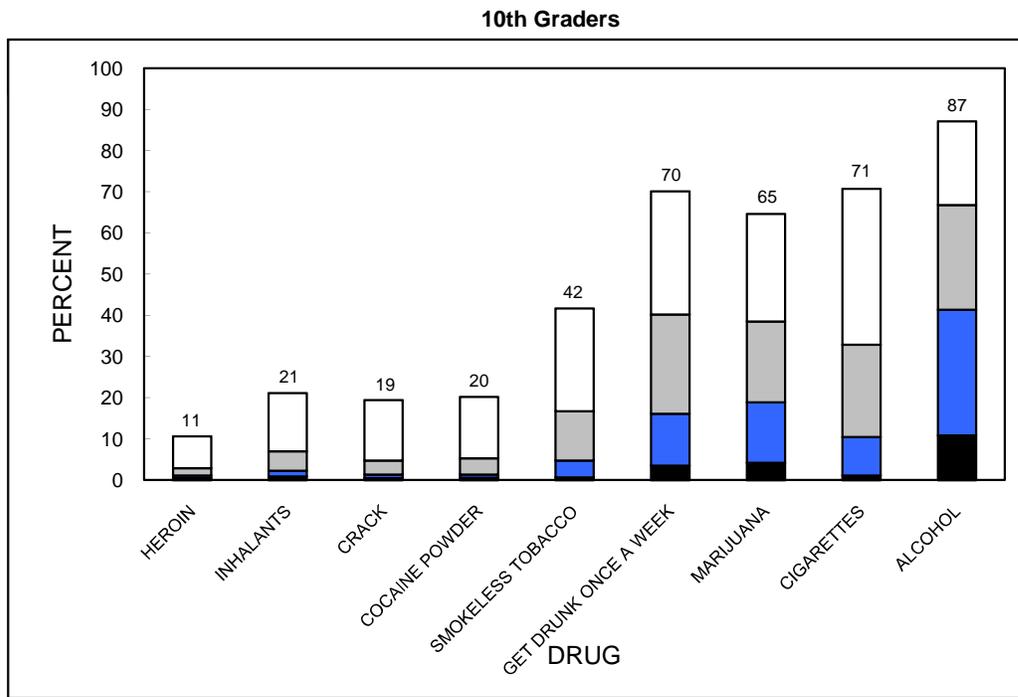
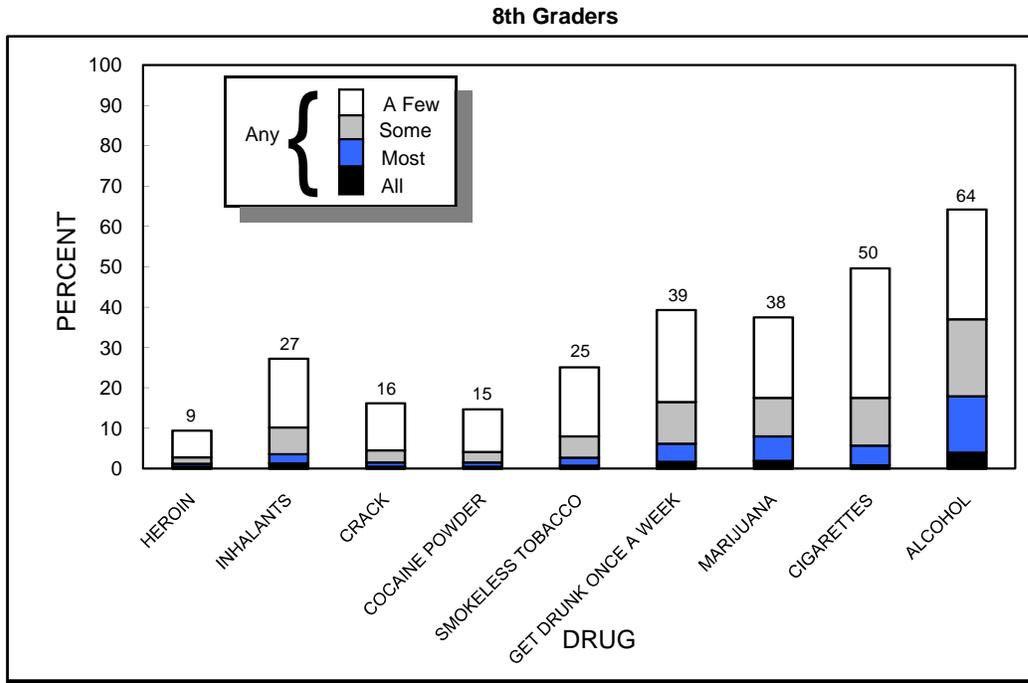
Note. The 1975, 1977, and 1979 points indicating the percentage of 12th graders who said their friends would disapprove have been adjusted to compensate for lack of comparability of question text between administration years.

**FIGURE 9-3**  
**Marijuana: Trends in 30-Day Prevalence and**  
**Friends' Use in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

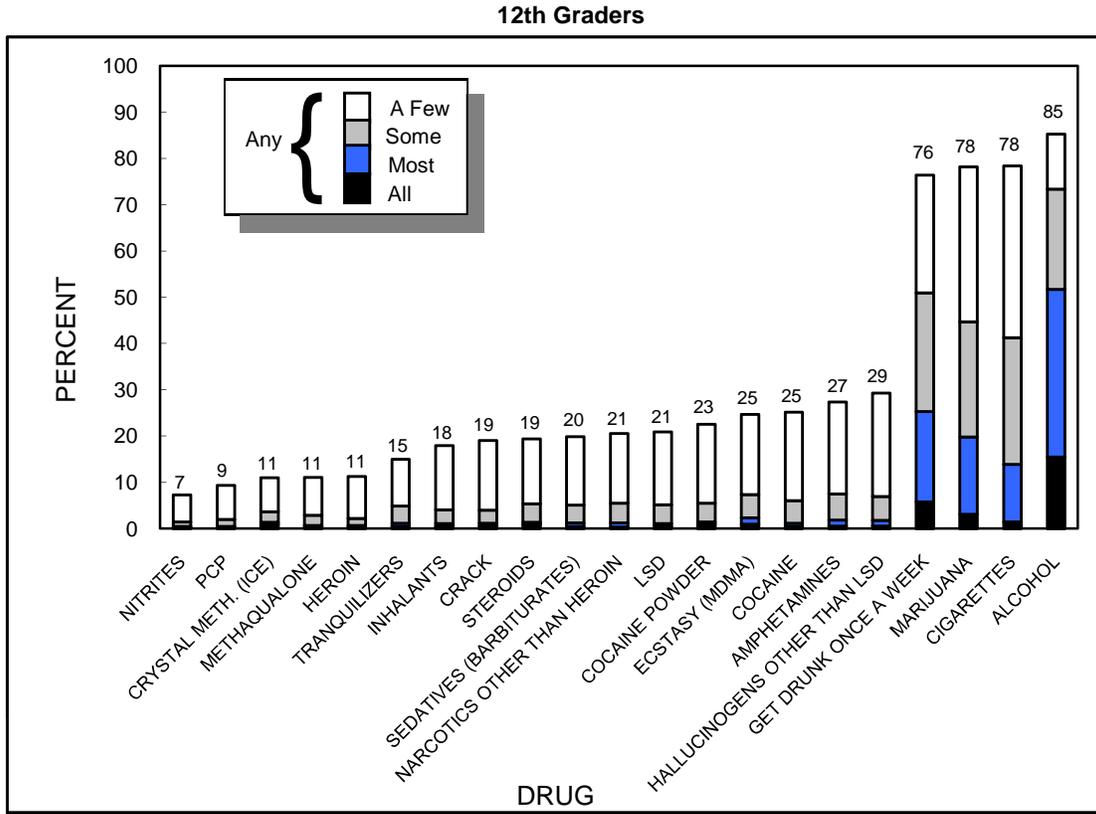
**FIGURE 9-4**  
**Proportion of Friends Using Each Drug**  
**as Estimated by 8th, 10th, and 12th Graders, 2008**



Source. The Monitoring the Future study, the University of Michigan.

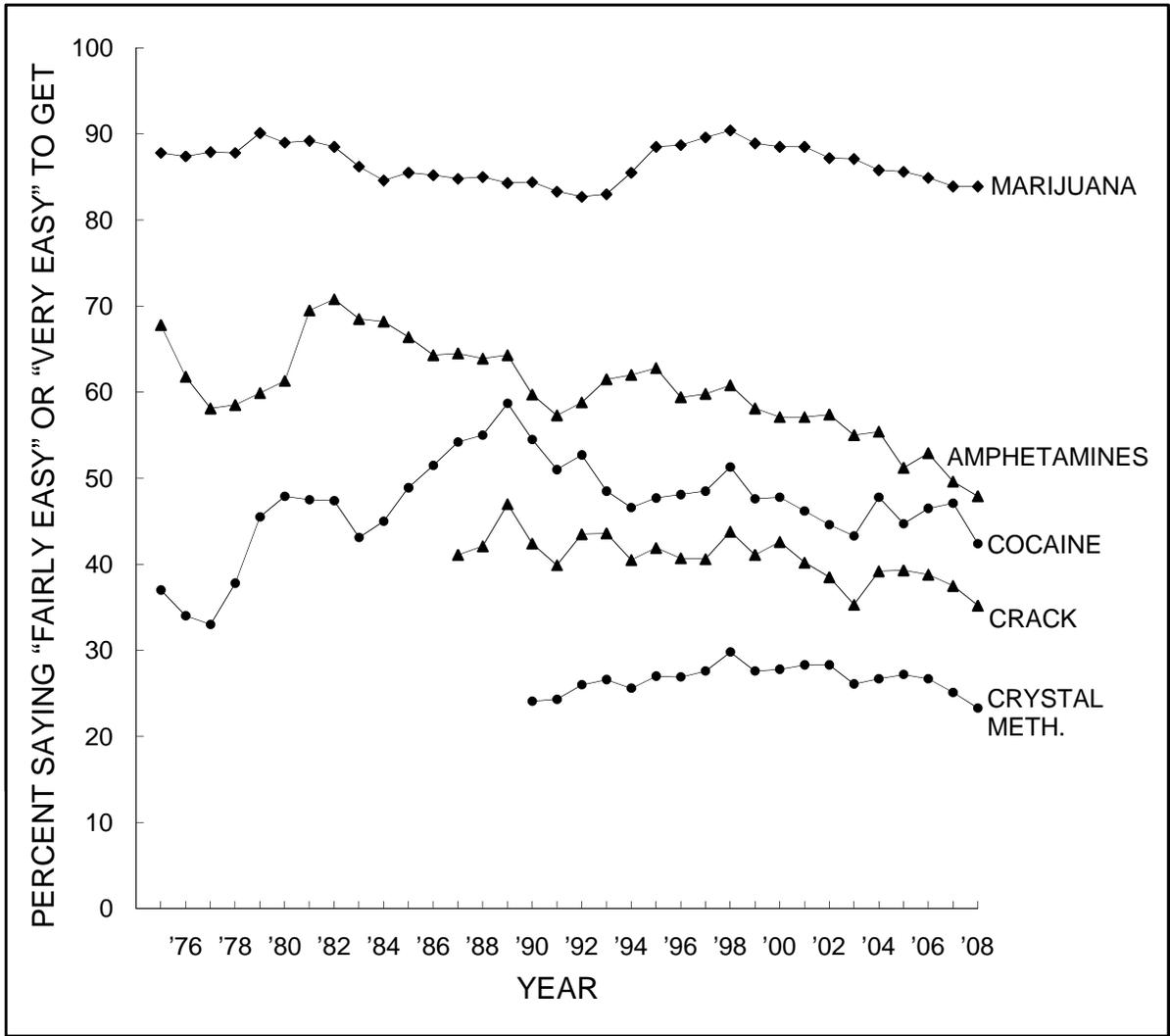
(Figure continued on next page.)

**FIGURE 9-4 (cont.)**  
**Proportion of Friends Using Each Drug**  
**as Estimated by 8th, 10th, and 12th Graders, 2008**



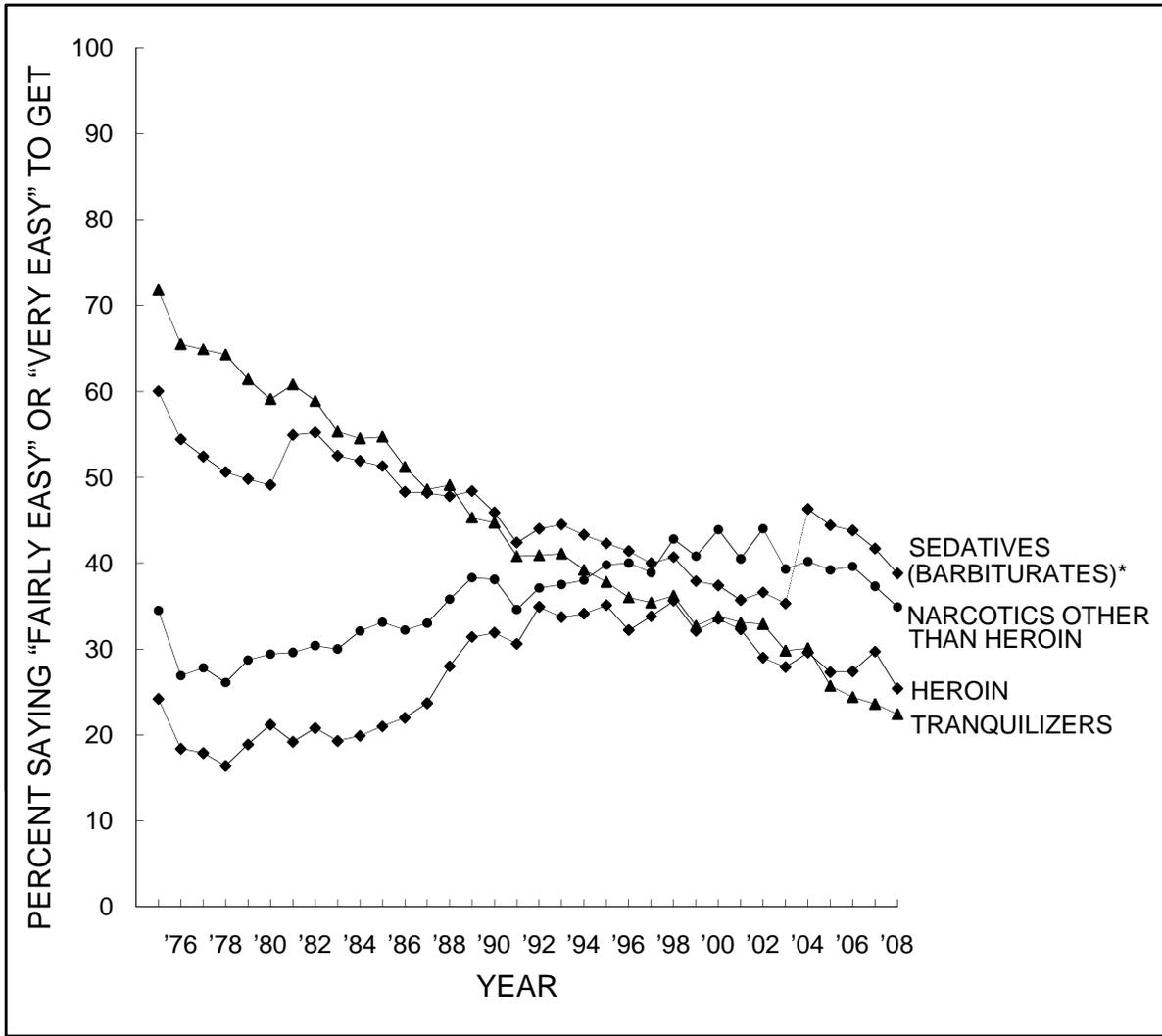
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE 9-5a**  
**Various Drugs: Trends in Perceived Availability in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

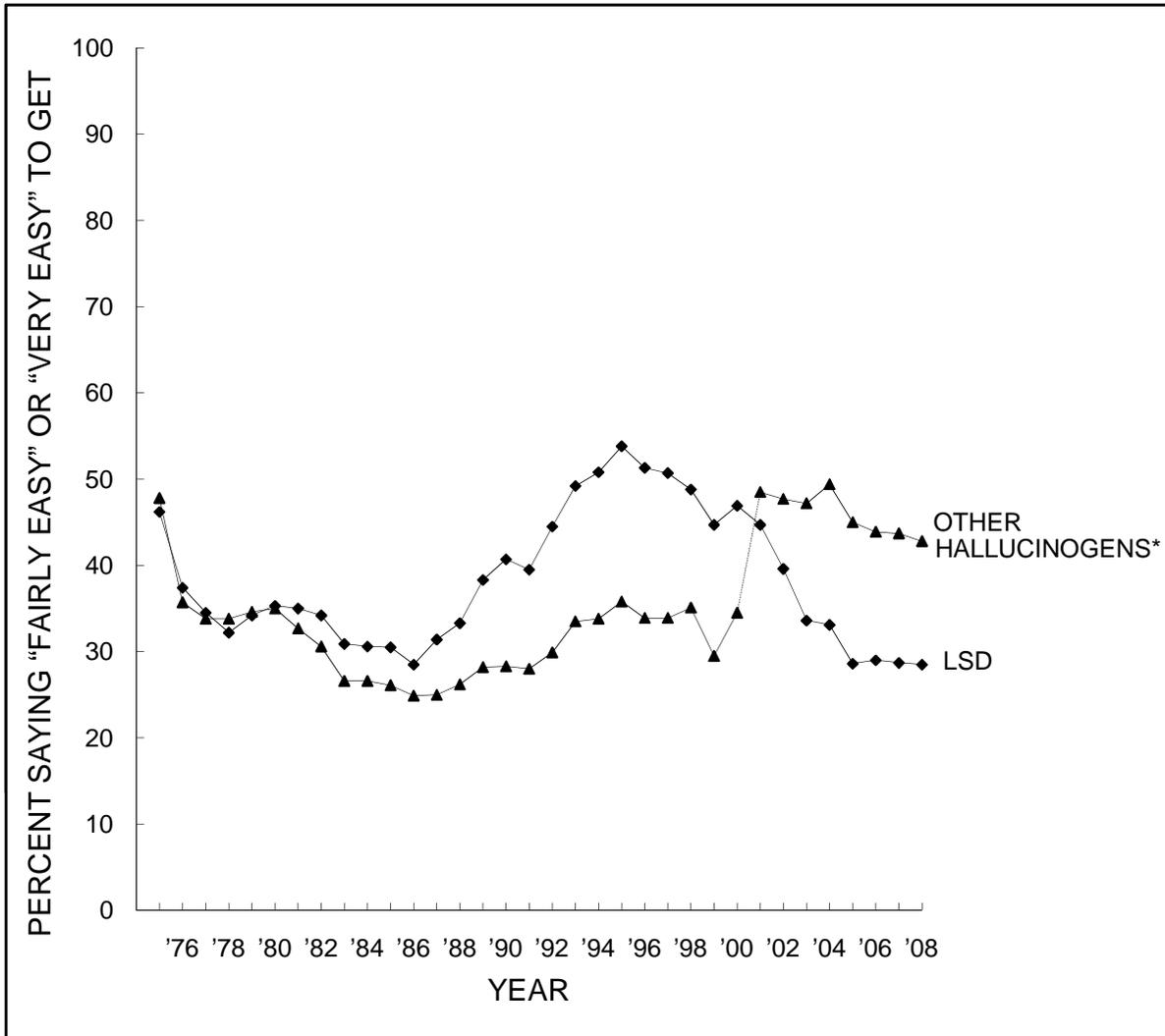
**FIGURE 9-5b**  
**Various Drugs: Trends in Perceived Availability in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

\*In 2004 the question text was changed from “barbiturates” to “sedatives/barbiturates,” and the list of examples was changed from “downers, goofballs, reds, yellows, etc.” to just “downers.” These changes likely explain the discontinuity in the 2004 results.

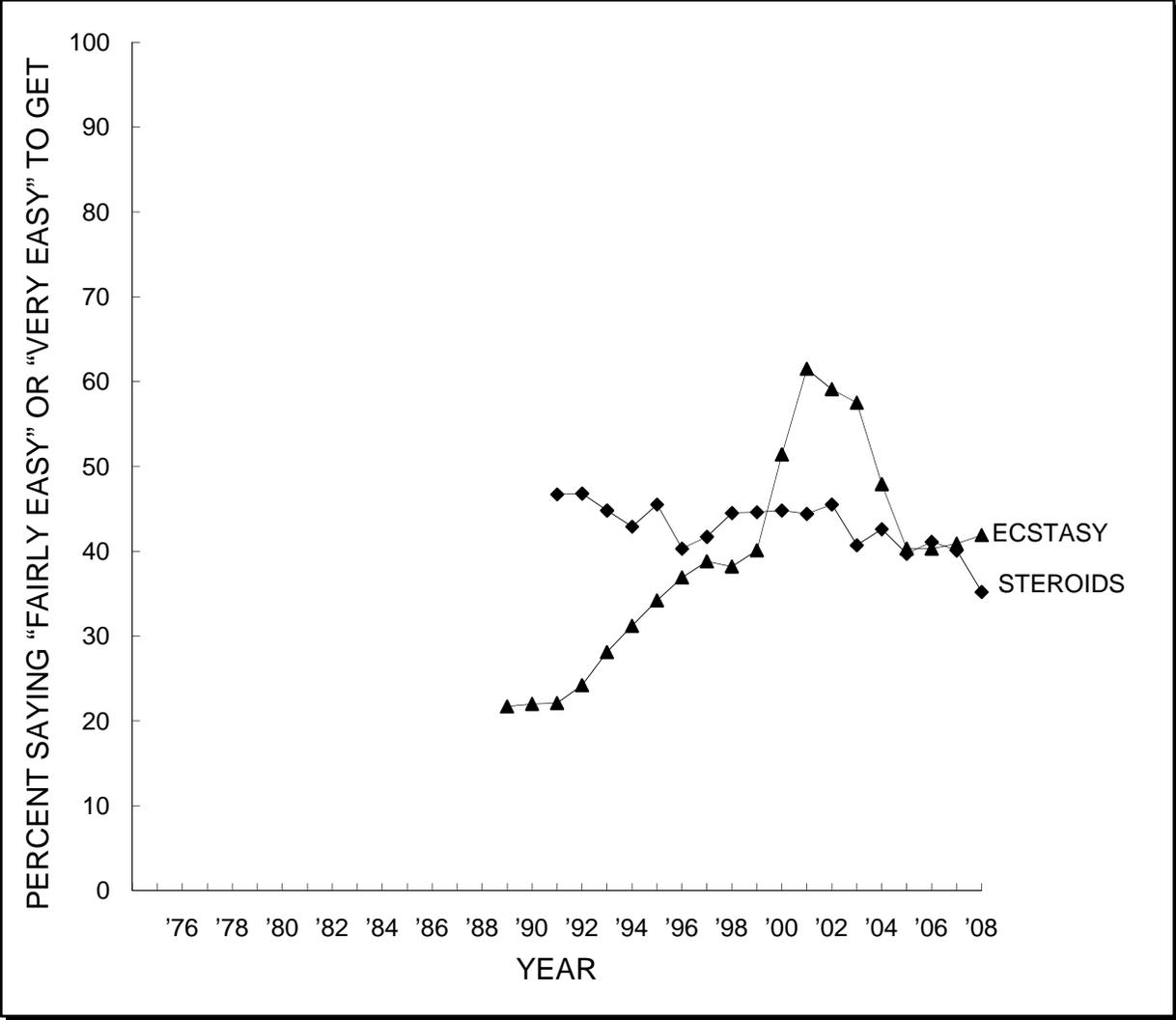
**FIGURE 9-5c**  
**LSD and Hallucinogens other than LSD: Trends in Perceived Availability in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

\*In 2001 the question text was changed from “other psychedelics” to “other hallucinogens,” and “shrooms” was added to the list of examples. These changes likely explain the discontinuity in the 2001 results.

**FIGURE 9-5d**  
**Ecstasy (MDMA) and Steroids: Trends in Perceived Availability in Grade 12**



Source. The Monitoring the Future study, the University of Michigan.

## Chapter 10

### OTHER FINDINGS

MTF data are used extensively to address a large number of topics related to substance use among the nation's teenagers and adults. In this chapter we present original findings not published elsewhere on the following topics of particular interest:

- the use of three classes of nonprescription stimulants—diet pills, stay-awake pills, and look-alikes;
- the sources of prescription drugs that students use without a doctor telling them to use them;
- the proportion of 12th graders who report using any of the prescription-type drugs without a doctor's orders;
- the use of three substances taken to enhance performance or physique—anabolic steroids, androstenedione, and creatine; and
- the use of marijuana on a daily basis, including use over a long period of time.

Synopses of several recent MTF publications are also included; a complete listing of all study publications, including abstracts and in some cases full text, is available on the MTF Web site.

#### THE USE OF NONPRESCRIPTION STIMULANTS

As discussed earlier in this volume, reported 12th-grade stimulant use increased substantially between 1979 and 1981. We had reason to believe that much of that increase was attributable to the use of nonprescription stimulants of two general types—look-alike drugs (pseudoamphetamines, usually sold by mail order, which look like and often have names that sound like real amphetamines) and over-the-counter stimulants (primarily diet pills and stay-awake pills). These drugs usually contained caffeine, ephedrine, and/or phenylpropanolamine as active ingredient(s).

Prompted by this development, in 1982 we introduced new questions in some of the 12th-grade questionnaire forms to more accurately assess the use of amphetamines, look-alikes, diet pills, and stay-awake pills of the nonprescription variety. For example, in one of the randomly distributed 12th-grade questionnaire forms, respondents were asked to indicate on how many occasions (if any) they had taken nonprescription diet pills such as Dietac, Dexatrim, and Prolamine (a) in their lifetime, (b) in the prior 12 months, and (c) in the prior 30 days. (These correspond to the standard usage questions asked for all drugs.) Similar questions were asked about the use of nonprescription stay-awake pills (such as No-Doz, Vivarin, Wake, and

Caffeine) and the look-alike stimulants. (The look-alikes are described at some length in the actual question.)

In three of the five 12th-grade questionnaire forms in 1982 and 1983 (and in all questionnaire forms thereafter), respondents were also asked about their use of prescription amphetamines *outside* of medically prescribed use, with explicit instructions to exclude the use of over-the-counter and look-alike drugs. These data have been collected only from 12th-grade respondents.

### **Prevalence of Use in 2008 among Twelfth Graders**

- Tables 10-1a, 10-1b, and 10-1c contain the 2008 prevalence-of-use levels for these various classes of stimulants. As can be seen, a substantial proportion of 12th-grade students (10.5%) have used over-the-counter *diet pills* in their lifetime, and 3.7% have used them in just the prior month. Daily use (defined as 20 or more occasions in the prior 30 days) was reported by 0.8% of 12th graders (data not shown).
- Based on data presented in this report, we know that very similar proportions report using actual *amphetamines* outside of medically prescribed use: 12th graders' self-reported prevalence rates in 2008 were 10.5% lifetime, 2.9% monthly, and 0.2% daily use.
- Currently, *stay-awake pills* are used by similar proportions: 9.6% of 12th graders in their lifetime, while monthly and daily prevalence rates are 2.6% and 0.3%, respectively.
- Somewhat fewer students knowingly used *look-alikes*, with 5.2% lifetime, 1.6% monthly, and 0.2% daily prevalence rates. Of course, it is possible that some proportion of those who thought they were getting real amphetamines were actually sold look-alikes, which are far cheaper for drug suppliers to purchase.
- In 1983, the newly revised question on *amphetamine* use yielded prevalence estimates about one quarter to one third lower than those yielded by the original version of the question, indicating that, indeed, some distortion in the unadjusted estimates occurred as a result of respondents including some nonprescription stimulant use in their answers. However, little or no such distortion should have occurred in recent years, in part because of the refined questions, and also given the considerable decline in use of diet pills and look-alikes, as discussed later.

### **Subgroup Differences among Twelfth Graders**

- Tables 10-1a through 10-1c show the prevalence data for these drug classes for males and females separately. It can be seen that the use of *diet pills* is dramatically higher among females than males. Absolute prevalence levels for 12th-grade females are impressively high; 15% reported some experience with them, and 5%—or about one in every twenty females—reported using over-the-counter diet pills in just the prior month. For all other types of stimulants, the prevalence rates for males and females are fairly close.
- A similar comparison between those who are planning four years of college (referred to here as the college-bound) and those who are not has shown some differences in use of

nonprescription stimulants (see Tables 10-2a through 10-2c). The annual prevalence rate in 2008 is slightly higher among the non-college-bound for *diet pills* (at 10.2% versus 6.8% for the college-bound) and higher for *stay-awake* pills (9.5% versus 5.3%). The use of *look-alikes* is considerably higher among the non-college-bound (7.1% versus 2.1%), as has been the case for many years.

- Annual prevalence rates do not differ much by population density, region, or parental education.
- Consistent with racial/ethnic differences observed over time on most drugs, African-American 12th graders are substantially lower than Whites in their use of all three types of *over-the-counter stimulants*. Hispanic 12th graders have tended to be in the middle.
- The use of all *nonprescription stimulants* is substantially higher among illicit drug users, and highest among the heaviest users (see Table 10-3). For example, only 0.8% of 12th graders who have abstained from any illicit drug use report ever having used a *look-alike* stimulant, compared to 3.4% of those who report having used only marijuana, and 17.4% of those who report having used some illicit drug other than marijuana (usually in addition to marijuana). We already know that use of illicit drugs is correlated with use of alcohol and cigarettes.<sup>96</sup> These findings show that the constellation of correlated substance-using behaviors also includes use of over-the-counter psychoactive substances.

### Trends in Use among Twelfth Graders

- Questions on amphetamine use were revised in 1982 to eliminate the inappropriate reporting of nonprescription stimulant use. Note that 1982 rates for the use of *amphetamines adjusted* (i.e., excluding the use of nonprescription stimulants) were higher than the *unadjusted* rates for all years prior to 1980 (see Tables 5-1 through 5-4), which suggests that amphetamine use—or at least the use of what, to the best of the respondents' knowledge, were amphetamines—indeed increased between 1979 and 1982. Not all of the increase in amphetamine use was an artifact of the measure. The data presented earlier on the proportion of 12th graders who were around people using amphetamines to “get high” support this conclusion (see chapter 9).
- The trend in use of *look-alikes* from 1982 onward resembles the trend for illicit drug use during the same period. Annual prevalence declined from 10.8% in 1982 to 5.2% in 1991, followed by a period of increase in the first half of the 1990s (to 6.8% in 1995), stabilization, then some decline again after 2001 (3.1% in 2008) (see Table 10-1c). Most of the initial decline in use occurred among those who had used illicit drugs other than marijuana—the group primarily involved in the use of look-alikes. Further, that group was a shrinking proportion of the total.

<sup>96</sup>Johnston, L. D. (2003). Alcohol and illicit drugs: The role of risk perceptions. In D. Romer (Ed.), *Reducing adolescent risk: Toward an integrated approach* (pp. 56–74). Thousand Oaks, CA: Sage.

- The use of nonprescription *diet pills* decreased even more substantially, in this case between 1983 and 1993 (see Table 10-1a). Over that interval, annual prevalence fell by more than half, from 20.5% to 8.0%. This was a particularly positive development, because nearly all of these diet pills contained phenylpropanolamine, which the Food and Drug Administration has since determined to have health risks for the user.<sup>97</sup> Nearly all the decline occurred among the group who had used illicit drugs other than marijuana. Use stabilized through the mid-1990s at around 9.4%, rose after 1998 to reach 15.1% in 2002, and has declined since then to 7.2% in 2008.
- Unlike the use of other nonprescription stimulants, use of *stay-awake pills* increased substantially in the early to mid-1980s (see Table 10-1b). Annual prevalence of use increased from 11.8% in 1982 (when use was first measured) to 26.4% in 1988, dropped somewhat to 20.4% by 1992, and remained fairly level until 1998, before beginning a decline that reached 6.3% by 2008. (Again, both the increase and decrease were observed most strongly among illicit drug users.)
- As a result of recent decreases, in 2007 all three classes of *over-the-counter stimulants* reached their lowest levels ever recorded by MTF. In 2008, use of diet pills and look-alikes rose slightly, but are still near their historic lows.

### Trends in Subgroup Differences among Twelfth Graders

- All subgroups (defined by gender, college plans, region, population size, parental education, and race/ethnicity) showed similarly large increases from 1982 to 1988 in their use of *stay-awake pills*. Between 1988 and 1992, annual prevalence decreased for all subgroups except for one of the parental education groups, and the decrease was rather slight in the Midwest region. After 1992, use stabilized in virtually all subgroups until the 1999 decline, which also occurred broadly. Since then, use has continued to decline in most subgroups, although sometimes unevenly.
- For *diet pills*, trends for subgroups generally parallel the overall trend across time. Diet pill use among girls has tended to run from two-and-a-half to four times as high as among boys. Girls now have an annual prevalence of 9.9%—more than twice the 4.2% rate for boys—after a substantial decline in both groups since 2002. There was some increase for both genders in 2008.
- Subgroup differences in trends in the use of *look-alikes* also generally parallel the overall trends. Use among all subgroups has declined some since recent peaks in 2001 or 2002.

### SOURCES OF CERTAIN PRESCRIPTION DRUGS

The misuse of prescription drugs—that is, their use outside of a physician’s supervision—grew as a problem in the 1990s and into the 2000s, as is documented in chapter 5. Because of the re-emergence of this problem (it was also an issue in the late 1970s and early 1980s) we thought it

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<sup>97</sup>We expressed our concern years ago about the large number of adolescent females taking this drug, about which so little was known. The widespread use of creatine among young males today raises similar concern.

important to understand the sources of such drugs. In 2007, we added a set of questions to one of the six randomly distributed 12th-grade questionnaire forms asking about how these drugs were obtained. Respondents who indicated that in the prior 12 months they used *tranquilizers*, for example, were branched to a set of more detailed questions about their tranquilizer use. One of those questions (the new one) asked them to indicate where they got the tranquilizers by marking all that apply out of a pre-specified set of answers. Similar measures were introduced for *amphetamines* and *narcotics other than heroin* (most of which are analgesics). Unfortunately, there was not sufficient space available to elaborate the answer categories as much as we would have liked, but the several answers that were offered tell a compelling story.

The questions about source of these three drugs appear on only one questionnaire form, and are asked only of past-year users of each drug; thus, there are limited numbers of cases. Table 10-4 provides the responses, with 2007 and 2008 data combined to increase sample size and provide more stable estimates. Note the weighted number of cases is between 226 and 361, so the confidence intervals around the estimates are fairly wide.

One interesting finding is that the distribution of sources is similar for the three different types of psychotherapeutic drugs. The most common source for each is “given for free by friend or relative”—51–60% for each of the three. Another common source is “bought from friend or relative”—37–45% for each. Taking the drug from a friend or relative without asking was mentioned by 20–24%. Clearly the informal network of family and friends is a major source of these drugs for adolescents.

The least likely source for all three drugs is “bought on the Internet,” which may come as a surprise to some. Only 2–5% of the users of each drug class indicated this as a source, perhaps because young people this age are usually living at home and do not want to risk their parents intercepting a shipped package containing illicitly purchased drugs. The Internet may well be a major source for older people, especially those who sell these drugs.

Not all of the answers are similar across drugs, however. Obtaining the drug “from a prescription I had” was mentioned by 40% of past-year users for narcotics other than heroin, compared to 18% for tranquilizers and 15% for amphetamines. For narcotic drugs especially, leftover prescriptions appear to be an important source for adolescents.

Obtaining these prescription drugs by purchase from a drug dealer or stranger pertained for a minority of users of all of these drugs: 19–27% reported this source. Relatively few indicated sources other than those explicitly listed in the answer set by checking “other method” for tranquilizers (8%), narcotics other than heroin (9%), and amphetamines (18%).

## INDEX OF USE OF ANY PRESCRIPTION DRUG AMONG TWELFTH GRADERS

We are able to estimate the proportion who use any of the prescription drugs—*amphetamines*, *sedatives (barbiturates)*, *tranquilizers*, and *narcotics other than heroin*—only for 12th graders, because we do not believe that the answers given by younger students regarding their use of

sedatives or other narcotics are valid. Trends in the proportion of 12th graders who report using any of these four classes of psychotherapeutic drugs without a doctor's orders are presented for each of the three prevalence periods.

Table 10-5 shows that a significant proportion of 12th graders have used one or more of these drugs without a doctor's order—21.5%, 15.4%, and 7.2% for lifetime, annual, and 30-day prevalence, respectively, in 2008. Rates have fallen somewhat in recent years, but significant numbers of teens are still misusing prescription drugs.

Table 10-6 shows trend data for annual prevalence for the same index based on various subgroups. Males are only slightly more likely than females to use one or more of these drugs—a consistent finding across the four years shown. Another consistent finding is that college-bound students are less likely to use these drugs outside of medical supervision (with an annual prevalence of 14.1% in 2008) compared to those who do not report being college bound (20.9%). There are practically no differences by region of the country and no consistent difference by population density, with the exception that the non-metropolitan statistical areas tend to have a slightly higher rate of use than the more urban strata. No relationship to parental education is observed, other than that the lowest stratum tends to have a slightly lower usage rate than the others, perhaps because of its racial/ethnic makeup.

The largest subgroup differences by far are found among the three racial/ethnic groups, with usage rates among Whites nearly twice as high as Hispanics, and more than three times as high as African-American 12th graders (Table 10-6).

## **PERFORMANCE-ENHANCING SUBSTANCES: ANDRO AND CREATINE**

In seeking a better understanding of the recent increase in teen steroid use, we added a single tripwire question in 2001 about the frequency of use of *androstenedione* (or “andro,” a precursor to anabolic steroids), because it is used for many of the same purposes as anabolic steroids. A small minority of respondents report use of both steroids and andro, thus introducing the possibility of some double counting of events in the two questions; but the majority of use is not overlapping. The 2008 annual prevalence rates for andro are 0.9%, 0.9%, and 1.3% in grades 8, 10, and 12, respectively. Use tends to be higher among males: their prevalence rates are 1.3%, 1.3%, and 1.7%, respectively, compared with 0.5%, 0.6%, and 0.7% for females. It should be noted that androstenedione was scheduled by the Drug Enforcement Administration in early 2005, making its sale and possession no longer legal.

We also examined teens' use of another substance used for performance and physical enhancement—*creatine*. This substance is not a hormone or a drug, but a nutrient found in the skeletal muscle of most animals. Creatine is used to enhance performance capacity, reduce the recovery time of muscles, and increase muscle mass. It is readily available over the counter, which undoubtedly helps to explain the high levels of use we have found among teens. The annual prevalence of use in 2008 was 2.0%, 5.8%, and 8.3% in grades 8, 10, and 12, respectively. Again, the use rates are substantially higher for males: 3.2%, 11.5%, and 15.7% in grades 8, 10, and 12, versus 0.7%, 0.9%, and 1.5% for females. The figure for 12th-grade males'

creatine use—15.7% in just the prior 12 months—seems a very high prevalence, considering that the long-term effects of using this substance have not been well researched.

As suspected, there is a strong association between *andro* and *creatine* use. The great majority of andro users in the prior 12 months indicate that they also used creatine in the same period: 69%, 83%, and 93% in grades 8, 10, and 12, respectively. The association is asymmetric, however, because there are many more creatine users than andro users. Of those reporting creatine use in the prior 12 months, the proportions also reporting andro use in the same interval were 32%, 12%, and 15% in grades 8, 10, and 12, respectively.

The self-reported use of *steroids* is likewise associated with *creatine* use. Of those reporting steroid use in the prior 12 months, the proportions also reporting creatine use were 36%, 53%, and 58% in the three grades. Conversely, the proportions of creatine users reporting steroid use in that interval were 14%, 9%, and 12%. In sum, the majority of andro users and substantial proportions of steroid users also use creatine.

Tables 10-7a through 10-8c present overall and subgroup trend data on the annual use of *andro* and *creatine* since 2001, when these substances were first included in the study. Andro use declined modestly among 8th graders between 2001 and 2008 (from a low 1.1% to 0.9%). Among 10th graders there was a decline from 2.2% to 0.9% over the same interval, and among 12th graders from 3.0% to 1.3%. (As mentioned above, androstenedione was scheduled by the Drug Enforcement Administration in early 2005.) Creatine use was also down from 2001—when it was first measured—through 2005 in all three grades, but since then there has actually been some increases, particularly among 8th and 10th graders.

Usage rates for creatine are far lower among females than males, while the gender difference is more modest for andro. Generally, use of both drugs has been somewhat lower among those planning to go to college than among those who are not.

Because there is some *overlap* in the reporting of anabolic *steroids* and *androstenedione*, it seems useful to examine how many teens are using either drug. Tables 10-9a through 10-9c present trend data on the use of andro only, use of steroids only, use of both, and use of either. The annual prevalence for the use of *either drug* among males in 2008 is 2.0%, 2.1%, and 3.2% for 8th, 10th, and 12th grades, respectively. In other words, about 1 in every 31 twelfth-grade males used steroids and/or andro in the prior year. However, these percentages are all substantially lower than they were in 2001.

## DAILY USE OF MARIJUANA BY TWELFTH GRADERS

In earlier reports in this series, we summarized a number of findings regarding daily marijuana users, including what kind of people they are, how use changes after high school for different subgroups, and what daily users see as the negative consequences of their use.<sup>98</sup> In 1982, a

<sup>98</sup>For the original reports, see the following, which are available from the author: Johnston, L. D. (1981). Frequent marijuana use: Correlates, possible effects, and reasons for using and quitting. In R. DeSilva, R. Dupont, & G. Russell (Eds.), *Treating the marijuana dependent person* (pp. 8–14). New York: The American Council on Marijuana. Also see Johnston, L. D. (1982). A review and analysis of recent changes in marijuana use by American young people. In *Marijuana: The national impact on education* (pp. 8–13). New York: The American Council on Marijuana.

special question segment was introduced in one 12th-grade questionnaire form to secure more detailed measurement of individual patterns of daily marijuana use. Respondents were asked whether at any time during their lives they had ever used marijuana on a daily or near-daily basis for at least a month and, if so, (a) how recently they had done so, (b) when they first had done so, and (c) how many total months they had smoked marijuana daily, cumulating over their lifetime. The results of our analyses of these more in-depth data on marijuana use follow.

### **Lifetime Prevalence of Daily Marijuana Use**

- ***Current daily marijuana use***, defined as use on 20 or more occasions in the last 30 days, has fluctuated widely since the study began, as we know from the trend data presented in chapter 5. Among 12th-grade respondents, it rose from 6.0% in 1975 to 10.7% in 1978, declined to 1.9% by 1992, and then began to increase again. Current daily use reached 6.0% in 1999, the highest prevalence rate since 1982, and now stands at 5.4% in 2008 (Table 5-4).
- Using the questions on duration of daily use, we have found that, since 1982, the ***lifetime prevalence of daily marijuana use for a month or more*** has been far higher than current daily marijuana use. For example, among 12th graders in 2008, 15.1% reported using marijuana daily for at least a month at some point in their lives, which is about three times greater than the 5.4% reporting current daily use.

However, we believe it very likely that this ratio has changed dramatically over the life of the study as a result of the large secular trends in daily use. Therefore, it would be inaccurate to extrapolate, for example, that the lifetime prevalence of daily use for the class of 1978 was three to four times their 10.7% current use figure for that year. (In fact, an analysis of follow-up panel data for the class of 1978 confirmed this assertion.)

Using data collected in 1989 from follow-up panels combining the graduating classes of 1976 through 1988 (ages 19–31 in 1989), we found a lifetime prevalence of daily marijuana use of 20%. Approximately one fourth of the older portion of that group—graduates from the classes of 1976 through 1979—indicated having been daily marijuana users for a month or more at some time in their lives. Thus, experience with daily use of marijuana was widespread in the cohorts of Americans who passed through late adolescence in the peak years of the drug epidemic. In 2008 these cohorts would range in age from about 47 to 50. *Volume II* provides more detailed information on the drug use history of these and other adult age groups.

### **Grade of First Daily Marijuana Use**

Daily marijuana use can begin at quite a young age. Of the 2008 twelfth graders who reported being daily marijuana users at some time in their lives (i.e., 15.1% of the sample), 59% of them (or 8.9% of all 12th graders) began that pattern of use *before* 10th grade. Different graduating classes show disparate age-associated patterns of onset, depending on the secular trends and, to a lesser degree, cohort effects that were occurring. The percentages of all 12th graders in 2008 that started daily marijuana use in each grade level are presented in Table 10-10. It shows that a substantial proportion began such daily marijuana use in grades 7 through 9, with the incidence rate remaining high in grade 10 and then dropping off thereafter.

### Recency of Daily Marijuana Use

Three quarters (77%) of those 12th graders in 2008 who reported *ever* having been daily marijuana users for at least a one-month interval also reported using marijuana that frequently in the prior year, while nearly one quarter (22%) said they last used marijuana that frequently about two years ago or longer. Thus the pattern tends to be one that sustains at least into late adolescence.

More than one third (36%) of all 12th graders in 2008 who said they had ever been daily marijuana users for a month or more classified themselves as having used it daily or almost daily during the past month (5.5% of the entire sample). Our operational definition of current daily users on the standard prevalence and frequency-of-use questions—20 or more uses in the last 30 days—yields a 5.4% rate in 2008, very close to the 5.5% rate based on the respondents' own definition. (These two rates have generally been quite close across the years.)

### Duration of Daily Marijuana Use

It seems likely that the most serious long-term health consequences associated with marijuana use will be directly related to the duration of heavy use, and in the late 1970s there was considerable concern that a large population of chronic heavy users would evolve. Thus, a question was introduced asking respondents to estimate the *cumulative* number of months they have smoked marijuana daily or nearly daily. While hardly an adequate measure of the many possible cross-time patterns of use, this question does provide a gross measure of the total length of exposure to heavy use.

Table 10-10 gives the distribution of answers to this question for 12th graders in 2008. It shows that, of the 15% of all 12th graders reporting daily marijuana use lasting a month or more, one fourth (25%) of them said this level of use cumulated to less than three months; more than half (58%) reported it totaled about one year or less; and one third (33%, or 5.0% of *all* 12th graders who used marijuana daily for a month or more) reported it totaled about two years or more, with only 1.0% reporting daily use of the drug for a total of six years or longer. Particularly striking is the fact that one in every twenty high school seniors (5.0%) in 2008 smoked marijuana daily (or almost daily) for two years or more.

### Subgroup Differences in Daily Marijuana Use

- There is a *gender* difference in the proportion of 12th graders who reported ever having been daily marijuana users for a month or more (15% for males and 13% for females), and the cumulative duration of daily use is somewhat longer for males.
- Whether or not the student has *college plans* is strongly related to several marijuana use characteristics. Of those 12th graders planning four years of college, 11% had used marijuana daily at some time, compared with 23% of those without such plans. In addition, the college-bound users show a distinctly shorter cumulative duration of daily use, and a lower proportion of them used marijuana daily during the past month. Also, among daily users, non-college-bound 12th graders had an earlier age of onset (see Table 10-10) and a higher rate of long-term heavy use of three or more years.

- For a number of years, the West and Northeast regions of the country had the highest lifetime prevalence of daily marijuana use. However, in recent years, the rates for these two regions have dropped, diminishing *regional* differences; in fact, from 2004 to 2007 the West had the lowest rate. After three years of increase, the Northeast is highest in 2008.
- The differences in lifetime daily marijuana use associated with *population density* are currently not appreciable. Lifetime prevalence of daily marijuana use is 18% in the large cities, 14% in the nonurban areas, and 15% in the smaller cities.

### Trends in Use of Marijuana on a Daily Basis

- Table 10-11a presents trend data on *lifetime daily marijuana use* for a month or more. It shows a large decline from 1982, when this measure was first used, through 1992—from 21% to 8%. By 1997 it had risen substantially, reaching 19%. After 1998, it stabilized for a period of time, then showed some decline after 2006 (15% in 2008).
- Between 1982 and 1992, the decline in *lifetime daily marijuana use* was slightly steeper among males (from 20% to 8%) than among females (from 18% to 8%), and the absolute drop was larger among the non-college-bound (23% to 11%) compared to the college-bound (14% to 6%), although the proportional drop was not. In the turnaround that began in 1993, most of the increase appears to have occurred among the males and the non-college-bound (who are at 15% and 23%, respectively, in 2008).
- *Lifetime daily marijuana use* dropped in all regions beginning in 1982. The decline was greatest in the Northeast—from 25% in 1982 to 9% in 1992. A turnaround occurred in all regions after 1991 or 1992, with steady increases through 1997 (and even later in the South), and a leveling and some decline thereafter. Recent peak levels were reached in the late 1990s or beginning of the 2000s, and there has generally been some decline in all regions since then.
- All three population density levels exhibited long-term declines in *lifetime daily marijuana use* from 1982 to 1992, and an increase thereafter, until roughly 1998. After 1998 there was some decline in both urban strata, but not in the nonmetropolitan areas. There has been no clear trend in recent years for any population density.
- *Daily prevalence of marijuana use* prior to 10th grade (see Table 10-11b for totals and subgroup trends) declined from 13% in the class of 1982 to 5% in the class of 1993. (These classes were 9th graders between 1979 and 1990.) This decline halted among 12th graders surveyed in 1994 and then began to climb through the class of 2001 (11.4%). Since 2002, the percentage has ranged between 8% and 10%.

## OTHER MTF PUBLICATIONS

MTF data is utilized in several other publications. Selected recent articles are summarized below. Further details, as well as a more complete listing, may be found under “Publications” on the MTF Web site: [www.monitoringthefuture.org](http://www.monitoringthefuture.org).

### **Reasons for Drug Use among American Youth by Consumption Level, Gender, and Race/Ethnicity<sup>99</sup>**

This study examined self-reported reasons for the use of nine substances among 12th graders from 1976 through 2005. Social/recreational reasons were the most commonly reported. However, for psychotherapeutic drugs, coping with negative affect and physical needs reasons were most commonly mentioned. Results indicated that the proportions of students reporting various reasons have shifted significantly over time. Significant differences by gender and race/ethnicity were found. Prevention and intervention efforts must address the following: (1) while social usage reasons predominate, coping and drug-effect reasons for use must also be considered; and (2) there are appreciable differences by gender and race/ethnicity in reasons for drug use.

### **Saying No to Marijuana: Why American Youth Report Quitting or Abstaining<sup>100</sup>**

This paper reported 12th graders’ self-reported reasons for abstaining from or quitting marijuana use, and the association between reasons and individual sociodemographic characteristics of gender and race/ethnicity. Results indicated that (1) 50% of those reporting past 12-month marijuana use felt they should either stop or reduce use; (2) among those saying they would not use marijuana in the coming year, the most frequently reported reasons cited were psychological and physical damage and not wanting to get high (reported by more than 60%), while the least frequently reported reasons included expense, concerns of having a bad trip, and availability (reported by fewer than 25%); and (3) clear differences existed in reported reasons by gender and race/ethnicity. It was concluded that a significant percentage of U.S. 12th graders who are recent marijuana users wish to either reduce or stop their marijuana use, and are basing such desires on a wide variety of reasons that show significant gender and racial/ethnic variation. Marijuana prevention and cessation policy and programming could potentially be strengthened by incorporating the findings from these analyses.

### **Conjoint Developmental Trajectories of Young Adult Substance Use<sup>101</sup>**

Although there is a good understanding in the literature about the co-occurrence or comorbidity of different types of substances within time, there is little understanding about how different types of substances co-occur over time. That is, little research in the substance use field has simultaneously considered both course and comorbidity. Using nationally representative panel

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<sup>99</sup>Terry-McElrath, Y. M., O’Malley, P. M., & Johnston, L. D. (in press). Reasons for drug use among American youth by consumption level, gender, and race/ethnicity: 1976–2005. *Journal of Drug Issues*.

<sup>100</sup>Terry-McElrath, Y. M., O’Malley, P. M., & Johnston, L. D. (2008). Saying no to marijuana: Why American youth report quitting or abstaining. *Journal of Studies on Alcohol and Drugs*, 69(6), 796–805.

<sup>101</sup>Jackson, K. M., Sher, K. J., & Schulenberg, J. E. (2008). Conjoint developmental trajectories of young adult substance use. *Alcoholism: Clinical and Experimental Research*, 32, 1–15.

data from the MTF project ( $n = 32,087$ ; 56% female; 82% Caucasian), we identified developmental courses of heavy drinking, smoking, and marijuana use using four waves of data spanning ages 18 to 26 in a multicohort young adult sample. Comorbidity was examined by cross-classifying group membership in substance use trajectories. Finally, the extent to which risk factors (sex, race, alcohol expectancies, delinquency, sensation seeking, depressive affect, religiosity, academic achievement, and parent education) accounted for combinations of comorbidity that occurred at a rate greater than chance was examined. For each substance, we identified four courses of substance use that were largely consistent with those found in the literature (chronic high use, late-onset use, developmentally limited use, and low-use), with a fifth moderate smoking group. Heavy drinking, smoking, and marijuana use were each highly associated, and distinct patterns of comorbidity were evident, with greatest agreement along the diagonal. All risk factors explained comorbidity to some degree, with delinquency, sensation seeking, alcohol expectancies, and religion in particular predicting combinations of comorbidity that were characterized by early onset and chronic high use. In conclusion, cross-substance trajectory concordance was high, with parallel changes in substance use over emerging adulthood. This suggests similar developmental timing of use, perhaps due to the experience of developmental transitions that have a common influence on use of different substances. Prediction of combinations of comorbidity characterized by early onset and persistently high use suggests that to some extent, individuals use multiple substances because of a common vulnerability to each, rather than directional relations among substances.

### **Adolescent Risk Factors for Adult Alcohol Use and Abuse: Stability and Change of Predictive Value across Early and Middle Adulthood<sup>102</sup>**

There has been more recent attention to the long-term prediction of alcohol abuse and dependence in adulthood based on adolescent characteristics, and this study brings the MTF national panel data to the question in this special issue of *Addiction*. The purpose was to examine age-18 risk factors for alcohol use and heavy drinking during early (ages 22 and 26) and middle (age 35) adulthood, and for symptoms of alcohol use disorders (AUDs) in middle adulthood. Nationally representative samples of U.S. adolescents (21,137) in their senior year of secondary school (age 18) were followed into middle adulthood. Structural equation models estimated the associations between age-18 characteristics and current and heavy drinking at ages 22, 26, and 35; and symptoms of AUDs at age 35. Many predictor variables were found to have stable associations with alcohol use over time, although their ability to explain variance in alcohol use declined with increasing time lags. Being white predicted alcohol use, but not symptoms of AUDs. Parental drinking, risk taking, and use of cigarettes and marijuana predicted heavy drinking to age 35. Planning to attend college predicted more heavy drinking at age 22 and less frequent heavy drinking by midlife. High school theft and property damage predicted later AUD symptoms. Most associations were invariant across gender, with variations typically taking the form of stronger associations between predictors and alcohol use for men. Invariance in findings across cohorts indicates that results reflect general developmental trends rather than specific historically bounded ones. In conclusion, many adolescent individual and contextual characteristics remain important predictors of adult alcohol use and abuse, and their predictive impact varies as a function of age and type of alcohol outcome. These associations are largely equivalent across gender and cohort, thus reflecting robust developmental linkages.

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<sup>102</sup>Merline, A., Jager, J., & Schulenberg, J. E. (2008). Adolescent risk factors for adult alcohol use and abuse: Stability and change of predictive value across early and middle adulthood. *Addiction, 103*, 84-99.

## OTHER DATA ON CORRELATES AND TRENDS

Hundreds of correlates of drug use, without accompanying interpretation, may be found in MTF's series of annual volumes entitled *Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors*.<sup>103</sup> For each year since 1975, a separate hardbound volume presents univariate and selected bivariate distributions on all questions asked of 12th graders. A host of variables dealing explicitly with drugs—many of them not covered here—are contained in that series. Bivariate tables are provided for *all* questions asked of high school seniors each year distributed against an index of lifetime illicit drug involvement, making it possible to examine the relationships between hundreds of potential risk factors and drug use.

A special cross-time reference index is contained in each volume to facilitate locating the same question across different years. One can thus derive *trend* data on approximately 1,500–2,000 variables for the entire sample or for important subgroups (based on gender, race, region, college plans, and drug involvement). These volumes can also be helpful to analysts using the original MTF microdata in the Inter-university Consortium of Political and Social Research archive.

An annual occasional paper presents trends in *graphic* form for the various subgroups for each of the many drug classes. (It is, in essence, a graphic presentation of the subgroup data contained in tabular form in appendix D.) It is available on the MTF Web site ([www.monitoringthefuture.org](http://www.monitoringthefuture.org)) under “Publications” and then “Occasional Papers.”<sup>104</sup>

## WEB SITE

Any reader wishing to get more information on the study, or to check for recent findings and publications, may go to the MTF Web site at [www.monitoringthefuture.org](http://www.monitoringthefuture.org). Prior to their publication in this monograph series, many of the latest findings on substance use trends and related attitudes and beliefs are posted on the Web site in two forms: (1) a pair of press releases issued in mid-December of the year in which the data were collected; and (2) a brief *Overview of Key Findings* monograph usually posted the following March or April.

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<sup>103</sup>To order the current volume or other volumes in this series, visit the MTF Web site at [www.monitoringthefuture.org](http://www.monitoringthefuture.org) (go to “Publications” and click on “Reference Volumes”). Beginning with the 1996 volume, copies are available on CD as well.

<sup>104</sup>Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Monitoring the Future Occasional Paper No. 71). Ann Arbor, MI: Institute for Social Research. Available: [www.monitoringthefuture.org](http://www.monitoringthefuture.org)

**TABLE 10-1a**  
**Nonprescription Diet Pills: Trends in Lifetime, Annual, and**  
**30-Day Prevalence of Use by Gender in Grade 12<sup>a</sup>**  
 (Entries are percentages.)

Prevalence of Use	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>Lifetime</b>																												
Total	29.6	31.4	29.7	28.7	26.6	25.5	21.5	19.9	17.7	17.2	15.0	14.8	14.9	15.6	16.0	16.6	15.7	17.1	16.6	17.1	21.0	17.9	15.6	13.7	13.0	10.4	10.5	+0.1
Males	16.5	17.4	14.8	14.8	13.1	12.4	9.4	9.1	7.8	5.9	6.4	5.6	4.5	6.1	5.5	8.1	6.4	6.5	7.2	8.3	9.8	9.3	8.8	7.8	7.0	5.1	6.1	+1.0
Females	42.2	44.8	43.1	41.5	39.7	38.3	32.6	30.2	28.3	28.1	23.2	23.3	23.7	23.9	25.5	24.5	25.7	26.5	26.4	23.6	29.3	24.7	21.6	18.3	18.3	14.3	14.5	+0.2
<b>Annual</b>																												
Total	20.5	20.5	18.8	16.9	15.3	13.9	12.2	10.9	10.4	8.8	8.4	8.0	9.3	9.8	9.3	9.8	9.6	10.2	11.1	11.8	15.1	13.0	10.7	10.0	9.4	6.7	7.2	+0.4
Males	10.7	10.6	9.2	9.0	6.9	6.4	4.9	4.3	4.3	3.0	4.3	3.2	2.5	3.5	3.7	4.9	4.3	4.0	4.9	6.2	8.1	6.9	6.5	6.0	5.7	3.4	4.2	+0.8
Females	29.5	30.0	27.5	24.4	23.2	21.1	18.8	17.2	16.7	14.2	12.2	12.3	14.9	15.1	14.1	14.6	15.4	15.7	17.2	15.6	20.0	17.5	14.1	13.2	12.5	9.2	9.9	+0.7
<b>30-Day</b>																												
Total	9.8	9.5	9.9	7.3	6.5	5.8	5.1	4.8	4.3	3.7	4.0	3.8	4.2	3.8	4.3	4.6	4.8	5.4	5.8	6.3	9.2	6.5	5.6	4.4	5.3	3.8	3.7	-0.1
Males	5.0	4.0	4.8	3.7	3.2	2.7	1.8	2.3	1.9	1.4	1.9	1.9	1.3	1.1	2.3	2.3	2.2	2.6	2.1	3.7	4.7	3.2	3.9	2.1	3.1	1.8	2.2	+0.4
Females	14.0	13.7	14.2	10.7	9.6	8.9	8.3	7.0	6.7	5.5	5.8	4.9	6.4	5.7	5.8	7.0	7.6	7.8	9.4	8.0	12.2	8.7	6.8	5.9	7.1	5.0	5.0	0.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Data based on one form. The total *N* each year for 1982–1989 is approximately 3,300. The total *N* each year for 1990–1998 is approximately 2,600. Beginning in 1999, the total *N* each year is approximately 2,200.

**TABLE 10-1b**  
**Stay-Awake Pills: Trends in Lifetime, Annual, and**  
**30-Day Prevalence of Use by Gender in Grade 12<sup>a</sup>**  
 (Entries are percentages.)

Prevalence of Use	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>Lifetime</b>																												
Total	19.1	20.4	22.7	26.3	31.5	37.4	37.4	36.3	37.0	37.0	35.6	30.5	31.3	31.2	30.5	31.0	29.6	25.5	23.0	25.6	22.5	19.8	18.4	15.8	14.8	12.3	9.6	-2.8
Males	20.2	22.3	23.2	28.0	32.0	34.8	38.0	37.7	35.3	36.0	34.4	30.4	30.2	29.0	27.4	27.3	29.0	23.3	21.4	25.2	19.2	16.1	16.3	14.5	14.8	11.4	7.7	-3.7
Females	16.9	18.2	21.7	24.9	31.3	39.4	36.7	35.1	39.2	37.9	37.3	30.1	32.2	32.3	32.1	34.5	30.1	26.9	24.0	26.0	24.5	22.4	20.0	15.9	14.5	13.1	10.9	-2.2
<b>Annual</b>																												
Total	11.8	12.3	13.9	18.2	22.2	25.2	26.4	23.0	23.4	22.2	20.4	19.1	20.7	20.3	19.0	19.7	19.0	15.7	15.0	17.3	14.9	12.5	11.8	10.4	10.0	7.6	6.3	-1.3
Males	12.8	13.8	15.4	19.7	22.3	25.5	27.6	24.8	22.3	22.3	20.9	19.7	20.3	19.7	18.2	17.4	19.5	14.5	14.0	17.8	13.9	9.3	11.1	9.4	10.2	7.8	5.2	-2.6
Females	10.0	10.5	12.5	17.0	22.2	25.0	25.2	21.7	24.5	22.0	20.2	17.6	20.4	20.1	18.7	21.0	18.0	15.9	15.9	16.5	14.6	14.3	12.3	10.3	9.4	7.1	7.0	0.0
<b>30-Day</b>																												
Total	5.5	5.3	5.8	7.2	9.6	9.2	9.8	8.5	7.3	6.8	7.2	7.0	6.3	7.3	7.5	7.8	7.4	6.8	7.3	7.2	5.8	5.0	4.5	4.2	4.2	3.3	2.6	-0.7
Males	6.0	5.5	6.2	7.7	9.5	9.3	11.0	10.0	7.1	7.6	7.8	7.9	5.9	6.3	8.0	6.7	8.7	5.0	6.8	6.8	5.6	3.2	5.1	3.6	4.3	3.8	2.3	-1.5
Females	4.7	4.5	5.5	6.7	9.3	9.1	8.6	6.9	7.3	5.5	6.5	5.5	5.8	7.1	6.1	8.2	5.8	7.4	7.3	7.3	5.6	5.9	3.8	4.5	3.5	2.5	3.1	+0.6

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Data based on one form. The total *N* each year for 1982–1989 is approximately 3,300. The total *N* each year for 1990–1998 is approximately 2,600. Beginning in 1999, the total *N* each year is approximately 2,200.

**TABLE 10-1c**  
**Look-Alikes: Trends in Lifetime, Annual, and**  
**30-Day Prevalence of Use by Gender in Grade 12<sup>a</sup>**  
 (Entries are percentages.)

Prevalence of Use	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
<b>Lifetime</b>																												
Total	15.1	14.8	15.3	14.2	12.7	11.9	11.7	10.5	10.7	8.9	10.1	10.5	10.3	11.6	10.7	10.8	9.4	9.2	10.0	9.8	9.6	8.6	8.1	7.4	5.7	4.6	5.2	+0.5
Males	13.6	14.2	14.1	14.1	12.3	10.9	10.4	10.1	11.6	8.3	11.0	10.1	9.0	10.8	10.0	10.6	9.4	7.2	11.3	9.4	9.1	7.6	7.2	7.1	5.1	3.6	4.7	+1.1
Females	15.1	14.4	15.2	13.8	12.6	12.3	12.1	10.2	9.9	8.8	9.3	10.4	11.2	10.6	10.3	10.7	8.9	9.7	8.0	9.3	9.3	8.7	8.3	6.6	5.8	5.1	5.2	+0.1
<b>Annual</b>																												
Total	10.8	9.4	9.7	8.2	6.9	6.3	5.7	5.6	5.6	5.2	5.4	6.2	6.0	6.8	6.5	6.4	5.7	5.0	5.8	7.1	6.6	5.4	5.0	4.2	3.7	2.8	3.1	+0.4
Males	9.5	9.2	9.7	8.3	6.5	6.4	4.2	6.1	6.6	4.9	6.2	6.4	5.9	7.0	5.7	7.2	6.0	4.6	7.0	7.3	6.8	5.2	4.3	3.9	3.3	2.5	2.5	+0.1
Females	10.7	8.6	8.5	7.8	6.7	6.0	6.3	5.0	4.6	4.7	4.5	5.4	5.7	5.4	6.0	5.5	5.0	4.4	4.3	6.6	5.9	5.1	5.2	3.8	3.8	2.6	3.2	+0.6
<b>30-Day</b>																												
Total	5.6	5.2	4.4	3.6	3.4	2.7	2.7	2.4	2.3	2.1	2.4	2.7	2.4	3.0	3.1	2.7	2.7	2.4	2.6	3.3	2.8	2.4	2.5	1.9	2.3	1.1	1.6	+0.5
Males	4.0	4.5	4.5	3.8	3.4	2.4	1.7	2.3	2.6	2.0	2.5	2.0	2.5	3.0	2.6	2.7	3.1	1.9	3.1	3.0	2.8	2.2	2.7	1.4	2.3	1.1	1.5	+0.5
Females	5.2	5.4	3.8	3.1	3.0	2.7	3.0	2.2	1.8	1.8	2.2	2.9	2.0	2.1	2.7	2.6	2.0	2.0	1.7	2.8	2.3	2.1	2.1	1.7	2.2	0.9	1.5	+0.5

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Data based on one form. The total *N* each year for 1982–1989 is approximately 3,300. The total *N* each year for 1990–1998 is approximately 2,600. Beginning in 1999, the total *N* each year is approximately 2,200.

**TABLE 10-2a**  
**Nonprescription Diet Pills: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months													Cont.				
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
Approximate weighted N =	—	—	—	—	—	—	—	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000	
Total	—	—	—	—	—	—	—	20.5	20.5	18.8	16.9	15.3	13.9	12.2	10.9	10.4	8.8	
Gender:																		
Male	—	—	—	—	—	—	—	10.7	10.6	9.2	9.0	6.9	6.4	4.9	4.3	4.3	3.0	
Female	—	—	—	—	—	—	—	29.6	30.0	27.5	24.4	23.2	21.1	18.8	17.2	16.7	14.2	
College Plans:																		
None or under 4 years	—	—	—	—	—	—	—	23.3	21.4	18.2	20.7	16.1	14.9	13.1	11.9	13.2	8.9	
Complete 4 years	—	—	—	—	—	—	—	17.5	19.0	18.8	14.7	15.0	13.3	11.7	10.9	9.7	8.6	
Region:																		
Northeast	—	—	—	—	—	—	—	19.1	18.5	18.4	16.5	14.9	14.3	10.5	10.4	11.5	5.7	
Midwest	—	—	—	—	—	—	—	24.6	23.3	20.2	19.2	16.6	15.0	13.7	15.0	11.1	10.7	
South	—	—	—	—	—	—	—	18.2	19.2	19.6	14.9	13.9	13.1	12.0	9.3	10.0	9.0	
West	—	—	—	—	—	—	—	18.9	21.1	15.8	17.3	16.4	13.5	12.1	8.7	8.9	8.8	
Population Density:																		
Large MSA	—	—	—	—	—	—	—	19.7	18.7	17.3	17.1	15.0	13.0	12.1	10.3	7.4	7.7	
Other MSA	—	—	—	—	—	—	—	20.0	22.8	18.6	17.1	15.6	13.7	12.4	10.9	11.2	9.2	
Non-MSA	—	—	—	—	—	—	—	21.7	19.2	20.5	16.5	15.2	15.2	11.9	11.7	11.7	9.1	
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	—	—	—	—	—	—	—	19.5	15.9	19.2	14.6	12.0	13.5	13.4	9.5	5.1	9.4	
2.5–3.0	—	—	—	—	—	—	—	21.6	21.3	18.2	17.8	15.6	13.1	12.0	9.9	12.3	8.6	
3.5–4.0	—	—	—	—	—	—	—	20.6	20.2	20.6	18.0	16.6	14.5	11.5	11.8	9.2	8.2	
4.5–5.0	—	—	—	—	—	—	—	19.3	22.4	17.4	16.8	15.0	15.9	12.0	10.4	12.0	9.3	
5.5–6.0 (High)	—	—	—	—	—	—	—	21.0	22.3	19.1	17.1	15.7	11.6	13.6	13.4	12.2	8.5	
Race (2-year average): <sup>b</sup>																		
White	—	—	—	—	—	—	—	—	23.2	22.2	20.4	18.4	16.3	14.7	13.4	12.5	11.0	
African American	—	—	—	—	—	—	—	—	6.6	8.1	6.4	5.5	7.5	6.9	4.3	2.9	3.5	
Hispanic	—	—	—	—	—	—	—	—	11.6	12.6	14.8	10.8	7.8	7.9	9.6	9.8	5.6	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1982–1989;  $N$  is one fifth of  $N$  indicated in Table D-109. Beginning in 1990, data based on one of six forms;  $N$  is one sixth of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

**TABLE 10-2a (cont.)**  
**Nonprescription Diet Pills: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																	2007- 2008	change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
<i>Approximate weighted N =</i>																			
Total	8.4	8.0	9.3	9.8	9.3	9.8	9.6	10.2	11.1	11.8	15.1	13.0	10.7	10.0	9.4	6.7	7.2	+0.4	
Gender:																			
Male	4.3	3.2	2.5	3.5	3.7	4.9	4.3	4.0	4.9	6.2	8.1	6.9	6.5	6.0	5.7	3.4	4.2	+0.8	
Female	12.2	12.3	15.0	15.1	14.1	14.6	15.4	15.7	17.2	15.6	20.0	17.5	14.1	13.2	12.5	9.2	9.9	+0.7	
College Plans:																			
None or under 4 years	10.5	9.7	10.8	11.5	10.8	12.0	10.7	9.1	10.0	9.4	17.8	13.9	10.4	11.5	12.1	4.4	10.2	+5.8 sss	
Complete 4 years	8.0	7.3	9.3	9.3	8.6	9.2	10.1	10.4	11.5	11.6	13.8	12.6	10.5	9.3	8.6	7.1	6.8	-0.3	
Region:																			
Northeast	6.3	7.6	8.6	8.2	10.1	8.1	8.6	8.6	8.0	12.8	16.7	11.6	11.9	9.1	12.0	7.2	6.3	-0.9	
Midwest	9.3	8.4	11.8	11.8	9.5	10.2	10.4	10.4	12.6	15.5	14.4	14.4	9.1	10.0	9.9	7.4	8.0	+0.6	
South	7.7	9.2	8.9	10.8	9.4	11.5	10.1	11.2	12.9	9.9	16.7	13.6	10.5	10.4	9.2	6.9	6.5	-0.5	
West	10.3	5.4	7.4	6.3	7.9	7.8	8.6	9.3	9.3	8.6	12.4	11.7	12.2	10.1	6.5	5.3	8.0	+2.7	
Population Density:																			
Large MSA	7.4	7.3	8.5	10.7	8.5	9.4	9.5	9.0	8.3	12.3	13.9	12.5	9.8	7.9	8.0	4.8	6.8	+2.0	
Other MSA	8.4	6.8	9.9	8.9	9.3	8.7	9.1	9.5	11.5	11.5	13.6	10.8	11.5	10.7	9.9	7.4	7.0	-0.3	
Non-MSA	9.2	10.5	9.1	10.1	10.0	12.3	11.0	12.6	13.6	11.7	19.8	17.7	10.3	11.1	10.3	8.3	7.9	-0.5	
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	10.6	6.9	11.0	8.9	8.3	14.4	11.8	9.9	9.8	5.6	12.7	15.8	7.0	10.5	6.9	5.8	7.4	+1.6	
2.5-3.0	8.9	8.9	11.0	10.9	8.5	10.5	8.9	11.1	13.1	15.0	17.7	13.8	14.1	11.1	13.3	8.8	7.8	-1.1	
3.5-4.0	7.9	7.8	10.6	11.5	9.7	8.8	9.9	10.5	11.6	14.1	15.6	11.1	10.7	10.2	9.0	6.0	7.5	+1.5	
4.5-5.0	6.6	8.0	8.5	7.5	8.8	10.7	11.6	11.2	12.7	9.0	14.8	11.5	9.0	8.9	8.6	5.0	8.7	+3.7 ss	
5.5-6.0 (High)	8.2	6.2	5.3	9.2	8.4	9.4	9.6	7.4	7.4	7.9	8.5	13.4	10.1	7.5	6.4	7.4	3.0	-4.5 s	
Race (2-year average): <sup>b</sup>																			
White	9.8	9.2	9.7	10.9	10.9	10.8	11.2	11.2	11.8	12.9	14.8	15.4	13.1	11.3	10.7	9.3	8.1	-1.1	
African American	3.0	4.5	6.1	5.3	4.3	5.3	4.9	4.2	5.5	6.5	5.5	4.6	4.8	4.5	4.2	3.2	2.5	-0.8	
Hispanic	4.6	7.1	7.1	7.5	7.0	8.2	9.3	9.8	10.0	9.1	13.2	12.7	7.9	7.5	7.7	4.9	5.2	+0.3	

<sup>a</sup>Parental education is an average score of mother's education and father's education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-2b**  
**Stay-Awake Pills: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
Approximate weighted N =	—	—	—	—	—	—	—	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000	
Total	—	—	—	—	—	—	—	11.8	12.3	13.9	18.2	22.3	25.2	26.4	23.0	23.4	22.2	
Gender:																		
Male	—	—	—	—	—	—	—	12.8	13.8	15.4	19.7	22.3	25.5	27.6	24.8	22.3	22.3	
Female	—	—	—	—	—	—	—	10.0	10.5	12.5	17.0	22.2	25.0	25.2	21.7	24.5	22.0	
College Plans:																		
None or under 4 years	—	—	—	—	—	—	—	11.4	10.8	12.5	15.5	18.1	23.1	23.3	21.8	22.9	21.0	
Complete 4 years	—	—	—	—	—	—	—	10.5	12.6	14.0	20.4	24.9	26.5	27.5	24.1	24.1	22.3	
Region:																		
Northeast	—	—	—	—	—	—	—	9.6	9.5	11.9	18.2	20.4	26.4	23.8	18.4	22.0	18.3	
Midwest	—	—	—	—	—	—	—	15.1	16.8	16.3	18.4	24.5	26.8	27.5	29.1	28.4	31.8	
South	—	—	—	—	—	—	—	9.6	10.7	12.0	13.3	19.8	20.9	25.6	20.4	20.6	16.1	
West	—	—	—	—	—	—	—	13.5	11.5	16.0	25.6	25.5	28.9	28.9	24.0	22.9	23.4	
Population Density:																		
Large MSA	—	—	—	—	—	—	—	11.5	11.1	12.2	17.7	19.0	25.6	23.2	20.9	19.0	16.7	
Other MSA	—	—	—	—	—	—	—	12.4	14.5	14.0	19.1	24.1	24.1	27.7	22.9	25.1	25.3	
Non-MSA	—	—	—	—	—	—	—	11.3	10.5	15.4	17.4	22.1	27.0	27.4	25.2	24.5	21.7	
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	—	—	—	—	—	—	—	8.8	8.2	8.3	10.9	12.0	15.0	17.1	18.1	15.3	14.9	
2.5–3.0	—	—	—	—	—	—	—	10.6	10.1	13.9	15.5	19.5	22.8	22.5	21.6	23.2	20.2	
3.5–4.0	—	—	—	—	—	—	—	12.6	13.5	13.5	21.3	26.5	30.0	28.4	26.0	25.6	23.9	
4.5–5.0	—	—	—	—	—	—	—	13.2	15.3	16.1	24.0	23.7	29.9	30.3	24.0	28.0	25.1	
5.5–6.0 (High)	—	—	—	—	—	—	—	13.0	16.7	18.0	20.2	28.7	24.9	32.3	25.1	22.3	25.8	
Race (2-year average): <sup>b</sup>																		
White	—	—	—	—	—	—	—	—	13.6	15.0	18.7	23.7	27.7	30.4	29.8	27.7	27.4	
African American	—	—	—	—	—	—	—	—	2.0	3.0	3.6	4.4	5.5	6.2	6.0	6.4	5.1	
Hispanic	—	—	—	—	—	—	—	—	5.7	8.3	8.4	9.7	13.8	15.6	16.5	14.1	11.6	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1982–1989;  $N$  is one fifth of  $N$  indicated in Table D-109. Beginning in 1990, data based on one of six forms;  $N$  is one sixth of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

**TABLE 10-2b (cont.)**  
**Stay-Awake Pills: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																	2007- 2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<i>Approximate weighted N =</i>																		
Total	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Gender:	20.4	19.2	20.7	20.3	19.0	19.7	19.0	15.7	15.0	17.3	14.9	12.5	11.8	10.4	10.0	7.6	6.3	-1.3
Male	20.9	19.7	20.3	19.7	18.2	17.4	19.5	14.5	14.0	17.8	13.9	9.3	11.1	9.4	10.2	7.8	5.2	-2.6
Female	20.2	17.6	20.4	20.1	18.7	21.0	18.0	15.9	15.9	16.5	14.6	14.3	12.3	10.3	9.4	7.1	7.0	0.0
College Plans:																		
None or under 4 years	20.5	18.6	20.1	21.1	18.2	21.8	18.5	14.3	15.5	18.9	16.1	14.3	13.0	11.2	9.1	9.5	9.5	0.0
Complete 4 years	21.0	18.7	20.6	19.7	18.3	19.1	18.4	15.1	14.7	16.5	14.0	11.9	11.4	9.3	9.8	7.1	5.3	-1.8
Region:																		
Northeast	18.2	20.2	21.2	18.4	22.5	19.1	17.6	16.0	10.2	14.7	13.9	10.9	14.0	8.0	8.3	5.7	6.7	+1.1
Midwest	25.7	22.0	26.2	24.2	19.8	23.8	22.0	17.3	19.3	24.4	18.9	12.9	12.3	13.4	14.1	10.9	6.6	-4.4 s
South	17.6	18.7	20.2	18.8	17.5	20.1	18.8	15.6	13.8	15.4	13.5	11.6	9.7	11.0	9.7	7.4	5.9	-1.5
West	20.0	14.9	13.7	19.1	16.5	13.3	16.8	13.3	16.3	12.4	13.2	14.9	12.5	8.0	7.0	6.3	6.2	-0.1
Population Density:																		
Large MSA	15.2	16.7	18.4	18.9	14.4	15.5	15.3	9.6	11.0	15.7	11.9	9.2	8.3	7.4	7.7	5.3	7.2	+1.9
Other MSA	21.2	19.8	21.1	19.3	20.2	18.4	21.1	18.4	15.2	14.3	14.7	12.6	13.6	11.7	10.2	8.9	5.0	-3.9 s
Non-MSA	23.4	19.9	22.3	23.6	20.7	26.8	18.9	17.3	19.3	24.3	19.3	16.5	12.2	11.4	12.7	8.3	8.1	-0.1
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	16.2	11.0	16.6	13.2	11.5	18.2	11.7	7.9	7.3	15.3	8.9	10.3	5.9	4.2	6.1	3.7	6.0	+2.3
2.5-3.0	22.8	19.0	18.1	18.1	19.0	21.0	16.5	13.4	15.1	17.1	13.4	12.0	13.9	9.7	9.0	9.5	6.7	-2.7
3.5-4.0	22.4	18.6	21.6	24.3	17.4	17.6	19.9	18.3	17.0	20.3	16.5	11.4	13.5	12.8	11.4	7.6	7.4	-0.2
4.5-5.0	20.0	21.1	24.4	20.4	23.2	20.2	20.3	15.6	16.7	16.2	14.9	12.7	11.3	9.7	10.0	6.2	4.9	-1.3
5.5-6.0 (High)	17.8	20.2	18.4	17.3	17.4	19.3	22.6	14.9	13.4	13.6	15.7	14.5	11.4	8.3	8.9	9.7	5.4	-4.3
Race (2-year average): <sup>b</sup>																		
White	25.8	24.0	23.7	23.9	23.3	23.1	23.2	20.7	18.2	19.9	19.5	16.0	14.2	12.8	11.6	10.6	8.4	-2.2 s
African American	3.5	3.5	3.6	4.8	4.4	5.3	6.2	3.6	3.0	4.2	3.2	2.2	1.9	2.3	2.6	1.2	1.2	0.0
Hispanic	11.9	13.3	14.2	12.3	9.5	9.6	10.1	12.3	11.8	10.6	12.3	9.4	5.6	5.7	6.9	5.2	4.4	-0.8

<sup>a</sup>Parental education is an average score of mother's education and father's education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-2c**  
**Look-Alikes: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														↑ Cont.			
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
Approximate weighted N =	—	—	—	—	—	—	—	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000	
Total	—	—	—	—	—	—	—	10.8	9.4	9.7	8.2	6.9	6.3	5.7	5.6	5.6	5.2	
Gender:																		
Male	—	—	—	—	—	—	—	9.5	9.2	9.7	8.3	6.5	6.4	4.2	6.1	6.6	4.9	
Female	—	—	—	—	—	—	—	10.7	8.7	8.5	7.8	6.7	6.0	6.3	5.0	4.6	4.7	
College Plans:																		
None or under 4 years	—	—	—	—	—	—	—	13.6	11.9	11.2	10.0	10.0	8.1	7.0	8.0	7.9	7.2	
Complete 4 years	—	—	—	—	—	—	—	7.1	6.1	7.0	6.5	4.8	4.9	3.8	4.6	4.4	3.9	
Region:																		
Northeast	—	—	—	—	—	—	—	9.3	9.0	10.7	9.0	7.4	4.6	4.9	4.0	3.8	4.4	
Midwest	—	—	—	—	—	—	—	14.5	12.3	10.9	9.0	7.6	7.6	7.3	8.5	7.3	8.2	
South	—	—	—	—	—	—	—	9.8	7.7	9.0	7.3	5.6	6.1	5.5	4.7	6.0	4.5	
West	—	—	—	—	—	—	—	7.4	7.9	7.6	7.7	7.7	6.9	4.7	4.6	4.4	3.1	
Population Density:																		
Large MSA	—	—	—	—	—	—	—	10.2	9.5	10.2	6.1	7.1	4.4	4.3	3.3	3.0	3.3	
Other MSA	—	—	—	—	—	—	—	10.8	10.0	9.4	9.2	6.3	6.4	6.4	5.9	6.0	6.0	
Non-MSA	—	—	—	—	—	—	—	11.2	8.4	9.6	8.6	7.8	8.2	5.9	7.2	7.3	5.4	
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	—	—	—	—	—	—	—	9.8	7.2	9.9	9.0	6.1	5.7	6.3	4.6	3.1	6.6	
2.5–3.0	—	—	—	—	—	—	—	11.4	9.8	9.9	8.3	6.9	6.9	5.2	5.7	6.3	5.1	
3.5–4.0	—	—	—	—	—	—	—	10.3	9.5	9.6	8.8	8.0	6.3	5.7	5.9	5.9	5.1	
4.5–5.0	—	—	—	—	—	—	—	10.4	8.3	6.1	5.9	5.9	6.7	4.5	5.4	5.9	4.7	
5.5–6.0 (High)	—	—	—	—	—	—	—	6.9	6.7	8.1	7.9	4.3	4.6	4.3	5.3	4.7	2.5	
Race (2-year average): <sup>b</sup>																		
White	—	—	—	—	—	—	—	—	10.9	10.3	9.8	8.3	7.1	6.3	6.1	6.4	6.2	
African American	—	—	—	—	—	—	—	—	2.0	2.4	2.4	2.2	2.7	2.7	2.6	2.1	1.5	
Hispanic	—	—	—	—	—	—	—	—	6.1	7.0	5.8	3.8	3.0	3.2	3.5	3.4	2.2	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1982–1989;  $N$  is one fifth of  $N$  indicated in Table D-109. Beginning in 1990, data based on one of six forms;  $N$  is one sixth of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

**TABLE 10-2c (cont.)**  
**Look-Alikes: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																	2007–
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate weighted N =</i>																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	5.4	6.2	6.0	6.8	6.5	6.4	5.7	5.0	5.8	7.1	6.6	5.4	5.0	4.2	3.7	2.8	3.1	+0.4
Gender:																		
Male	6.2	6.4	5.9	7.0	5.7	7.2	6.0	4.6	7.0	7.3	6.8	5.2	4.3	3.9	3.3	2.5	2.5	+0.1
Female	4.5	5.5	5.7	5.4	6.0	5.5	5.0	4.4	4.3	6.6	5.9	5.1	5.2	3.8	3.8	2.6	3.2	+0.6
College Plans:																		
None or under 4 years	4.4	7.6	7.0	7.5	7.0	10.1	6.2	5.2	8.4	9.9	8.7	6.7	6.2	7.0	5.7	5.1	7.1	+1.9
Complete 4 years	5.4	5.5	5.7	6.2	5.5	4.9	4.8	4.4	4.9	5.7	5.7	4.6	4.2	2.9	2.8	2.2	2.1	-0.1
Region:																		
Northeast	4.9	4.4	4.6	5.6	6.3	5.6	6.5	5.1	5.3	7.5	5.9	5.8	4.6	2.6	3.3	1.9	3.2	+1.3
Midwest	7.1	8.4	8.7	8.5	7.9	7.7	6.2	4.8	6.8	8.4	7.3	5.0	4.2	4.9	4.2	3.7	3.4	-0.3
South	4.7	6.2	5.1	5.8	5.6	6.7	5.0	6.7	6.2	6.7	6.3	5.0	6.6	5.4	4.1	2.4	2.0	-0.4
West	4.4	4.6	5.0	7.3	6.3	5.1	6.0	1.9	4.7	5.8	6.9	6.1	3.4	2.6	2.7	3.3	4.4	+1.2
Population Density:																		
Large MSA	3.0	4.7	5.3	7.2	5.4	4.5	6.1	3.0	3.7	6.8	4.5	4.4	3.3	2.9	4.8	1.6	4.0	+2.4 ss
Other MSA	4.7	7.3	6.0	6.0	5.4	4.8	6.2	5.7	6.2	6.2	7.3	5.5	5.7	4.5	2.7	3.1	2.7	-0.4
Non-MSA	8.7	5.5	6.7	7.6	9.2	11.7	4.3	5.9	7.6	9.4	8.2	6.5	5.6	5.1	3.9	3.8	3.2	-0.7
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	4.3	4.9	8.2	6.5	3.2	7.0	3.3	4.7	5.7	5.2	8.5	8.0	4.5	2.9	5.8	4.7	2.0	-2.7
2.5–3.0	5.3	7.5	6.5	5.3	6.7	7.1	5.5	7.3	5.7	8.2	5.5	4.6	6.4	4.4	4.1	2.9	4.1	+1.2
3.5–4.0	6.6	6.5	4.4	9.5	5.4	7.4	5.0	3.4	5.2	6.8	7.6	4.4	4.8	5.1	3.4	3.1	3.6	+0.6
4.5–5.0	4.0	5.6	7.1	4.9	6.7	5.8	6.2	5.0	7.5	7.2	5.6	5.1	4.7	3.2	3.2	1.9	2.3	+0.4
5.5–6.0 (High)	5.4	3.0	4.0	4.3	6.3	2.8	6.1	3.1	5.5	4.5	2.2	5.4	2.4	2.8	1.0	1.0	1.3	+0.4
Race (2-year average): <sup>b</sup>																		
White	6.1	6.6	7.0	7.2	7.1	7.6	7.4	6.0	5.9	7.0	7.2	6.5	5.6	4.9	4.4	3.7	3.4	-0.3
African American	1.7	1.6	1.4	1.9	1.4	0.9	0.9	1.0	1.2	1.9	1.8	0.7	0.8	1.1	1.2	1.2	1.3	+0.1
Hispanic	1.6	5.3	5.8	3.6	3.9	3.6	3.4	3.4	4.6	7.1	8.1	5.5	3.2	3.2	3.3	2.5	2.0	-0.6

<sup>a</sup>Parental education is an average score of mother's education and father's education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-3**  
**Percentage of 12th Graders in Each Category of an Illicit Drug Use Index**  
**Who Have Tried Various Over-the-Counter Stimulants, 2008**

(Entries are percentages.)

Their lifetime use of . . .	Lifetime Illicit Drug Use Groupings		
	<u>No Use</u>	Used Marijuana <u>Only</u>	Used Other Illicit <u>Drugs</u>
Diet pills	4.4 <sup>a</sup>	10.7	26.7
Stay-awake pills	2.4	8.4	27.9
Look-alikes	0.8	3.4	17.4
<i>Approximate weighted N =</i>	<i>1,096</i>	<i>432</i>	<i>527</i>

*Source.* The Monitoring the Future study, the University of Michigan.

<sup>a</sup>This means that, of those who have never used an illicit drug, 4.4% have used a diet pill at least once.

**TABLE 10-4**  
**Source of Prescription Drugs**  
**among Those Who Used in Last 12 Months**  
**Grade 12, 2007–2008 Combined**  
(Entries are percentages.)

<i>Where did you get the [insert drug name here] you used without a doctor's orders during the past year? (Mark all that apply.)</i>	<u>Amphetamines</u>	<u>Tranquilizers</u>	Narcotics other than <u>Heroin</u>
Bought on Internet	4.6	2.4	2.3
Took from friend/relative without asking	19.6	21.1	24.2
Given for free by friend or relative	58.2	59.8	50.5
Bought from friend or relative	45.0	44.1	37.1
From a prescription I had	15.1	18.4	40.2
Bought from drug dealer/stranger	26.7	24.2	18.6
Other method	17.8	7.5	8.5
<i>Weighted N =</i>	261	226	361

Source. The Monitoring the Future study, the University of Michigan.

**TABLE 10-5**  
**Use of Any Prescription Drug<sup>a</sup> without Medical Supervision in Grade 12**

(Entries are percentages.)

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2007– 2008 change</u>
Lifetime Use	24.0	23.9	22.2	21.5	-0.7
Annual Use	17.1	16.8	15.8	15.4	-0.3
<u>30-Day Use</u>	<u>8.6</u>	<u>8.1</u>	<u>7.8</u>	<u>7.2</u>	<u>-0.6</u>

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.  
 “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two recent years is due to rounding.

<sup>a</sup>The use of “any prescription drug” includes use of any of the following: amphetamines, sedatives (barbiturates), narcotics other than heroin, or tranquilizers “...without a doctor telling you to use them.”

**TABLE 10-6**  
**Any Prescription Drug<sup>a</sup> without Medical Supervision:**  
**Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	2007– 2008 <u>change</u>
<i>Approximate wtd. N =</i>	<i>16,800</i>	<i>16,500</i>	<i>16,100</i>	<i>15,700</i>	
Total	17.1	16.8	15.8	15.4	-0.3
Gender:					
Male	18.2	17.0	16.4	16.3	-0.2
Female	15.7	16.3	14.8	14.4	-0.4
College Plans:					
None or under 4 years	22.2	22.3	21.7	20.9	-0.7
Complete 4 years	15.8	15.2	14.3	14.1	-0.2
Region:					
Northeast	15.5	17.4	15.8	15.2	-0.6
Midwest	18.9	16.1	16.5	15.0	-1.5
South	17.9	17.4	16.3	16.1	-0.2
West	15.2	16.2	14.1	15.0	+1.0
Population Density:					
Large MSA	15.5	16.9	15.0	13.3	-1.7
Other MSA	18.0	16.5	15.7	15.7	+0.0
Non-MSA	17.4	17.5	17.1	17.3	+0.2
Parental Education: <sup>b</sup>					
1.0–2.0 (Low)	11.8	15.7	13.7	13.2	-0.5
2.5–3.0	18.1	17.2	16.4	15.3	-1.0
3.5–4.0	18.9	18.2	16.2	16.3	+0.1
4.5–5.0	17.4	16.6	15.9	15.2	-0.7
5.5–6.0 (High)	15.0	15.5	14.8	15.1	+0.3
Race (2-year average): <sup>c</sup>					
White	—	19.8	19.3	18.9	-0.5
African American	—	6.1	5.8	5.7	-0.1
Hispanic	—	12.8	11.9	10.3	-1.7

The Monitoring the Future study, the University of Michigan.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to round

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

**TABLE 10-7a**  
**Androstenedione: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months								2007– 2008 change
	2001	2002	2003	2004	2005	2006	2007	2008	
<i>Approximate weighted N =</i>	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	1.1	1.2	1.0	0.9	0.6	1.0	0.9	0.9	+0.1
Gender:									
Male	1.3	1.7	1.2	1.2	1.0	1.4	0.9	1.3	+0.4
Female	1.0	0.8	0.8	0.5	0.3	0.5	0.8	0.5	-0.4
College Plans:									
None or under 4 years	4.2	5.0	2.9	3.6	2.2	4.6	1.1	3.1	+2.0
Complete 4 years	0.8	0.8	0.8	0.6	0.4	0.6	0.8	0.7	0.0
Region:									
Northeast	0.6	1.3	0.9	0.6	0.5	1.5	0.5	0.5	0.0
Midwest	1.1	1.7	1.0	1.2	0.3	0.9	0.4	0.8	+0.3
South	1.6	1.0	1.2	0.8	1.2	0.6	1.2	1.2	0.0
West	0.8	0.8	0.6	0.9	0.1	1.3	0.9	1.0	+0.1
Population Density:									
Large MSA	1.1	0.8	0.9	0.6	0.5	0.8	0.5	1.0	+0.4
Other MSA	1.2	1.3	0.9	0.9	0.7	1.3	1.2	1.0	-0.2
Non-MSA	0.9	1.7	1.3	1.2	0.8	0.7	0.7	0.8	+0.1
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	1.3	1.7	1.1	2.2	0.8	1.3	1.1	2.6	+1.5
2.5–3.0	0.8	1.9	1.9	0.7	1.3	1.5	0.8	0.9	0.0
3.5–4.0	1.6	1.0	0.9	1.3	0.6	0.9	0.8	0.7	-0.1
4.5–5.0	1.0	0.9	0.6	0.7	0.2	0.7	0.6	0.7	+0.1
5.5–6.0 (High)	1.2	0.9	0.7	0.2	0.3	0.6	0.8	1.2	+0.4
Race (2-year average): <sup>b</sup>									
White	—	1.1	1.1	0.8	0.5	0.5	0.6	0.6	0.0
African American	—	0.7	0.5	0.6	0.8	0.9	1.3	1.4	+0.1
Hispanic	—	1.4	1.3	1.6	1.4	1.2	1.4	1.6	+0.1

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of four forms; *N* is one third of *N* indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-7b**  
**Androstenedione: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months								2007– 2008 change
	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	
<i>Approximate weighted N =</i>	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	2.2	1.9	1.7	1.1	0.9	0.9	0.6	0.9	+0.3
Gender:									
Male	3.5	2.2	2.5	1.6	1.4	1.7	0.9	1.3	+0.3
Female	0.9	1.6	0.9	0.5	0.4	0.2	0.2	0.6	+0.3
College Plans:									
None or under 4 years	3.9	3.5	4.0	2.8	1.9	3.3	1.6	1.4	-0.2
Complete 4 years	1.9	1.7	1.3	0.9	0.8	0.5	0.4	0.8	+0.4 s
Region:									
Northeast	2.1	1.8	1.6	1.2	1.0	1.4	0.5	0.7	+0.2
Midwest	1.7	1.4	1.4	1.2	0.7	0.8	0.3	0.9	+0.5
South	2.8	2.4	2.0	1.3	1.3	0.7	0.9	0.9	+0.1
West	1.9	1.9	1.7	0.6	0.7	0.9	0.5	0.9	+0.4
Population Density:									
Large MSA	2.6	1.4	1.4	1.0	0.9	0.8	0.8	0.9	+0.2
Other MSA	1.9	2.2	1.7	1.0	0.8	0.8	0.5	0.9	+0.4
Non-MSA	2.4	2.0	2.1	1.6	1.2	1.3	0.5	0.7	+0.2
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	3.6	3.4	1.8	1.4	1.5	2.1	1.0	0.6	-0.3
2.5–3.0	1.7	1.9	1.0	0.8	0.9	0.6	0.9	1.0	+0.1
3.5–4.0	3.4	1.7	1.9	1.0	0.6	0.8	0.5	0.9	+0.5
4.5–5.0	1.7	1.3	2.0	1.0	1.0	1.0	0.7	1.0	+0.3
5.5–6.0 (High)	1.4	2.5	1.6	1.0	0.8	0.7	0.1	0.6	+0.5
Race (2-year average): <sup>b</sup>									
White	—	1.7	1.4	1.1	1.0	0.8	0.6	0.6	0.0
African American	—	1.9	2.2	1.8	0.9	1.0	1.2	1.2	-0.1
Hispanic	—	2.6	2.3	1.6	0.6	0.8	0.8	0.8	0.0

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of four forms; *N* is one third of *N* indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-7c**  
**Androstenedione: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months								2007– 2008 change
	2001	2002	2003	2004	2005	2006	2007	2008	
<i>Approximate weighted N =</i>	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	3.0	2.5	2.5	2.1	1.7	1.1	0.9	1.3	+0.5
Gender:									
Male	5.3	4.7	4.6	3.7	2.7	1.6	1.2	1.7	+0.5
Female	0.7	0.4	0.2	0.6	0.5	0.3	0.4	0.7	+0.4
College Plans:									
None or under 4 years	4.3	4.0	3.6	2.9	2.3	2.0	1.7	2.3	+0.6
Complete 4 years	2.5	2.1	2.1	1.7	1.4	0.7	0.7	1.0	+0.4
Region:									
Northeast	3.1	2.8	2.7	2.1	1.5	1.2	0.9	0.6	-0.4
Midwest	3.4	2.4	2.3	2.1	2.0	0.6	1.1	1.0	-0.1
South	2.8	2.6	2.4	2.2	1.9	1.1	1.1	2.0	+0.9
West	2.9	2.1	3.0	1.8	1.2	1.5	0.3	1.2	+0.9
Population Density:									
Large MSA	3.0	2.4	1.1	1.5	1.5	1.1	0.7	0.6	0.0
Other MSA	3.3	2.0	3.1	2.8	1.7	1.0	1.0	2.0	+1.0
Non-MSA	2.7	3.4	3.4	1.5	1.9	1.1	0.9	0.8	-0.2
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	1.5	3.5	2.3	3.4	3.4	1.3	1.2	1.7	+0.5
2.5–3.0	3.7	3.1	2.5	1.8	1.7	1.2	1.1	1.7	+0.6
3.5–4.0	2.9	2.7	3.8	1.9	2.3	1.2	0.5	0.9	+0.4
4.5–5.0	3.2	2.0	1.5	2.2	1.1	1.0	1.4	1.5	+0.2
5.5–6.0 (High)	1.9	1.4	1.5	1.4	0.8	0.5	0.2	0.3	+0.1
Race (2-year average): <sup>b</sup>									
White	—	3.0	2.7	2.3	1.8	1.2	0.8	0.9	+0.1
African American	—	0.7	1.2	2.0	2.5	1.5	1.1	1.6	+0.5
Hispanic	—	3.2	3.0	2.6	1.9	2.0	1.2	0.7	-0.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on two of six forms; *N* is two sixths of *N* indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-8a**  
**Creatine: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months								2007–
	2001	2002	2003	2004	2005	2006	2007	2008	2008
<i>Approximate weighted N =</i>	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	2.7	2.3	2.3	1.9	1.3	2.2	2.0	2.0	-0.1
Gender:									
Male	4.8	3.9	3.6	3.3	2.3	3.9	3.2	3.2	-0.1
Female	0.9	0.9	1.1	0.6	0.4	0.6	0.9	0.7	-0.2
College Plans:									
None or under 4 years	6.0	6.0	4.6	4.7	3.4	5.6	2.6	5.0	+2.4
Complete 4 years	2.4	1.9	2.1	1.6	1.0	1.8	1.9	1.7	-0.2
Region:									
Northeast	1.4	2.1	1.6	1.5	0.8	2.2	1.2	0.8	-0.4
Midwest	3.4	2.7	3.0	1.7	1.2	2.7	2.2	1.7	-0.4
South	3.8	2.6	2.5	2.3	1.9	1.8	2.4	2.7	+0.3
West	1.2	1.7	1.4	1.7	0.7	2.4	1.8	1.8	+0.1
Population Density:									
Large MSA	2.3	2.3	1.4	1.5	0.8	1.9	1.0	2.0	+0.9
Other MSA	2.8	1.9	2.6	2.2	1.7	2.3	2.5	1.8	-0.7
Non-MSA	3.0	3.3	2.8	1.8	1.2	2.4	2.5	2.3	-0.3
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	3.7	2.6	1.6	2.6	2.2	2.1	1.9	3.6	+1.7
2.5–3.0	1.8	2.7	1.7	1.6	1.8	2.0	1.4	1.9	+0.5
3.5–4.0	3.5	1.6	2.8	2.4	1.4	2.7	3.1	2.4	-0.7
4.5–5.0	2.8	3.1	2.6	1.8	0.8	2.2	1.9	1.0	-0.9
5.5–6.0 (High)	3.1	1.9	3.1	1.4	1.0	2.1	2.1	2.3	+0.2
Race (2-year average): <sup>b</sup>									
White	—	2.7	2.6	2.3	1.6	1.7	2.2	2.0	-0.2
African American	—	1.0	0.9	1.1	1.3	1.4	1.7	2.1	+0.4
Hispanic	—	2.3	1.8	1.6	1.4	1.4	1.7	1.8	+0.1

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of four forms;  $N$  is one third of  $N$  indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-8b**  
**Creatine: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months								2007–
	2001	2002	2003	2004	2005	2006	2007	2008	2008
<i>Approximate weighted N =</i>	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	7.9	7.6	5.8	5.3	5.1	6.5	6.1	5.8	-0.3
Gender:									
Male	14.7	13.1	10.7	9.8	9.3	12.0	11.7	11.5	-0.2
Female	1.7	2.1	1.4	0.9	1.0	1.0	0.8	0.9	+0.1
College Plans:									
None or under 4 years	10.3	10.3	10.1	7.2	5.5	8.3	9.1	6.6	-2.5
Complete 4 years	7.5	7.1	5.2	5.0	5.1	6.2	5.7	5.7	0.0
Region:									
Northeast	5.4	6.2	5.8	5.5	4.8	6.8	5.7	3.8	-1.8
Midwest	6.6	6.4	6.1	5.5	4.4	4.9	5.3	6.2	+0.9
South	10.8	9.1	5.9	6.0	6.3	7.7	7.3	5.9	-1.4
West	7.2	7.6	5.6	3.7	4.6	6.4	5.9	6.7	+0.8
Population Density:									
Large MSA	6.6	7.0	3.7	4.3	2.9	5.3	4.7	4.4	-0.3
Other MSA	8.1	7.5	6.4	5.2	5.9	7.4	6.7	6.2	-0.4
Non-MSA	9.1	8.5	7.6	7.0	6.3	6.3	7.1	6.8	-0.3
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	5.6	5.0	5.7	3.2	3.4	5.2	3.4	3.0	-0.4
2.5–3.0	8.1	7.8	4.9	5.7	5.2	5.4	7.1	4.7	-2.4
3.5–4.0	10.2	7.6	7.8	5.2	4.8	6.7	6.6	6.9	+0.3
4.5–5.0	7.1	8.8	5.8	5.2	5.8	7.0	6.4	6.9	+0.5
5.5–6.0 (High)	7.1	7.9	5.3	5.8	5.9	7.8	5.7	5.0	-0.6
Race (2-year average): <sup>b</sup>									
White	—	8.4	7.6	6.3	5.8	6.2	7.1	6.8	-0.2
African American	—	3.0	3.0	3.5	3.9	4.5	3.4	3.4	0.0
Hispanic	—	9.4	8.4	5.7	4.0	4.7	3.7	3.9	+0.2

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of four forms;  $N$  is one third of  $N$  indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-8c**  
**Creatine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months								2007–
	2001	2002	2003	2004	2005	2006	2007	2008	2008
<i>Approximate weighted N =</i>	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	11.7	8.5	8.3	8.1	8.1	7.8	8.0	8.3	+0.3
Gender:									
Male	22.1	16.8	15.9	15.9	15.6	15.1	15.3	15.7	+0.4
Female	2.0	1.5	1.4	1.0	0.9	1.0	1.3	1.5	+0.2
College Plans:									
None or under 4 years	11.7	9.3	9.5	8.5	9.8	9.8	7.8	9.8	+2.0
Complete 4 years	11.4	8.4	7.9	7.7	7.6	7.3	8.0	7.8	-0.2
Region:									
Northeast	10.9	9.1	7.9	9.0	6.5	6.8	7.1	8.6	+1.5
Midwest	12.4	8.1	8.8	7.3	9.0	8.4	9.3	8.7	-0.6
South	11.4	7.6	8.0	8.3	9.1	7.7	8.3	8.0	-0.3
West	11.8	9.9	8.7	7.9	6.8	8.1	6.8	8.1	+1.3
Population Density:									
Large MSA	10.2	7.7	6.6	6.9	8.9	7.4	6.4	5.6	-0.8
Other MSA	12.5	9.0	8.5	8.8	7.2	7.1	9.0	9.1	+0.1
Non-MSA	11.9	8.7	10.2	8.2	9.0	9.7	8.1	9.4	+1.2
Parental Education: <sup>a</sup>									
1.0–2.0 (Low)	8.0	8.2	5.0	5.9	8.0	5.4	4.8	5.5	+0.7
2.5–3.0	11.8	8.6	9.2	5.6	7.9	6.8	7.7	7.5	-0.2
3.5–4.0	13.0	8.5	9.6	9.2	9.5	8.4	7.7	9.3	+1.6
4.5–5.0	11.7	9.0	7.4	9.8	8.0	9.5	9.9	8.4	-1.5
5.5–6.0 (High)	11.7	8.1	8.1	8.7	7.6	6.7	7.7	9.1	+1.4
Race (2-year average): <sup>b</sup>									
White	—	11.2	9.2	8.9	9.0	9.0	8.9	9.5	+0.6
African American	—	3.3	4.5	5.7	5.6	4.6	4.8	4.5	-0.3
Hispanic	—	9.8	8.0	6.5	6.5	6.7	6.2	5.8	-0.4

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on two of six forms;  $N$  is two sixths of  $N$  indicated.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education reported on the following scale: (1) Completed grade school or less, (2) Some high school, (3) Completed high school, (4) Some college, (5) Completed college, (6) Graduate or professional school after college. Missing data were allowed on one of the two variables.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE 10-9a**  
**Steroids and Androstenedione: Trends in Annual Prevalence of Use**  
**by Gender in Grade 8**  
(Entries are percentages.)

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	2007– 2008 <u>change</u>
<b>Total</b>									
% reporting using steroids but not androstenedione	1.2	1.0	1.2	0.9	0.8	0.7	0.7	0.6	-0.1
% reporting using androstenedione but not steroids	0.7	0.6	0.7	0.7	0.4	0.8	0.7	0.6	-0.1
% reporting using both	<u>0.4</u>	<u>0.6</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.3</u>	+0.2 s
% reporting using either or both	2.3	2.2	2.2	1.8	1.4	1.6	1.5	1.5	0.0
<b>Males</b>									
% reporting using steroids but not androstenedione	1.8	1.0	1.4	1.1	0.9	0.9	0.9	0.6	-0.3
% reporting using androstenedione but not steroids	0.8	0.8	0.8	1.0	0.6	1.1	0.7	0.8	+0.1
% reporting using both	<u>0.5</u>	<u>0.9</u>	<u>0.4</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.6</u>	+0.4 s
% reporting using either or both	3.1	2.7	2.6	2.2	1.9	2.3	1.9	2.0	+0.1
<b>Females</b>									
% reporting using steroids but not androstenedione	0.7	0.8	0.9	0.8	0.7	0.5	0.4	0.4	0.0
% reporting using androstenedione but not steroids	0.6	0.4	0.6	0.3	0.2	0.4	0.8	0.3	-0.5 s
% reporting using both	<u>0.4</u>	<u>0.4</u>	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	*	<u>0.1</u>	+0.1
% reporting using either or both	1.6	1.6	1.7	1.3	1.0	1.0	1.2	0.9	-0.3
<i>Approximate weighted Ns</i>									
<i>Total</i>	4,710	4,470	5,080	5,180	5,110	5,110	4,930	4,710	
<i>Males</i>	2,170	2,060	2,340	2,510	2,440	2,470	2,360	2,270	
<i>Females</i>	2,450	2,300	2,640	2,580	2,600	2,570	2,500	2,350	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

\*\*\* indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the total who used either substance or both substances and the sum of those who used only steroids, those who used only androstenedione, and those who used both is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

**TABLE 10-9b**  
**Steroids and Androstenedione: Trends in Annual Prevalence of Use**  
**by Gender in Grade 10**

(Entries are percentages.)

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	2007– 2008 change
<b>Total</b>									
% reporting using steroids but not androstenedione	1.5	1.5	1.2	1.1	1.1	0.9	0.8	0.6	-0.3
% reporting using androstenedione but not steroids	1.6	1.3	1.2	0.7	0.7	0.6	0.4	0.5	+0.2
% reporting using both	<u>0.6</u>	<u>0.7</u>	<u>0.5</u>	<u>0.5</u>	<u>0.2</u>	<u>0.3</u>	<u>0.2</u>	<u>0.4</u>	+0.1
% reporting using either or both	3.7	3.5	2.9	2.2	2.0	1.8	1.4	1.4	0.0
<b>Males</b>									
% reporting using steroids but not androstenedione	2.4	2.2	1.5	1.5	1.4	1.2	1.3	0.9	-0.4
% reporting using androstenedione but not steroids	2.6	1.2	1.7	0.9	1.0	1.0	0.6	0.7	+0.1
% reporting using both	<u>0.9</u>	<u>1.0</u>	<u>0.8</u>	<u>0.8</u>	<u>0.4</u>	<u>0.7</u>	<u>0.4</u>	<u>0.6</u>	+0.2
% reporting using either or both	5.8	4.4	4.0	3.1	2.8	2.9	2.2	2.1	-0.1
<b>Females</b>									
% reporting using steroids but not androstenedione	0.8	0.8	1.0	0.7	0.6	0.5	0.4	0.3	-0.1
% reporting using androstenedione but not steroids	0.7	1.3	0.8	0.3	0.3	0.2	0.2	0.4	+0.2
% reporting using both	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.0</u>	<u>0.1</u>	<u>0.2</u>	+0.1
% reporting using either or both	1.7	2.4	1.9	1.2	1.0	0.6	0.6	0.9	+0.2
<i>Approximate weighted Ns</i>									
<i>Total</i>	4,410	4,450	4,950	5,180	5,110	5,230	5,130	4,820	
<i>Males</i>	2,040	2,210	2,340	2,430	2,460	2,580	2,460	2,200	
<i>Females</i>	2,310	2,180	2,550	2,680	2,580	2,610	2,610	2,570	

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

Any apparent inconsistency between the total who used either substance or both substances and the sum of those who used only steroids, those who used only androstenedione, and those who used both is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

**TABLE 10-9c**  
**Steroids and Androstenedione: Trends in Annual Prevalence of Use**  
**by Gender in Grade 12**

(Entries are percentages.)

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	2007– 2008 change
<b>Total</b>									
% reporting using steroids but not androstenedione	1.5	1.8	1.1	1.4	0.6	1.2	1.1	1.1	0.0
% reporting using androstenedione but not steroids	2.1	1.8	1.5	1.0	0.8	0.5	0.5	0.9	+0.4 s
% reporting using both	<u>0.9</u>	<u>0.7</u>	<u>1.1</u>	<u>1.1</u>	<u>0.9</u>	<u>0.6</u>	<u>0.4</u>	<u>0.4</u>	+0.1
% reporting using either or both	4.5	4.3	3.6	3.5	2.3	2.2	2.0	2.4	+0.5
<b>Males</b>									
% reporting using steroids but not androstenedione	2.7	2.7	1.2	1.6	1.0	1.8	1.8	1.5	-0.3
% reporting using androstenedione but not steroids	4.2	3.6	2.6	2.1	1.2	0.7	0.7	0.7	0.0
% reporting using both	<u>1.1</u>	<u>1.1</u>	<u>2.0</u>	<u>1.6</u>	<u>1.6</u>	<u>1.0</u>	<u>0.5</u>	<u>1.0</u>	+0.5 s
% reporting using either or both	8.0	7.3	5.8	5.3	3.8	3.4	3.0	3.2	+0.3
<b>Females</b>									
% reporting using steroids but not androstenedione	0.5	1.1	1.0	1.1	0.3	0.6	0.5	0.4	-0.1
% reporting using androstenedione but not steroids	0.1	0.2	0.1	*	0.3	0.2	0.2	0.7	+0.5 s
% reporting using both	<u>0.6</u>	<u>0.2</u>	<u>0.1</u>	<u>0.7</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>0.0</u>	-0.1
% reporting using either or both	1.2	1.5	1.2	1.6	0.7	0.9	0.8	1.1	+0.3
<i>Approximate weighted Ns</i>									
<i>Total</i>	1,850	1,840	2,080	2,210	2,140	2,170	2,180	2,090	
<i>Males</i>	870	810	990	960	990	1,010	980	930	
<i>Females</i>	980	1,030	1,090	1,170	1,080	1,100	1,130	1,080	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

\*\*\* indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the total who used either substance or both substances and the sum of those who used only steroids, those who used only androstenedione, and those who used both is due to rounding.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

**TABLE 10-10**  
**Daily Marijuana Use: Responses to Selected Questions by Subgroups in Grade 12, 2008**

	Total	Gender		4-Year College Plans		Region				Population Density			
		Male		Female		No	Yes	Northeast	Midwest	South	West	Large	Other
												MSA	Non-MSA
<i>Thinking back over your whole life, has there ever been a period when you used marijuana or hashish on a daily, or almost daily, basis for at least a month?</i>													
No	84.9	84.7	87.3	76.6	89.0	80.3	86.2	86.7	84.5	81.7	86.5	85.2	
Yes	15.1	15.3	12.8	23.4	11.0	19.7	13.8	13.3	15.6	18.3	13.5	14.8	
<i>How old were you when you first smoked marijuana or hashish that frequently?</i>													
Grade 6 or earlier	1.5	1.7	0.9	2.5	1.0	2.2	1.1	1.8	0.7	1.2	1.6	1.3	
Grade 7 or 8	3.7	3.7	3.2	5.9	2.7	4.1	3.3	3.8	3.5	4.1	3.2	4.2	
Grade 9 (Freshman)	3.8	2.5	4.2	5.1	2.6	5.5	4.1	2.6	4.1	5.0	3.3	3.7	
Grade 10 (Sophomore)	3.1	4.1	2.3	5.3	2.2	3.8	2.8	3.1	2.9	3.5	3.1	2.8	
Grade 11 (Junior)	2.3	2.3	1.7	4.1	1.7	2.6	2.1	1.5	3.5	3.5	1.8	2.1	
Grade 12 (Senior)	0.7	1.0	0.5	0.5	0.8	1.5	0.3	0.5	0.8	1.1	0.6	0.5	
Never used daily	84.9	84.7	87.3	76.6	89.0	80.3	86.2	86.7	84.5	81.7	86.5	85.2	
<i>How recently did you use marijuana or hashish on a daily, or almost daily, basis for at least a month?</i>													
During the past month	5.5	6.2	3.9	7.0	4.1	8.8	3.6	5.0	5.9	7.0	4.9	5.1	
2 months ago	1.3	1.3	1.1	1.2	1.0	0.8	0.9	1.8	1.4	2.3	1.2	0.5	
3 to 9 months ago	2.4	2.4	2.0	4.5	1.5	3.2	3.0	2.0	1.7	2.5	2.3	2.6	
About 1 year ago	2.5	2.7	2.2	3.7	1.9	2.5	2.3	1.9	3.6	2.1	2.4	3.2	
About 2 years ago	1.6	1.0	2.1	3.4	1.4	2.6	1.8	1.2	1.3	2.7	1.2	1.3	
3 or more years ago	1.7	1.6	1.5	3.6	1.1	1.8	2.2	1.4	1.5	1.8	1.5	2.1	
Never used daily	84.9	84.7	87.3	76.6	89.0	80.3	86.2	86.7	84.5	81.7	86.5	85.2	
<i>Over your whole lifetime, during how many months have you used marijuana or hashish on a daily or near-daily basis?</i>													
Less than 3 months	3.8	3.8	4.0	5.7	2.9	4.4	3.3	3.7	3.9	5.7	3.0	3.2	
3 to 9 months	3.5	4.0	2.5	5.4	2.5	3.6	3.7	2.8	4.5	4.0	3.7	2.7	
About 1 year	1.4	0.9	1.5	1.1	1.3	3.8	1.3	0.7	0.5	1.8	1.0	1.8	
About 1 and 1/2 years	1.4	1.3	0.9	2.6	0.8	1.9	1.6	0.9	1.5	1.7	1.1	1.6	
About 2 years	1.5	2.1	1.0	2.0	1.3	1.0	0.6	2.2	2.1	0.9	1.9	1.4	
About 3 to 5 years	2.5	2.2	2.4	4.5	1.5	3.4	3.4	1.5	2.1	2.7	2.0	3.3	
6 or more years	1.0	1.1	0.5	2.1	0.6	1.7	0.0	1.5	0.9	1.5	0.9	0.8	
Never used daily	84.9	84.7	87.3	76.6	89.0	80.3	86.2	86.7	84.5	81.7	86.5	85.2	
<i>Approximate weighted N =</i>	2,300	1,000	1,100	350	1,700	390	580	790	530	600	1,200	510	

Source. The Monitoring the Future study, the University of Michigan.  
 Note. Entries are percentages that sum vertically to 100%.

**TABLE 10-11a**  
**Daily Marijuana Use for a Month or More in Lifetime: Trends by Subgroups in Grade 12<sup>a</sup>**

	Percentage ever using daily for at least a month																	2007- 2008											
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Total	20.5	16.8	16.3	15.6	14.9	14.7	12.8	11.5	10.0	9.0	8.4	9.6	11.3	12.1	15.7	18.8	18.0	17.9	17.0	18.0	15.5	16.4	17.8	14.5	16.6	15.7	15.1	-0.6	
Gender:																													
Male	20.1	18.1	17.2	17.7	16.6	16.2	14.8	12.7	10.6	10.5	8.3	10.7	13.3	12.9	18.7	19.7	19.5	18.5	18.8	20.3	17.2	17.1	19.9	15.8	17.0	17.5	15.3	-2.2	
Female	18.0	13.5	12.9	12.0	11.6	12.2	9.6	9.7	7.9	6.4	7.5	7.2	8.5	7.9	10.7	15.2	13.9	14.4	13.7	13.8	11.7	12.5	12.3	11.1	13.3	12.6	12.8	+0.2	
College Plans:																													
None or under	22.5	20.3	18.9	19.6	17.2	18.0	14.5	15.3	12.8	11.5	11.2	11.6	16.1	14.2	21.5	22.6	22.1	22.1	19.1	22.8	20.5	22.2	24.5	20.0	24.8	21.8	23.4	+1.6	
Complete	13.8	10.5	10.7	10.6	11.0	11.1	9.8	9.1	7.4	6.5	5.9	7.7	8.6	9.2	11.9	14.9	13.4	14.2	13.7	13.8	11.7	11.9	13.4	11.4	12.2	13.3	11.0	-2.2	
Region:																													
Northeast	25.1	20.4	24.1	20.9	21.5	17.0	13.1	14.6	10.4	10.3	8.7	12.0	12.2	12.8	21.3	24.6	22.7	17.9	19.8	23.4	20.7	20.8	19.5	15.5	17.7	19.0	19.7	+0.7	
Midwest	21.1	15.9	12.8	16.3	11.3	12.7	10.3	13.4	10.8	8.4	8.0	9.3	11.0	13.6	14.6	16.5	16.1	14.3	13.8	18.4	16.3	15.0	17.9	16.6	16.3	17.1	13.8	-3.2	
South	15.7	12.7	14.0	8.9	11.3	11.9	10.9	8.1	8.7	7.4	5.9	8.3	11.8	11.2	12.7	14.9	15.6	19.1	14.7	12.7	14.6	15.5	18.6	15.8	17.1	14.2	13.3	-0.9	
West	20.8	21.4	17.6	18.5	18.3	19.7	19.0	12.3	11.0	11.3	13.4	10.4	10.2	10.6	17.0	23.0	20.6	20.4	21.9	21.2	11.7	15.4	14.3	8.9	15.2	13.9	15.6	+1.6	
Population																													
Density:																													
Large MSA	23.8	20.0	19.4	18.1	17.0	16.7	14.0	10.6	8.3	7.2	8.4	8.6	10.3	13.9	15.3	18.8	18.0	16.3	18.4	19.7	15.2	14.0	17.0	13.7	18.7	14.2	18.3	+4.1	
Other MSA	20.3	18.2	16.6	16.0	14.9	15.0	14.9	12.4	11.7	11.1	8.9	10.2	13.6	11.3	18.2	20.1	19.7	19.2	18.3	17.5	15.1	19.0	19.5	14.6	14.2	16.2	13.5	-2.7	
Non-MSA	17.9	12.6	13.2	12.8	12.8	13.2	12.2	7.6	10.4	8.2	7.1	7.6	9.6	8.4	11.2	11.6	16.2	14.4	17.1	13.0	17.1	16.8	14.8	15.5	15.3	18.2	16.8	14.8	-2.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Data based on one form. The total *N* each year for 1982-1989 is approximately 3,300. The total *N* each year for 1990-1998 is approximately 2,600. Beginning in 1999, the total *N* each year is approximately 2,200.

**TABLE 10-11b**  
**Daily Marijuana Use for a Month or More Prior to 10th Grade: Trends by Subgroups in Grade 12<sup>a</sup>**

	Percentage reporting first such use prior to 10th grade																			2007- 2008									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Total	13.1	11.1	10.9	8.8	8.5	8.9	7.8	7.6	6.7	6.4	5.6	5.2	5.5	5.5	7.8	9.7	10.1	10.7	10.8	11.4	10.1	10.1	9.8	8.1	9.9	9.8	8.9	-0.9	
Gender:																													
Male	12.9	12.1	11.8	9.8	8.7	10.2	8.4	8.4	6.9	7.4	5.6	5.5	6.1	5.8	9.6	9.6	11.4	10.0	10.9	11.9	11.5	9.5	11.1	8.7	9.7	10.8	7.9	-2.9	s
Female	11.5	8.3	8.0	6.5	6.6	7.1	6.6	6.0	4.9	4.4	5.0	4.1	4.4	3.4	4.9	8.1	8.0	8.8	9.0	9.3	7.3	7.8	5.3	5.6	7.2	7.9	8.3	+0.4	
College Plans:																													
None or under	14.2	13.5	12.3	11.8	10.7	11.4	11.0	11.6	9.0	8.7	7.8	6.3	6.7	6.7	11.0	11.0	16.9	12.2	12.7	15.1	15.8	14.0	12.5	12.4	16.7	15.2	13.5	-1.7	
4 years																													
Complete	8.2	6.5	6.6	5.5	5.2	6.4	5.3	5.1	4.6	4.3	3.8	4.2	4.4	4.2	5.8	7.9	7.1	8.1	7.9	8.5	7.3	6.7	6.6	5.7	6.2	7.9	6.3	-1.6	
4 years																													
Region:																													
Northeast	17.3	11.9	17.2	12.9	10.3	10.3	9.0	10.7	6.5	8.2	4.8	6.3	5.2	6.6	8.3	13.3	12.7	8.8	13.2	13.8	13.3	12.1	12.1	11.2	10.7	10.7	11.8	+1.1	
Midwest	13.3	12.4	8.4	9.1	7.3	7.7	6.0	7.6	6.7	4.9	4.7	5.5	5.8	6.2	8.9	8.2	9.6	7.8	8.3	9.9	10.1	9.5	9.0	6.8	9.5	11.4	8.6	-2.8	
South	9.3	8.3	8.5	5.0	6.4	7.4	6.3	5.4	6.2	5.1	4.4	4.3	6.6	4.5	5.8	7.5	8.0	13.2	8.8	9.2	9.8	10.3	9.3	9.4	10.1	9.8	8.2	-1.6	
West	12.6	13.9	12.1	8.9	11.2	11.7	11.9	8.1	8.0	8.6	9.8	5.1	3.2	5.0	10.1	12.3	12.1	11.6	14.6	15.3	8.0	8.4	8.8	4.6	9.1	7.6	8.3	+0.7	
Population																													
Density:																													
Large MSA	15.6	13.7	12.4	12.0	9.6	11.8	8.1	6.0	5.9	5.4	5.7	5.5	4.6	6.0	9.2	10.0	9.3	9.7	12.2	12.7	9.4	8.0	9.8	7.5	10.4	7.7	10.3	+2.6	
Other MSA	12.5	12.0	11.5	8.3	8.4	8.8	9.6	8.1	8.1	7.7	5.8	5.3	6.9	5.5	8.3	9.8	11.4	11.4	12.0	11.8	10.4	11.2	11.1	7.4	8.4	10.1	8.1	-2.0	
Non-MSA	11.7	8.2	8.5	6.6	7.6	6.4	4.3	7.6	4.3	5.3	4.8	4.2	4.8	4.2	4.8	5.6	9.4	8.6	10.8	7.2	9.2	10.7	10.7	7.2	10.1	11.9	12.4	9.3	-3.1

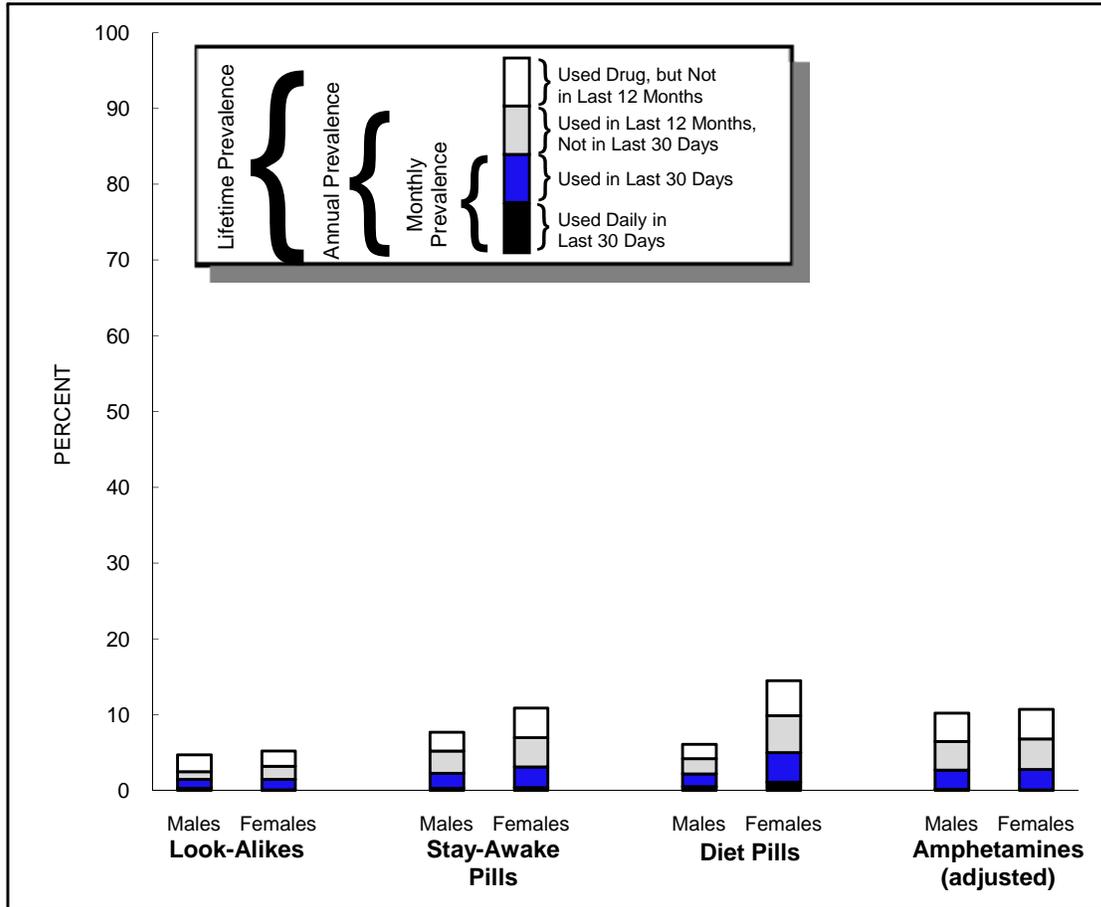
Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. Any apparent inconsistency between this table and Table 10-8 is due to rounding.

<sup>a</sup>Data based on one form. The total *N* each year for 1982-1989 is approximately 3,300. The total *N* each year for 1990-1998 is approximately 2,600. Beginning in 1999, the total *N* each year is approximately 2,200.

**FIGURE 10-1**  
**Amphetamines and Nonprescription Stimulants:**  
**Prevalence and Recency of Use by Gender in Grade 12**  
**2008**



Source. The Monitoring the Future study, the University of Michigan.



## Appendix A

### PREVALENCE AND TREND ESTIMATES ADJUSTED FOR ABSENTEES AND DROPOUTS

Do the MTF prevalence and trend estimates derived from 12th graders accurately reflect the reality that pertains to all young people in the same class or age cohort, *including* those who have dropped out of school by senior year? To answer this question, we published an extensive chapter in 1985,<sup>105</sup> and have since continued to estimate the degree to which MTF data accurately represent the entire class cohort. In this appendix we summarize the main points relevant to sample coverage.

First, it should be noted that two segments of the entire age cohort are missing from the 12th-grade data: (a) those who are still enrolled in school but are absent the day of data collection (absentees), and (b) those who have left school and are not likely to complete high school (dropouts). Absentees constitute virtually all of the nonrespondents shown in the response rate in Table 3-1 (since refusal rates are negligible), or about 20% of all 12th graders (15% of the entire age cohort, including dropouts). Based on our review of available Census data, dropouts account for approximately 15% of the class/age cohort.

The methods we used to estimate the prevalence rates for these two missing segments are summarized briefly here. Then, the effects of adding these two segments to the calculation of the overall prevalence rates for two important drug classes are presented, along with the impact on the trend estimates. Two illicit drugs have been chosen for illustrative purposes: marijuana, the most prevalent of the illicit drugs, and cocaine, one of the more dangerous and less prevalent drugs. Estimates for 12th graders are presented for both lifetime and 30-day prevalence of each drug.

### CORRECTIONS FOR EIGHTH AND TENTH GRADES

Twelfth grade represents the worst case in terms of underestimation. Rates of both dropping out and absenteeism are lower for 8th and 10th grades than for 12th grade. With respect to dropping out, only very few members of an age cohort have ceased attending school by grade 8, when most are age 13 or 14. In fact, Census data suggest that less than 2% would have dropped out at this stage. Most 10th graders are age 15 or 16, and Census data indicate that only a small

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<sup>105</sup>Johnston, L. D., & O'Malley, P. M. (1985). Issues of validity and population coverage in student surveys of drug use. In B. A. Rouse, N. J. Casual, & L. G. Richards (Eds.), *Self-report methods of estimating drug use: Meeting current challenges to validity* (NIDA Research Monograph No. 57 (ADM) 85-1402). Washington, DC: U.S. Government Printing Office.

proportion (less than 5%) would have dropped out by then.<sup>106</sup> Thus, any correction for the missing dropouts should be negligible at 8th grade and quite small at 10th grade.

Regarding absentees, Table 3-1 shows that while absentees comprise 21% of the 12th graders who should be in school, they comprise only 12% of 10th graders and 10% of 8th graders in 2008. Thus, the prevalence estimate adjustments that would result from corrections for this missing segment would also be considerably less for 8th and 10th graders than for 12th graders.

In sum, the modest corrections in estimates of substance use rates, which we show next to the results from the corrections for dropouts and absentees at the 12th-grade level, set outer limits for what would be found at 8th and 10th grade. In fact, it is clear that the corrections would be considerably smaller at 10th grade and far smaller at 8th grade. Therefore, because the corrections described for 12th graders turn out to be modest ones, we have not undertaken to estimate comparable corrections for 8th and 10th graders.

## **THE EFFECTS OF MISSING ABSENTEES**

In order to assess the effects of excluding absentees on the estimates of 12th-grade drug use, we included a question asking students how many days of school they had missed in the previous four weeks. Using this variable, we can place individuals into different strata as a function of how often they tend to be absent from school. For example, all students who had been absent 50% of the time could form one stratum. Assuming that absence on the particular day of administration is a fairly random event, we can use the actual survey participants in this stratum to represent all students in their stratum, including the ones who happen to be absent that particular day. By giving them a double weight, they can be used to represent both themselves and the other 50% of their stratum who were absent that day. Those who say they were in school only one third of the time would get a weight of three to represent themselves plus the two thirds in their stratum who were not there, and so forth. Using this method, we found that absentees as a group have appreciably higher-than-average usage levels for all licit and illicit drugs. *However, looking at 1983 data, we found that the omission of absentees did not depress any of the prevalence estimates in any of the drugs by more than 2.7 percentage points, because they represent such a small proportion of the total target sample.* Considering that a substantial proportion of those who are absent are likely absent for reasons unrelated to drug use—such as illness and participation in extracurricular activities—it may be surprising to see even these differences. In any case, from a policy or public perspective, these small corrections would appear to be of little or no significance. (The correction in 1983 across all 13 drugs in lifetime prevalence averaged only 1.4 percentage points.) Further, such corrections should have virtually no effect on cross-time trend estimates unless the rate of absenteeism was changing appreciably, and we find no evidence in our data that it has.

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<sup>106</sup>According to the *Statistical Abstract of the United States 2003* (p. 150), in 2001, the proportion of the civilian noninstitutionalized population of the United States enrolled in school was 98.3% among 7–13-year-olds and 98.1% among 14–15-year-olds. It drops to 93.4% for 16–17-year-olds combined, but there is probably a considerable difference between age 16 and age 17 because state laws often require attendance through age 16. Eighth graders in the spring of the school year are mostly (and about equally) 13 and 14 years old; while 10th graders are mostly (and about equally) 15 and 16 years old. Thus, extrapolating from these data, we estimate that less than 2% of 8th graders and less than 5% of 10th graders are dropouts. (U.S. Department of Commerce [2004]. *Statistical Abstract of the United States 2003: The National Data Book*. Washington, DC: U.S. Census Bureau.)

## THE EFFECTS OF MISSING DROPOUTS

Unfortunately, we cannot derive corrections from 12th-grade data to directly impute the prevalence rates for dropouts, since we have no completely appropriate stratum from which we have sampled. We believe, based on our own previous research as well as the work of others, that dropouts generally have prevalence rates for all classes of drugs that are substantially higher than the rates for those who remain in school. Indeed, dropouts may be similar to the absentees.

We have consistently estimated the proportions who fail to complete high school to be approximately 15%; Figure A-1 displays the high school completion rate for the years 1972 through 2008 based on Census data. As the figure indicates, completion rates (and dropout rates) had been quite constant over most of this interval for persons 20–24 years old.<sup>107</sup> (Younger age brackets are less appropriate to use because they include some young people who are still enrolled in high school.) However, since 2002 there has been a gradual increase in completion rates, reaching 88.2% in 2008, reflecting a dropout rate of 11.8%. MTF surveys probably include some small proportion of the dropouts estimated in this way, since the surveys of 12th graders take place a few months *before* graduation, and not everyone will graduate. On the other hand, perhaps 1–2% of the age group that the U.S. Census Bureau shows as having a diploma actually received a Certificate of General Education Development (GED), and thus may not be covered by MTF. (Elliott and Voss reported this result for less than 2% of their sample in their follow-up study of 2,617 ninth graders in California who were followed through their high school years.<sup>108</sup>) So these two factors probably cancel each other out. Thus, we used 15% as our estimate of the proportion of an age cohort not covered through 2002; and, since then, we have used the increasing annual proportion as reported by the U.S. Census.

### Extrapolation Methods

To estimate the drug usage prevalence rates for dropouts, we have used two quite different approaches. The first was based on extrapolations from 12th graders participating in this study. Using this method, we developed estimates under three different assumptions: that the difference between dropouts and the 12th-grade respondents was equivalent to (a) the difference between absentees and the 12th grade respondents, (b) 1.5 times that difference, and (c) twice that difference. The last assumption we would consider rather extreme.

The second general method involved using the best national data then available on drug use among dropouts—namely the National Survey on Drug Use and Health (NSDUH, formerly the National Household Surveys on Drug Abuse, or NHSDA).<sup>109</sup> While these surveys have rather

<sup>107</sup>U.S. Census Bureau (various years). *Current population reports, Series P-20*, various numbers. Washington, DC: U.S. Government Printing Office.

<sup>108</sup>Elliott, D., & Voss, H. L. (1974). *Delinquency and dropout*. Lexington, MA: Lexington Books.

<sup>109</sup>Fishburne, P. M., Abelson, H. I., & Cisin, I. (1980). *National survey on drug abuse: Main findings, 1979* (NIDA (ADM) 80-976). Washington, DC: U.S. Government Printing Office; Miller, J. D., et al. (1983). *National survey on drug abuse: Main findings, 1982* (NIDA (ADM) 83-1263). Washington, DC: U.S. Government Printing Office. See also Substance Abuse and Mental Health Services Administration (1995). *National Household Survey on Drug Abuse: Main findings 1992* (DHHS Publication No. (SMA) 94-3012). Rockville, MD: Substance Abuse and Mental Health Services Administration. See also Office of Applied Studies, Substance Abuse and Mental Health Services Administration (2003). *Results from the 2002 National Survey on Drug Use and Health: National findings* (DHHS Publication No. SMA 03-3836, NHSDA Series H-22). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

small samples of dropouts in the relevant age range in any given year, they should at least provide unbiased estimates for dropouts still in the household population.

Using the first assumption—that dropouts are just like absentees—we found that no prevalence rate was changed by more than five percentage points over the estimate based on 1983 twelfth graders only, even with the simultaneous correction for both absentees and dropouts. (The method for calculating prevalence rates for absentees is described in the previous section.) The largest correction involved marijuana, with lifetime prevalence rising from just under 60% to 64%. Even under the most extreme assumption—which results in exceptionally high prevalence rates for dropouts on all drugs, for example, 90% lifetime prevalence for marijuana—the overall correction in any of the prevalence figures for any drug remained 7.5 percentage points or less. Again, marijuana showed the biggest correction (7.5% in annual prevalence, raising it from 46% uncorrected to 54% with corrections for both absentees and dropouts). As expected, the biggest *proportional* change occurred for heroin, since it represents the most deviant end of the drug-using spectrum and thus would usually be most associated with truancy and dropping out.

The second method of estimating drug use among dropouts involved comparing NHSDA data on dropouts with MTF data from those remaining in school. We originally conducted secondary analyses of the archived data from the 1977 and 1979 National Household Surveys. (Analyses using more recent NSDUH data are shown in the next section.) Analyses were restricted to the age range 17 to 19, since about 95% of MTF 12th graders fall in this range. Of course, the number of cases is small. The 1977 NHSDA survey included only 46 dropouts and 175 enrolled 12th graders in this age group. In the 1979 survey, 92 dropouts and 266 twelfth graders were included.

For marijuana, NHSDA estimated differences between dropouts and 12th graders at a level at or below the *least* extreme assumption made in the previous method (in which dropouts are assumed to have the same drug-use levels as absentees). While reassuring, we believe these household samples underrepresented the more drug-prone dropouts to some degree. Thus we concluded that estimates closer to those made under the second assumption may be more realistic—that is, that dropouts are likely to deviate from participating 12th graders by 1.5 times the amount that absentees deviate from them.

We should note that there are a number of reasons for dropping out, many of which bear no relationship to drug use, including economic hardship and certain learning disabilities and health problems. At the national level, the extreme groups such as those in jail or without a permanent residence are undoubtedly a very small proportion of the total age group, and probably a very small proportion of all dropouts as well. Thus, regardless of their prevalence rates, they would be unable to move the overall prevalence estimates by a very large amount except in the case of the rarest events—in particular, heroin use. We do believe that in the case of heroin use—particularly regular use—it is probably impossible to get a perfectly accurate estimate even with the corrections used in this report. The same may be true for crack cocaine and PCP. For the remaining drugs, we conclude that our estimates based on participating 12th graders, though somewhat low, are nevertheless good approximations for the age group as a whole.

## Effects of Omitting Dropouts in Trend Estimates

Whether the omission of dropouts affects the estimates of *trends* in prevalence rates is a separate question, however, from the degree to which it affects absolute estimates at a given point in time. The relevant issues parallel those discussed earlier regarding the possible effects on trends of omitting the absentees. Most important is the question of whether the rate of dropping out has changed appreciably, because a substantial change would mean that 12th graders studied in different years would represent noncomparable segments of the whole class/age cohort. Fortunately, for the purposes of this study, at least, the official government data provided in Figure A-1 indicate a quite stable rate of dropping out from 1972 to 2002, and only a very modest decline since then.

One possible reason that the 12th graders' trend data might deviate from trends for the entire age cohort (including dropouts) would be if the dropouts showed trends that differed from 12th-grade trends; even then, because of their small numbers, dropouts would have to show dramatically different trends to change the whole age group trend. No hypothesis offered for such a differential shift among dropouts has been convincing, at least to these authors.

One hypothesis occasionally voiced was that more teens were being expelled from school, or voluntarily leaving school, because of their drug use; and that this explained the downturn in the use of many drugs being reported by the study in the 1980s. However, it is hard to reconcile this hypothesis with the virtually flat (or, if anything, slightly declining) dropout rates during this period. Further, the reported prevalence of some drugs (e.g., alcohol and narcotics other than heroin) remained remarkably stable throughout those years of the study, and the prevalence of others rose (cocaine until 1987, and amphetamines until 1981). These facts are inconsistent with the hypothesis that there had been an increased rate of departure by the most drug-prone. Certainly, more teens leaving school in the 1980s had drug problems than was true in the 1960s. (So did more of those who stayed in.) However, they still seem likely to be very much the same segment of the population, given the degree of association that exists between drug use, deviance, and problem behaviors of various sorts. In the present decade, with a small decline in dropping out, one might predict an increase in observed usage levels among 12th graders (assuming that the higher retention rate is keeping some in school who are more likely to be drug users), but there has actually been more of a pattern of decline in use.

## FURTHER EXPLORATION OF CORRECTIONS FOR DROPOUTS

Additional information on the effects of dropout exclusion can be obtained from the 1988 NHSDA report.<sup>110</sup> This report compared selected drug use rates for 16- to 17-year-old respondents who were classified as currently enrolled in school or as having dropped out of school, concluding that "The percentage of youth aged 16 and 17 who reported use of any illicit drug, marijuana, cocaine, and alcohol did not differ significantly among dropouts and those currently enrolled in school" (p. 22). Differences in illicit drug use between high school graduates and dropouts were also slight among 21- to 25-year-olds.

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<sup>110</sup>National Institute on Drug Abuse (1991). *Drug use among youth: Findings from the 1988 National Household Survey on Drug Abuse* (DHHS Publication No. (ADM) 91-1765). Rockville, MD: Author.

The authors noted that their findings appeared somewhat contrary to popular conceptions, as well as to some other research. Moreover, they reported that preliminary data for 20- to 34-year-olds from the 1990 NHSDA showed higher rates of cocaine and marijuana use among dropouts. The authors conjectured that perhaps differences between dropouts and graduates emerge after age 25, when more young adults have finished college. They also noted that other variables such as race, ethnicity, and socioeconomic status may confound the dropout versus graduate comparison. An additional problem was that, prior to the 1991 survey, the NHSDA did not include individuals who did not live in households; perhaps the more deviant dropouts were overrepresented in the excluded groups.

More recently, we have examined data from the 2002 National Survey on Drug Use and Health (NSDUH). Specifically, we obtained estimated prevalence rates for two key illicit drugs—marijuana and cocaine—among dropouts ages 17–18. Table A-1 indicates the lifetime and 30-day prevalence rates for MTF 12th graders and NSDUH 12th graders and dropouts.

As can be seen, the 2002 NSDUH dropouts ages 17–18 had distinctly higher cocaine and marijuana use than the 2002 NSDUH 12th graders as well as the 2002 MTF 12th graders. (This is contradictory to the 1988 findings. The relatively small numbers of dropouts make definitive statements difficult.) As discussed earlier, however, the impact that dropouts' higher prevalence rates have on overall population estimates is minimal because they represent a relatively small proportion of the population.

Table A-2 compares the total population prevalence estimates derived using two quite different methods discussed earlier in this appendix. The first method shows the estimates that result when we use the procedure previously described (which provided the data shown in Figure A-2), in which the prevalence rate among dropouts is assumed to be higher than 12th graders present by 1.5 times the difference between 12th graders present and 12th graders absent. Column 2 in Table A-2 is calculated by reweighting the data for absenteeism and calculating the estimated prevalence among absentees. The prevalence among dropouts (Column 4) is estimated by assuming that they differ from 12th graders present by a factor 1.5 times greater than the difference between 12th graders present and 12th graders absent. The data in Columns 1 and 2 are combined in appropriate proportion to derive estimated prevalence among 12th graders present plus absentees (Column 3). The data in Columns 1, 2, and 4 are then combined in appropriate proportions to derive estimated prevalence rates for the entire class cohort (shown in Column 5). (For 2002, the percentage of dropouts is estimated at 15% and the percentage of 12th graders absent is estimated at 17% [based on data in Table 3-1]; these figures result in the following distribution for the composition of the *total* age cohort: 12th graders present, 70.6%; 12th graders absent, 14.5%; and dropouts ages 17–18, 15.0%.)

The second method for estimating prevalence rates for dropouts (Column 9) and the entire class cohort (Column 10) is based on the estimated prevalence from MTF 12th graders present and 12th graders absent. We then adjust for the missing dropout segment by assuming that the difference between NSDUH 12th graders and NSDUH dropouts (Column 8) is the best estimate of the difference between dropouts and nondropouts (Column 10).

The data in Columns 6 and 7 are prevalence rates reported by the 2002 NSDUH 12th graders and dropouts ages 17–18, and Column 8 shows the algebraic difference. This absolute “bias” is treated as an estimate of the difference between 12th graders (present plus absent) versus dropouts, and is then applied to the estimated prevalence based on MTF data of 12th graders present plus absent (Column 3) to derive an estimate of the prevalence among dropouts (Column 9). MTF estimates for nondropouts turn out to be higher than those from NSDUH, thus causing MTF dropout estimates to be higher also. Finally, the data in Columns 3 and 9 are combined in appropriate proportion to derive estimates presented in Column 10 for the entire class cohort.

Note that the estimated prevalence rates among dropouts based on NSDUH data are not very different from the estimates derived using the 1.5 factor (compare Columns 9 and 4). Consequently, the total estimates given in Column 10 turn out to be highly similar to those in Column 5. This similarity suggests that the estimates of corrections for dropouts that we have been providing, based on earlier data, are quite reasonable. In fact, based on all of the NSDUH data, they may actually be conservatively high.

Finally, an additional piece of information relative to the comparison of drug use rates among students who stay in school versus dropouts comes from Fagan and Pabon (1990),<sup>111</sup> who report some comparison data between high school students and dropouts from six inner-city neighborhoods. About 1,000 male students and 1,000 female students were compared with 255 male dropouts and 143 female dropouts. Although dropouts were generally more delinquent and more involved with substance use, there was also a great deal of variability by specific class of substances. As would be generally expected, marijuana use was lower among students compared to dropouts. On the other hand, psychedelic use, as well as use of tranquilizers and barbiturates, was *higher* among students. Amphetamine use was lower among male students but higher among female students compared to dropouts of the same gender. Similarly, cocaine use was lower among male students but higher among female students compared to dropouts. Surprisingly, students of both genders reported more heroin use than did dropouts. Inhalant use did not differ significantly between students and dropouts. This study shows that the usual assumption that dropouts invariably use drugs more than students is not always true.

## EXAMPLES OF REVISED ESTIMATES FOR TWO DRUGS

Figure A-2 provides the prevalence and trend estimates of marijuana and cocaine, for both the lifetime and 30-day prevalence periods, showing (a) the original estimates based on *participating 12th graders* only; (b) the empirically derived, revised estimates based on *all 12th graders*, including the absentees; and (c) estimates for the *entire class/age cohort* (developed using the assumption described above—namely, that the prevalence rate for dropouts differs from the prevalence rate for participating 12th graders by 1.5 times the amount that the prevalence rate for absentees does). Estimates were calculated separately for each year, thus taking into account any differences from year to year in the participation or absentee rates. The dropout rate was taken as a constant 15% of the age group through 2002, then at the modestly declining rate observed through 2008.

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<sup>111</sup>Fagan, J., & Pabon, E. (1990). Contributions of delinquency and substance use to school dropout among inner-city youths. *Youth & Society*, 21, 306–354.

As Figure A-2 illustrates, any difference in the slopes of the trend lines between the original and revised estimates is extremely small. The prevalence estimates are higher, of course, but not dramatically so, and certainly not enough to have any serious policy implications. As stated earlier, the corrections for 8th- and 10th-grade samples should be considerably less than for 12th grade, and there is certainly no reason to think that absentee or dropout rates at those levels have changed since 1991 in any way that could have changed their trend stories. Therefore, we have confidence that the trend stories that have appeared for the in-school populations represented in this study are very similar to those that would pertain if the entire age cohorts had been the universes from which we sampled.

## **SUMMARY AND CONCLUSIONS**

While we believe that the prevalence of drug use for the entire age cohort is somewhat underestimated in the MTF results, due to the omission of dropouts from the universe of the study, the degree of underestimation appears rather limited for all drugs (with the possible exceptions of heroin, crack, and PCP) and, more importantly, trend estimates seem rather little affected. Short of having good trend data gathered directly from dropouts, we cannot close the case definitively. Nevertheless, the available evidence argues strongly against alternative hypotheses—a conclusion also reached by the members of the 1982 NIDA technical review on this subject:<sup>112</sup> “The analyses provided in this report show that failure to include these two groups (absentees and dropouts) does not substantially affect the estimates of the incidence and prevalence of drug use.”

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<sup>112</sup>Clayton, R. R., & Voss, H. L. (1982). *Technical review on drug abuse and dropouts*. Rockville, MD: National Institute on Drug Abuse.

**TABLE A-1**  
**Comparison of 2002 Monitoring the Future Seniors,**  
**NSDUH Seniors, and NSDUH Dropouts**

	<u>MTF Seniors</u>	<u>NSDUH Seniors</u>	<u>NSDUH Dropouts</u> <u>17-18</u>
Marijuana			
Lifetime	47.8	41.8	61.1
30-Day	21.5	16.9	27.7
Cocaine			
Lifetime	7.8	5.6	19.1
30-Day	2.3	0.6	3.0

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*Source.* The Monitoring the Future study, the University of Michigan and the National Survey on Drug Use and Health.

**TABLE A-2**  
**Estimated Prevalence Rates for Marijuana and Cocaine, 2002, Based on Data from**  
**Monitoring the Future and The National Survey on Drug Use and Health**

	Monitoring the Future				NSDUH		MTF/NSDUH Combined						
	Seniors Present <sup>a</sup>	Seniors Absent <sup>b</sup>	Seniors Absent & Present <sup>c</sup>	Dropouts <sup>d</sup>	Total <sup>e</sup>	Seniors <sup>f</sup>		Dropouts (Ages 17-18 <sup>g</sup> )	Difference <sup>h</sup>	Dropouts <sup>i</sup>	Total <sup>j</sup>		
Marijuana													
Lifetime	47.8	63.0	50.4	70.5	53.4	41.8	61.1	19.3	69.7	53.3			
30-Day	21.5	32.6	23.4	38.2	25.6	16.9	27.7	10.8	34.2	25.0			
Cocaine													
Lifetime	7.8	15.5	9.1	19.4	10.6	5.6	19.1	13.5	22.6	11.1			
30-Day	2.3	4.5	2.7	5.6	3.1	0.6	3.0	2.4	5.1	3.1			

Source. The Monitoring the Future study, the University of Michigan and the National Survey on Drug Use and Health.

<sup>a</sup>Estimates based on all MTF seniors who completed questionnaires.

<sup>b</sup>Estimated prevalence rates among seniors who were absent (using data from seniors who were present, as explained in text).

<sup>c</sup>Estimated prevalence rates among seniors present plus seniors who were absent.

<sup>d</sup>Estimated prevalence rates among dropouts, based on assumptions described in text.

<sup>e</sup>Estimated prevalence rates among seniors present, seniors who were absent, and same-age dropouts.

<sup>f</sup>Estimates based on all NSDUH respondents who were high school seniors.

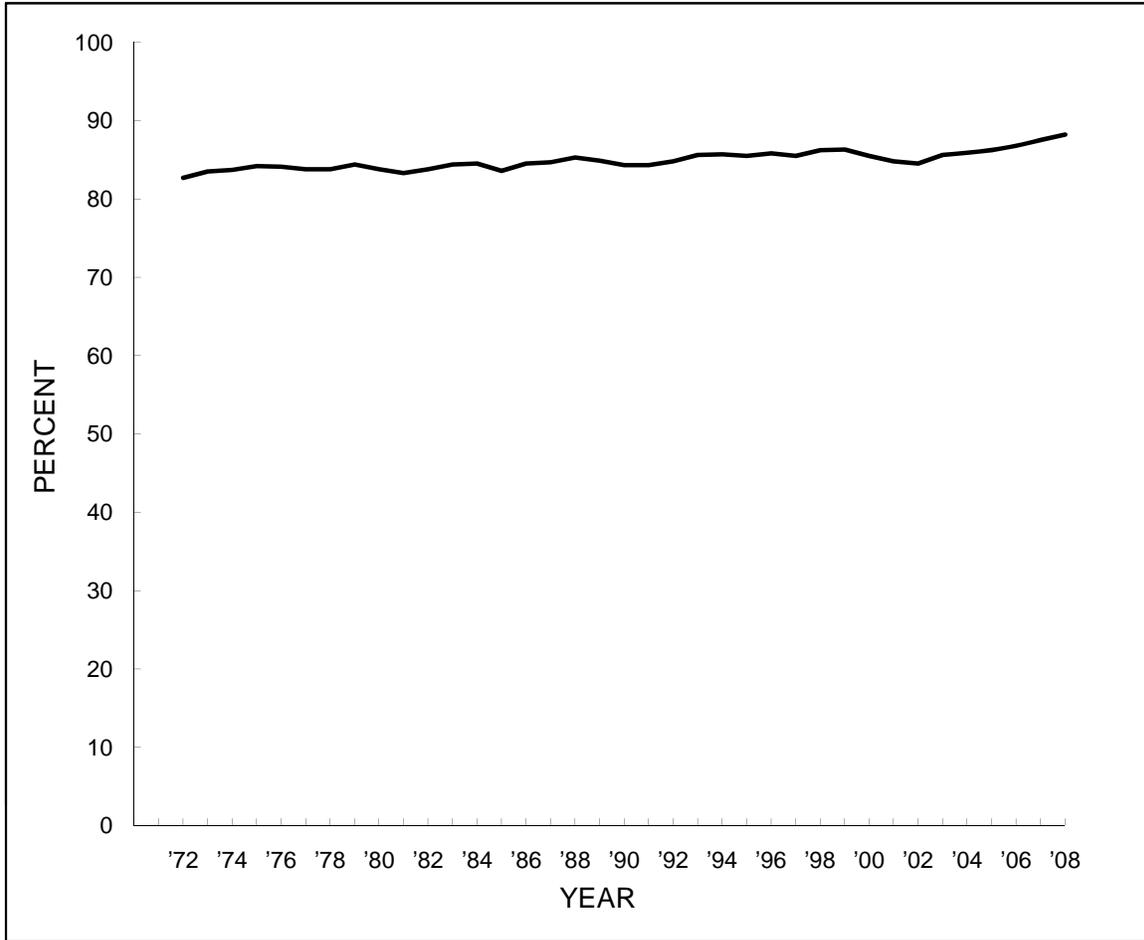
<sup>g</sup>Estimates based on all NSDUH respondents, 17-18 years old, who were not attending school, had not graduated, and had not received a GED.

<sup>h</sup>The difference between all NSDUH seniors and dropouts; this is considered a valid estimate of the population difference between all seniors and dropouts, resulting in an estimated prevalence among dropouts.

<sup>i</sup>Combines estimated use among all MTF seniors (absent and present) plus the estimated population difference between all NSDUH seniors and dropouts, resulting in an estimated prevalence among dropouts.

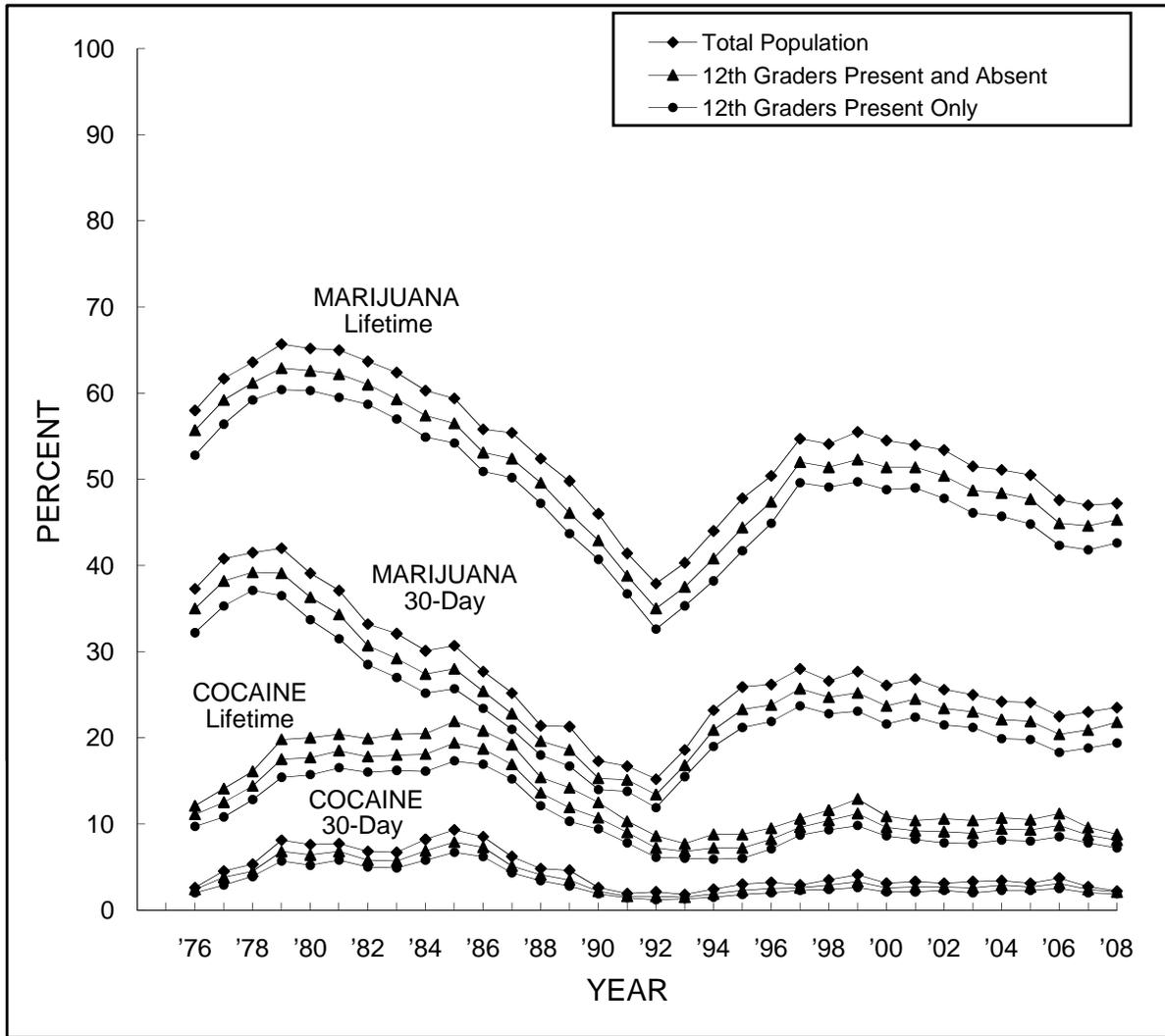
<sup>j</sup>Weighted combined estimate of prevalence, using estimates for MTF seniors (absent and present), and estimates of prevalence among MTF and NSDUH dropouts combined.

**FIGURE A-1**  
**High School Completion by 20- to 24-Year-Olds**



Source. U.S. Census Bureau, Current Populations Survey, published and unpublished data; and 1980 Census.

**FIGURE A-2**  
**Estimates of Prevalence and Trends for the Entire Age/Class Cohort**  
**(Adjusting for Absentees and Dropouts) for 12th Graders**



Source. The Monitoring the Future study, the University of Michigan.

## Appendix B

### DEFINITION OF BACKGROUND AND DEMOGRAPHIC SUBGROUPS

The following are brief definitions of the background and demographic subgroups used in this volume. (Note: All case counts provided in the tables are based on weighted *N*s.)

**Total:** The total sample of respondents in a given year of the study based on weighted cases (set to equal the actual total number of cases).

**Gender:** *Male and female.* Respondents are asked “What is your sex?” Those with missing data on the question are omitted from the data presented by gender.

#### College

**Plans:** Respondents are asked how likely it is that they will graduate from a four-year college program. College plans groupings are defined as follows:

*None or under four years.* Respondents who indicate they “definitely won’t” or “probably won’t” graduate from a four-year college program. (Note that, among those who do not expect to complete a four-year college program, a number still expect to get some postsecondary education.)

*Complete four years.* Respondents who indicate they “definitely will” or “probably will” graduate from a four-year college program.

Those not answering the college plans question are omitted from both groupings.

**Region:** Region of the country in which the respondent’s school is located. There are four mutually exclusive regions of the country based on U.S. Census Bureau categories, defined as follows:

*Northeast.* Census classifications of New England and Middle Atlantic states consist of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania.

*Midwest (formerly North Central).* Census classifications of East North Central and West North Central states consist of Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

*South.* Census classifications of South Atlantic, East South Central, and West South Central states consist of Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida,

Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

**West.** Census classifications of Mountain and Pacific states consist of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California (Alaska and Hawaii are also included in this Census region, but are not included in the study).

## **Population**

### **Density:**

Population density of the area in which the schools are located. There are three mutually exclusive groups that have been variously defined, as described below. (The 1975–1985 samples were based on the 1970 Census; in 1986, one half of the sample was based on the 1970 Census and the other half was based on the 1980 Census. In 1987 through 1993 the samples were based on the 1980 Census; in 1994, half of the sample was based on the 1980 Census and half on the 1990 Census. Starting in 2006, each first-year half-sample of schools comes from a sample design that utilizes 2000 Census counts as the measure of size for first-stage units. The three levels of population density were defined in terms of Standard Metropolitan Statistical Area (SMSA) designations through 1985, and then changed to the new Census Bureau classifications of Metropolitan Statistical Areas (MSAs), as described here:

**Large MSA.** These were the 12 largest Standard Metropolitan Statistical Areas (SMSAs) as of the 1970 Census and were used for the 1975–1985 samples: New York, Los Angeles, Chicago, Philadelphia, Detroit, San Francisco, Washington, Boston, Pittsburgh, St. Louis, Baltimore, and Cleveland. As of the 1980 Census, the “large MSA” group consisted of the 16 largest MSAs. This new structure was used for the 1986–1994 samples. These 16 MSAs include all of the MSAs mentioned above (except Cleveland) plus Dallas-Fort Worth, Houston, Nassau-Suffolk, Minneapolis-St. Paul, and Atlanta.

A new sample design was developed, based on the 1990 Census, beginning with the first-year half-sample of schools chosen in 1994. In the 1990s sample, only the eight largest MSAs are represented with certainty at all three grade levels; 16 other large MSAs are divided into pairs, with half randomly assigned to the 12th- and 8th-grade samples and the other half assigned to the 10th-grade sample. The eight largest MSAs are New York, Los Angeles, Chicago, Philadelphia PA-NJ, Detroit, Washington DC-MD-VA, Dallas-Ft. Worth, and Boston. The other 16 large MSAs are Houston, Atlanta, Seattle-Tacoma, Minneapolis MN-WI, St. Louis MO-IL, San Diego, Baltimore, Pittsburgh, Phoenix, Oakland, Cleveland, Miami, Newark, Denver, San Francisco, and Kansas City MO-KS.

**Other MSAs.** This category consists of all other Metropolitan Statistical Areas, as defined by the Census, except those listed previously. Except in the New England states, an MSA is a county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population

of at least 50,000. In the New England states, MSAs consisted of towns and cities instead of counties until 1994, after which New England Consolidated Metropolitan Areas (NECMAs) were used to define MSAs. Each MSA must include at least one central city, and the complete title of an MSA identifies the central city or cities. For the complete description of the criteria used in defining MSAs, see the Office of Management and Budget publication, *Metropolitan Statistical Areas, 1990* (NTIS-PB90-214420), Washington, D.C. The population living in MSAs is designated as the metropolitan population.

**Non-MSAs.** This category consists of all areas not designated as Metropolitan Statistical Areas—in other words, they do not contain a town (or twin cities) of at least 50,000 inhabitants. The population living outside MSAs constitutes the nonmetropolitan population.

### **Parental**

**Education:** This is an average of mother’s education and father’s education based on the respondent’s answers about the highest level of education achieved by each parent, using the following scale: (1) completed grade school or less, (2) some high school, (3) completed high school, (4) some college, (5) completed college, (6) graduate or professional school after college. Missing data was allowed on one of the two variables. The respondent is instructed, “If you were raised mostly by foster parents, stepparents, or others, answer for them. For example, if you have both a stepfather and a natural father, answer for the one that was most important in raising you.”

### **Race/**

**Ethnicity:** From 1975 through 2004, respondents were asked “How do you describe yourself?” and presented with a list of various racial/ethnic categories. A general instruction told them to select the *one* best response for each question. In 2005 we revised the instructions in half of the forms in order to be more consistent with the guidelines of the Office of Management and Budget for assessing race/ethnicity. In the changed forms, respondents were presented with a list of racial/ethnic categories and instructed to “select one or more responses.” An examination of the data showed that relatively few respondents (about 6% in 2005) selected more than one racial/ethnic category. In 2006 and thereafter the revised instruction was used in all forms.

For the volume reporting the 2005 results, the data from the original race/ethnicity question were combined with data from the revised race/ethnicity question in the following manner: For the original question, respondents were assigned to the racial/ethnic group specified in their response. For the revised question, those checking only White and no other racial/ethnic group were categorized as White; those checking Black or African American and no other racial ethnic group were categorized as African American; and those checking Mexican American or Chicano, Cuban American, Puerto Rican, or other Hispanic or Latino and no other

racial/ethnic group were categorized as Hispanic.<sup>113</sup> In the volumes for 2006 and beyond, all questionnaire forms use the revised question on race/ethnicity. Those checking multiple racial/ethnic groups or one of the other specified groups are omitted from the reporting on race/ethnicity in this volume, because of the small numbers of cases.

***White.*** Consists of those respondents who describe themselves as White or Caucasian in 1975–2004. In 2005 the unchanged questionnaire forms were treated in a similar manner and the changed forms were treated in the manner described above. Beginning in 2006 all forms were treated in the manner described above.

***African American.*** Consists of those respondents who in 1975–1990 describe themselves as Black or Afro-American or who, in 1991–2004, describe themselves as Black or African American. In 2005 the unchanged questionnaire forms were treated in a similar manner and the changed forms were treated in the manner described above. Beginning in 2006 all forms were treated in the manner described above.

***Hispanic.*** Consists of those respondents who in 1975–1990 describe themselves as Mexican American or Chicano, or Puerto Rican or other Latin American. After 1990 this group includes those respondents who describe themselves as Mexican American or Chicano, Cuban American, Puerto Rican American, or other Latin American. After 1994, the term “Puerto Rican American” was shortened to “Puerto Rican.” In 2005 the unchanged questionnaire forms were treated in a similar manner and the changed forms were treated in the manner described above. Beginning in 2006 all forms were treated in the manner described above.

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<sup>113</sup>Because some survey questions appear in only one or a few forms, there was some variation in the version of the race/ethnicity question upon which the 2005 data are based. Based on the analyses we have examined, we do not believe these different permutations make any appreciable difference in the results.

## Appendix C

### ESTIMATION OF SAMPLING ERRORS

This appendix provides some guidance for those who wish to calculate confidence intervals around the percentage estimates reported in this volume, or to assess the statistical significance of differences between percentage estimates.

All percentages reported in this volume are estimates of the response percentage that would have been obtained if, instead of using a sample survey, we had surveyed all 8th-, 10th-, or 12th-grade students throughout the coterminous United States. Because we surveyed only a sample, and not the entire population, there are sampling errors associated with each estimate. For any particular percentage resulting from a sample survey, we cannot know exactly how much error has resulted from sampling, but we can make reasonably good estimates of confidence intervals—ranges within which the true population value is very likely to fall. The word “true” in this context refers to the value that would be found if we had surveyed the total population—this concept of true population value does not take account of biases that might occur due to refusals, intentional or unintentional distortion of responses, faulty question wording, and other factors.

#### CALCULATING CONFIDENCE INTERVALS

The most straightforward types of samples, from a statistical standpoint at least, are simple random samples.<sup>114</sup> In such samples, the confidence limits for a proportion are influenced by the size of the sample, or particular subsample, under consideration and also by the value of the proportion. (Although the estimates in this volume are expressed as percentages, this appendix generally deals with the equivalent proportion, for ease of presentation.)

The *standard error*<sup>115</sup> of a proportion  $p$  based on a simple random sample of  $n$  cases is equal to:

$$\sqrt{p(1.0 - p) / n} \quad (1)$$

With a large number of cases, a symmetrical *confidence interval* around  $p$  would be approximated by:

$$p \pm z\sqrt{p(1.0 - p) / n} \quad (2)$$

where  $z$  is the appropriate value from the  $z$ -distribution. For a 95% confidence interval, for example,  $z = 1.96$ .

<sup>114</sup>A simple random sample is one in which each element is selected independently of, and with the same probability as, all other elements in the universe of elements from which the sample is drawn.

<sup>115</sup>The standard error of an estimate is a measure of sampling error; it is defined as the standard deviation of the sampling distribution of the statistic. It is used to construct the confidence interval around an estimate.

Many of the proportions presented in this volume represent rare events, with values being close to zero. At those low values, a more appropriate confidence interval would be asymmetric. A more exact calculation for confidence intervals, which will usually produce asymmetric confidence limits, is:<sup>116</sup>

$$\frac{n}{n+z^2} \left[ p + \frac{z^2}{2n} \pm z \sqrt{\frac{p(1-p)}{n} + \frac{z^2}{4n^2}} \right] \quad (3)$$

### Significance of Difference between Two Proportions

In addition to estimating the sampling error around a single proportion, we often wish to test the significance of a difference between two proportions, such as the difference between the proportion of marijuana users among male students as compared to among female students. The following formula produces a statistic that can be referred to as a standard normal distribution:

$$z = \frac{p_1 - p_2}{\sqrt{p_e(1-p_e) \frac{n_1+n_2}{n_1n_2}}} \quad (4)$$

Assuming reasonably large numbers of cases, where

$$p_e = \frac{n_1p_1 + n_2p_2}{n_1 + n_2} \quad (5)$$

and  $p_e$  is the estimated population proportion,  $p_1$  is the observed proportion (of users) in the first group,  $p_2$  is the observed proportion in the second group,  $n_1$  is the number of cases in the first group, and  $n_2$  is the number of cases in the second group.

### DESIGN EFFECTS IN COMPLEX SAMPLES

Formulas 1–5 are appropriate only for simple random samples. In complex samples such as those used in the Monitoring the Future surveys, it is also necessary to take account of the effect that the sampling design has on the size of standard errors. (A complex sample is any sample that is not a simple random sample.)

The Monitoring the Future sample design incorporates stratification, clustering, and differential weighting to adjust for differential probabilities of selection. These design elements influence sampling error. While stratification tends to heighten the precision of a sample compared with a

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<sup>116</sup>Formula 6.11.1, page 240, in Hays, W. L. (1988). *Statistics* (4th ed.). New York: Holt, Rinehart, & Winston.

simple random sample of the same size (usually reducing the sampling error), the effects of clustering and weighting reduce precision (usually increasing the sampling error). The net result is that complex sample designs almost always result in increased sampling error (but usually result in more efficient samples in all other respects). Therefore, it is not appropriate to apply the standard, simple random sampling formulas to such complex samples in order to obtain estimates of sampling errors.

Methods exist to correct for this underestimation. Kish (1965, p. 258)<sup>117</sup> defines a correction term called the *design effect* (DEFF), where

$$DEFF = \frac{\text{actual sampling variance}}{\text{variance expected from a random sample}} \quad (6)$$

Thus, if the actual sampling variance in a complex sample is four times as large as the expected sampling variance from a simple random sample with the same number of cases, the DEFF is 4.0. Because confidence intervals are proportionate to the square root of variance, the confidence intervals for such a sample would be twice as large (because the square root of 4 is 2) as the confidence interval for a simple random sample with the same number of cases. If an estimate of design effect is available, one of the simplest correction procedures to follow is to divide the actual numbers of cases by the design effect (thereby depreciating the actual number to its equivalent value in simple random sample terms) and then employ the standard statistical procedures that are available for application to simple random samples. Thus, for example, if the design effect for a sample of 16,000 were 4.0, then one could divide the 16,000 by 4.0, and the result, 4,000, could be entered as the value of  $n$  in statistical tables and formulas designed for use with simple random samples. In short, the strategy involves dividing the actual number of cases by the appropriate DEFF in order to get a “simple random sampling equivalent  $n$ ” or, more simply, an “effective  $n$ ” for use in statistical procedures designed for random samples.

### Estimating Design Effects

In principle, every different statistic resulting from a complex sample can have its own design effect and, in fact, different statistics in the same sample may have quite different design effects. However, it is not feasible to compute every design effect, nor would it be feasible to report every one. Moreover,

Sampling errors computed from survey samples are themselves usually subject to great sampling variability . . . . Sampling theory, and experience with many and repeated computations, teach us not to rely on the precision of individual results, even when these are based on samples with large numbers of elements. (Kish, Groves, & Krotki, 1976, p. 19).<sup>118</sup>

<sup>117</sup>Kish, L. (1965). *Survey sampling*. New York: John Wiley.

<sup>118</sup>Kish, L., Groves, R. M., & Krotki, K. P. (1976). *Sampling errors for fertility surveys* (Occasional Paper Series No. 17). Voorburg, The Netherlands: International Statistical Institute.

Thus, in practice, design effects are averaged across a number of statistics, and these average values are used to estimate the design effects for other statistics based on the same sample. Sometimes a single design effect is applied to all the estimates in a given study. This is usually an oversimplification. In the present study, a rather extensive exploration of design effects revealed a number of systematic differences. These systematic differences have to do with the particular measures being examined, the subgroups involved, and the question of whether a trend over time is being considered. Thus, we provide here a more elaborated set of estimates of design effects that vary along these several dimensions.<sup>119</sup>

### Factors Affecting Design Effects

Design effects are systematically related to two factors: the amount of clustering and the average cluster size. (Each school in the Monitoring the Future design can be considered a cluster of cases, or students.) Specifically,

$$DEFF = 1 + \rho(\bar{n} - 1) \quad (7)$$

(Kish, 1965, section 5, p. 162; Kalton, 1983, p. 31<sup>120</sup>) where  $\bar{n}$  is the average cluster size and  $\rho$  is the intraclass correlation coefficient measuring the degree of cluster homogeneity. Note that the equality is approximate.

An important consequence of this relationship is that subgroups such as male or female that are typically represented within all clusters (that is, all schools) have a lower average cluster size. All (or virtually all) of the schools in the sample have both male and female students. Thus, each of these subgroups is spread more or less evenly across the full number of clusters (schools). Because each of these subgroups includes approximately half of the total sample, the average number of cases per cluster is about half as large as for the total sample, and this leads to a smaller design effect than is found for the total sample. (There is usually not much difference in  $\rho$ , the measure of cluster homogeneity.) Other subgroups involving college plans or parental education are also distributed across all clusters (although not as evenly as gender), and thus are subject to the same phenomenon of smaller design effects because of the smaller number of cases per cluster. This is in contrast to the situation with subgroups such as region of the country, each of which will normally have the same average cluster size as the total sample from the whole country—but considerably fewer clusters. The former type of subgroup (*cross-class*) will usually have a lower design effect, while the latter type of subgroup (*segregated*) will usually have a design effect similar to the overall. In this study, cross-class subgroups include gender, college plans, and parental education. Segregated subgroups include region and population density. Race/ethnicity is a mixed case in that there tends to be substantial clustering of various racial/ethnic groups by school. Consequently, design effects for minority racial/ethnic subgroups tend to be somewhat higher than average, though this tendency is not always evidenced. Because such a high proportion of respondents in most schools are White, the associated design effects for them tend to be similar to the overall design effects.

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<sup>119</sup>All design effects were estimated using the Taylor series expansion method.

<sup>120</sup>Kalton, G. (1983). *Introduction to survey sampling*. Beverly Hills: Sage Publications.

As an empirical generalization, we have observed that design effects tend to be related to the actual prevalence rates of substance use (or  $p$  value). Thus, rarely used substances such as heroin typically have low design effects, while more commonly used substances such as cigarettes, alcohol, and marijuana typically have high design effects. A corollary fact is that the design effect associated with the estimate of lifetime prevalence of any given substance is usually greater than (or equal to) the design effect associated with annual prevalence of that substance, which is in turn greater than the design effect for monthly prevalence. This tendency would imply that 8th-grade design effects would typically be lower than those for 10th grade, which would be lower than 12th grade (because prevalence rates are usually greater in the upper grades). However, 8th-grade schools tend to be more homogenous in socioeconomic terms than high schools, because they tend to draw from smaller geographic areas; this tends to make 8th-grade schools more homogenous with respect to drug use, which would lead to larger design effects. The combination of factors generally leads to slightly lower design effects for the lower grade levels (although not in all cases).

### **Design Effects for Differences between Two Proportions**

***Trends between two nonadjacent years.*** A trend over an interval greater than one year (for example, a comparison between 2000 and 2005) is basically a comparison between estimates from two independent samples. Therefore, the design effects for a single estimated proportion are appropriate. The relevant design effects for nonadjacent years are presented in Tables C-2a through C-2g.

***Trends between adjacent years.*** One of the central purposes of the Monitoring the Future project is to monitor trends over time; indeed, the study procedures have been standardized across years insofar as possible in order to provide the opportunity for sensitive measurement of change. One of the factors designed to produce an added degree of consistency from one year to the next is the use of each school for two data collections, which means that for any two successive years, half of the sample of schools is the same. This means that there is a good deal of consistency in the sampling and clustering of the sample from one year to the next. As a result, when one-year comparisons are made between adjacent years, the design effects for the trend estimate are appreciably smaller than if completely independent samples of schools had been drawn each year. In other words, the samples in adjacent years are not independent; on the contrary, there is a considerable degree of covariance between them. This covariance, or partial matching, reduces the design effect for differences observed between adjacent years, compared to what they would have been with totally independent samples.

In order to estimate the extent of “shrinkage,” we calculated about 95 DEFFs for adjacent one-year trend data where we had prevalence data for the same grade/drug combinations. The relationship between the two sets of DEFFs (prevalence versus one-year trend) was found to be approximately linear, with a product-moment correlation of .88 for DEFFs (and .89 for the square root of DEFF). This seemed sufficiently high to justify simply estimating the linear relation, predicting the trend DEFF from the prevalence DEFF, and using that to estimate the one-year trend DEFF for all measures. The resulting design effects are given in Tables C-1a through C-1g.

***Comparisons between subgroups within a single year.*** We examined a variety of design effects involving comparisons between subgroups based on gender, college plans, and parental education. A considerable simplification was achieved when we noted that generally, the average DEFF values for subgroup comparisons were quite similar to the average DEFF values for one-year trends.

With respect to segregated variables like region and population density, the subgroup samples are essentially independent; therefore, the prevalence design effects are appropriate for comparisons among these subgroups. Design effects for subgroup comparisons within a single year are provided in Tables C-3a through C-3g.

***Differentiating design effects by drug classes.*** Our exploration of design effects led us to the conclusion that various groups of drugs tended to have very similar values. Thus, the following groupings of drugs, which seem to have similar design effects within group, were created for the purpose of simplification:

- (a) An index of use of any illicit drug other than marijuana
- (b) An index of use of any illicit drug; an index of use of any illicit drug including inhalants; and marijuana
- (c) Hallucinogens, LSD, cocaine, and other cocaine (i.e., not crack)
- (d) Nitrites, PCP, crack cocaine, heroin (including heroin with and without a needle), methamphetamine, crystal methamphetamine (ice), methaqualone, over-the-counter cough and cold medicines, Rohypnol, GHB, ketamine, and steroids
- (e) Hallucinogens other than LSD, ecstasy (MDMA), narcotics other than heroin, OxyContin, Ritalin, sedatives (barbiturates), tranquilizers, flavored alcoholic beverages, bidis, kreteks, androstenedione, and creatine
- (f) Inhalants, Vicodin, and amphetamines
- (g) Alcohol (including use of alcohol and getting drunk), cigarettes, and smokeless tobacco

Design effects were found to be generally similar for all the drugs contained within each grouping, but somewhat different across groupings. Therefore, each of the three general tables of design effects (Tables C-1, C-2, and C-3) has seven parts corresponding to each of these seven drug groupings (i.e., Parts a through g).

In general, intervals of use (lifetime, annual, 30-day, daily) are distinguished. For some substances, though, the variation by interval was slight enough to ignore.

On both logical and empirical grounds, there seemed little reason to distinguish among the segregated groups: total sample, and groups defined by region and population density. The average cluster size should be about the same, and there should not be much variation in the degree to which drug use clusters by school within these categories. Some variation was evident empirically, but it did not appear to be systematic. Thus, these groups are assigned equal design effects.

Separate design effect values are provided for estimates of use (prevalence) among the three grade levels (8, 10, 12) for subgroups defined by gender (males, females), college plans (planning to complete four years, not planning to complete four years), parental education (five

levels), and race/ethnicity (African American, White, Hispanic). In some cases, particularly for the less prevalent drugs where design effects are very low, the estimated design effects in fact do not vary by group.

Estimates of design effects are provided for one-year trends. For trends across nonadjacent years, the standard design effects for prevalence are appropriate. Estimates of design effects are also provided separately for comparisons of subgroups within a given year.

## **DETERMINING AN EFFECTIVE $n$**

Tables C-1 through C-3 provide estimates of design effects that can be used to shrink the weighted numbers of cases given in each table in this volume to an effective  $n$ , which is appropriate for use in standard formulas in calculating sampling errors, confidence intervals, and statistical significance of differences in proportions. The tables are in three sets: the first set (C-1a through C-1g) is appropriately used for a one-year trend across adjacent years; the second set (C-2a through C-2g) is for a single prevalence or a comparison across nonadjacent years; and the third (C-3a through C-3g) for a comparison between subgroups in a single year. (Adjacent years differ from nonadjacent years in that half of the schools are part of both years' samples.)

*To access the appropriate table, the reader should determine whether the design effect is needed for a one-year trend (Table C-1), a single prevalence or a comparison of prevalence across nonadjacent years (Table C-2), or a subgroup comparison within a year (Table C-3); and which substance is involved (a–g). Within the table, the reader needs to determine which subgroup (or total sample), grade level, and interval of use are involved. Then, the appropriate design effect can be referenced and used to deflate the weighted number of cases to arrive at an effective  $n$ . This effective  $n$  would be used in Formulas 1 to 5, given previously.*

As an example, suppose one wished to compare the 30-day prevalence of marijuana use for the total 8th-grade sample in 1996 with the same measure in 1997. Tables 2-1 through 2-3, provided earlier in this volume, indicate that prevalence was 11.3% in 1996, based on 17,800 cases; and 10.2% in 1997, based on 18,600 cases. Table C-1b shows that an appropriate design effect for 8th-grade 30-day marijuana use is 3.2. Each year's  $n$  would be divided by 3.2, producing effective  $n$ s of 5,562 and 5,812. These effective  $n$ s should be used in Formula 4, given earlier in this appendix, to test whether the difference in proportions between the two years is statistically significant.

### **A Special Note on Racial/Ethnic Subgroups**

As noted earlier in this volume, the prevalence estimates for racial/ethnic subgroups are reported only for two-year averages, instead of single years, because of limited sample sizes and a higher degree of clustering. The design effects for prevalence rates for racial/ethnic subgroups provided in Tables C-2a through C-2g are appropriately applied to the number of cases provided for the two years combined. In calculating a one-year trend between the two most recent prevalence figures, however, one is in effect taking a trend between a prevalence based on data from the most recent single year, and a prevalence based on data from a single year two years prior to the most recent year. For example, comparing the estimate based on combined 1994 and 1995 data with the combined 1993 and 1994 data is equivalent to comparing 1993 and 1995, because the

1994 observed value is contained in both data points and therefore cancels itself out. The design effects for trends provided in Tables C-1a through C-1g are therefore appropriately applied to one half of the number of cases provided in each table for the combined years. In 2005, a shift in question wording was begun for the question regarding race/ethnicity. In half of the questionnaire forms, a new version of the question was introduced. That new version was used in all forms beginning in 2006. In the previous version of the question, the respondent was asked to choose only one of the answer alternatives, whereas in the new version the respondent is allowed to make multiple choices. For example, one might choose both African American and Mexican American. Because so few respondents provided multiple responses, we have treated those as missing data in this volume. We believe that the change has had minimal impact on the subgroup substance use estimates and on the design effects associated with race/ethnicity.

## A NOTE ON INTERPRETATION OF DIFFERENCES AND STATISTICAL SIGNIFICANCE

This appendix provides the reader with procedures to assess the statistical significance of differences over time or between groups. In the text of this report, we frequently comment on particular differences over time or between groups in terms of drug use. In general, our conclusions are based to a considerable extent on *patterns* of cross-time changes rather than on the statistical significance of any single comparison. That is, we assess the overall pattern of evidence, rather than any single finding, to assess the likely validity of the finding.

There are at least five types of patterns that we inspect:

1. **Replication across grades.** Because the annual samples of 8th-, 10th-, and 12th-grade students are three *completely independent samples*, one pattern that we look for is the similarity or contrast in changes that occur in the three groups. Although there is no requirement that changes occur similarly in all three groups, to the extent that a change is similar (or at least not inconsistent), we are more confident in its validity.
2. **Replication across subgroups.** To the extent that a change has occurred across a broad range of subgroups, we are more confident of its validity. For example, if an increase in use occurs among males and females, among non-college-bound and college-bound, in different regions, etc., we would be more inclined to accept the change as reflecting an underlying reality.
3. **Replication across half-samples.** Because half of the schools remain the same from one year to the next, any changes across a one-year interval can be examined for the half-sample that has remained constant. In other words, the data are examined for only the schools that provide data for both years. This removes any differences that may have occurred due simply to different schools being included.
4. **Consistency across several years.** Although each year's report emphasizes the changes in the most recent year, we pay careful attention to trends across longer time intervals. For example, when we observe a third or fourth consecutive year of consistent change in one

direction (up or down), then we are more inclined to accept the validity of the general trend, even if none of the changes in any of the one-year intervals was statistically significant.

5. ***Replication across different variables.*** Another type of replication or validation involves examining trends in different variables that would be expected to covary. For example, we have observed that perceived risk of harm associated with use of a specific substance tends to covary (negatively) with actual use of the substance. Similarly, we would expect reports of friends' use of specific substances to covary (positively) with reports of respondents' own use. To the extent that different variables covary in the expected manner, then we would be more confident in interpreting the results.

Although we do not always discuss all of these various contributions to our confidence, we do generally assess them prior to making interpretations.

**TABLE C-1a**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>ANY ILLICIT DRUG OTHER THAN MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	3.9	3.3	2.6	1.2
	10th Grade	4.3	3.6	2.7	1.2
	12th Grade	4.9	4.4	3.3	1.7
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.8	2.5	2.2	1.3
	10th Grade	3.1	2.7	2.4	1.2
	12th Grade	3.2	2.9	2.4	1.7
Female	8th Grade	3.1	2.8	2.1	1.2
	10th Grade	3.3	2.9	2.2	1.1
	12th Grade	3.5	3.3	2.8	1.6
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.0	1.9	1.6	1.2
	10th Grade	2.2	2.1	1.8	1.4
	12th Grade	2.1	1.9	1.6	1.5
Complete 4 years	8th Grade	3.5	2.8	2.3	1.2
	10th Grade	4.1	3.3	2.5	1.1
	12th Grade	4.4	3.8	3.0	1.7
<b>Parental Education:</b>					
Any stratum	8th Grade	2.1	2.0	1.6	1.1
	10th Grade	2.2	2.0	1.7	1.2
	12th Grade	2.4	2.2	1.7	1.4
<b>Racial/Ethnic Group:</b>					
White	8th Grade	4.0	3.8	2.9	1.4
	10th Grade	4.9	4.3	3.0	1.5
	12th Grade	4.2	4.0	2.9	2.0
African American	8th Grade	2.7	2.0	1.5	1.2
	10th Grade	3.0	2.6	1.9	1.3
	12th Grade	3.7	3.3	3.0	1.6
Hispanic	8th Grade	3.8	2.7	2.0	1.5
	10th Grade	4.5	2.9	1.8	1.3
	12th Grade	5.0	4.0	3.0	2.0

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1b**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>ANY ILLICIT DRUG, ANY ILLICIT DRUG INCLUDING INHALANTS, AND MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	4.1	3.5	3.2	1.4
	10th Grade	5.0	4.3	3.4	1.5
	12th Grade	6.9	6.6	5.4	2.8
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.4	2.4	2.4	1.5
	10th Grade	3.4	3.0	3.0	1.5
	12th Grade	3.8	3.4	3.0	2.7
Female	8th Grade	3.4	3.0	2.4	1.3
	10th Grade	4.0	3.4	2.7	1.1
	12th Grade	4.6	4.6	4.5	2.6
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.3	2.3	2.0	1.3
	10th Grade	2.8	2.8	2.7	2.0
	12th Grade	2.4	2.4	2.1	2.1
Complete 4 years	8th Grade	3.3	2.4	2.4	1.5
	10th Grade	5.1	4.0	3.2	1.1
	12th Grade	6.1	5.3	4.5	3.0
<b>Parental Education:</b>					
Any stratum	8th Grade	2.1	2.1	1.9	1.1
	10th Grade	2.5	2.3	2.2	1.4
	12th Grade	3.0	2.8	2.3	1.9
<b>Racial/Ethnic Group:</b>					
White	8th Grade	4.5	4.4	4.1	1.9
	10th Grade	7.2	5.8	4.5	2.1
	12th Grade	5.0	5.0	4.2	3.7
African American	8th Grade	3.0	2.1	1.3	1.1
	10th Grade	4.0	4.0	2.6	1.5
	12th Grade	6.0	6.0	6.0	2.5
Hispanic	8th Grade	2.6	2.6	2.1	2.0
	10th Grade	4.9	3.0	1.6	1.5
	12th Grade	5.0	4.8	3.5	2.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1c**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>HALLUCINOGENS (UNADJUSTED AND ADJUSTED), LSD, COCAINE, AND OTHER COCAINE</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	4.3	3.5	2.5	1.1
	10th Grade	4.3	3.5	2.5	1.1
	12th Grade	4.3	3.5	2.5	1.1
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	3.2	2.8	2.4	1.1
	10th Grade	3.2	2.8	2.4	1.1
	12th Grade	3.2	2.8	2.4	1.1
Female	8th Grade	3.2	2.8	2.0	1.1
	10th Grade	3.2	2.8	2.0	1.1
	12th Grade	3.2	2.8	2.0	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.0	1.9	1.4	1.1
	10th Grade	2.0	1.9	1.4	1.1
	12th Grade	2.0	1.9	1.4	1.1
Complete 4 years	8th Grade	4.2	3.2	2.4	1.1
	10th Grade	4.2	3.2	2.4	1.1
	12th Grade	4.2	3.2	2.4	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.1	1.9	1.5	1.1
	10th Grade	2.1	1.9	1.5	1.1
	12th Grade	2.1	1.9	1.5	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	4.2	3.8	2.8	1.2
	10th Grade	4.2	3.8	2.8	1.2
	12th Grade	4.2	3.8	2.8	1.2
African American	8th Grade	1.4	1.4	1.3	1.2
	10th Grade	1.4	1.4	1.3	1.2
	12th Grade	1.4	1.4	1.3	1.2
Hispanic	8th Grade	6.1	3.3	2.3	1.2
	10th Grade	6.1	3.3	2.3	1.2
	12th Grade	6.1	3.3	2.3	1.2

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1d**  
**Design Effects for 1-Year Trends in Prevalence of Use**

**NITRITES, PCP, CRACK COCAINE, HEROIN  
(INCLUDING HEROIN WITH AND WITHOUT A NEEDLE),  
METHAMPHETAMINE, CRYSTAL METHAMPHETAMINE (ICE),  
METHAQUALONE, OTC COUGH/COLD MEDICINES,  
ROHYPNOL, GHB, KETAMINE, AND STEROIDS**

		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	1.9	1.3	1.3	1.1
	10th Grade	1.9	1.3	1.3	1.1
	12th Grade	1.9	1.3	1.3	1.1
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	1.3	1.3	1.3	1.1
	10th Grade	1.3	1.3	1.3	1.1
	12th Grade	1.3	1.3	1.3	1.1
Female	8th Grade	1.9	1.5	1.3	1.1
	10th Grade	1.9	1.5	1.3	1.1
	12th Grade	1.9	1.5	1.3	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	1.4	1.4	1.4	1.1
	10th Grade	1.4	1.4	1.4	1.1
	12th Grade	1.4	1.4	1.4	1.1
Complete 4 years	8th Grade	1.5	1.3	1.1	1.1
	10th Grade	1.5	1.3	1.1	1.1
	12th Grade	1.5	1.3	1.1	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	1.3	1.3	1.3	1.1
	10th Grade	1.3	1.3	1.3	1.1
	12th Grade	1.3	1.3	1.3	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	1.6	1.5	1.4	1.2
	10th Grade	1.6	1.5	1.4	1.2
	12th Grade	1.6	1.5	1.4	1.2
African American	8th Grade	1.8	1.8	1.8	1.2
	10th Grade	1.8	1.8	1.8	1.2
	12th Grade	1.8	1.8	1.8	1.2
Hispanic	8th Grade	2.0	1.6	1.5	1.2
	10th Grade	2.0	1.6	1.5	1.2
	12th Grade	2.0	1.6	1.5	1.2

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1e**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>HALLUCINOGENS OTHER THAN LSD, ECSTASY (MDMA), NARCOTICS OTHER THAN HEROIN, OXYCONTIN, RITALIN, SEDATIVES (BARBITURATES), TRANQUILIZERS, FLAVORED ALCOHOLIC BEVERAGES, BIDIS, KRETEKS, ANDROSTENEDIONE, AND CREATINE</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	2.4	2.2	1.5	1.1
	10th Grade	2.4	2.2	1.5	1.1
	12th Grade	2.4	2.2	1.5	1.1
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.1	2.1	1.6	1.1
	10th Grade	2.1	2.1	1.6	1.1
	12th Grade	2.1	2.1	1.6	1.1
Female	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
Complete 4 years	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	2.5	2.5	1.9	1.2
	10th Grade	2.5	2.5	1.9	1.2
	12th Grade	2.5	2.5	1.9	1.2
African American	8th Grade	1.5	1.5	1.4	1.2
	10th Grade	1.5	1.5	1.4	1.2
	12th Grade	1.5	1.5	1.4	1.2
Hispanic	8th Grade	1.6	1.4	1.3	1.2
	10th Grade	1.6	1.4	1.3	1.2
	12th Grade	1.6	1.4	1.3	1.2

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1f**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>INHALANTS, VICODIN, AND AMPHETAMINES (UNADJUSTED AND ADJUSTED)</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	3.5	3.0	2.1	1.1
	10th Grade	3.5	3.0	2.1	1.1
	12th Grade	3.5	3.0	2.1	1.1
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.7	2.4	1.9	1.1
	10th Grade	2.7	2.4	1.9	1.1
	12th Grade	2.7	2.4	1.9	1.1
Female	8th Grade	2.7	2.7	1.9	1.1
	10th Grade	2.7	2.7	1.9	1.1
	12th Grade	2.7	2.7	1.9	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	1.9	1.5	1.3	1.1
	10th Grade	1.9	1.5	1.3	1.1
	12th Grade	1.9	1.5	1.3	1.1
Complete 4 years	8th Grade	3.0	2.7	2.0	1.1
	10th Grade	3.0	2.7	2.0	1.1
	12th Grade	3.0	2.7	2.0	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.9	1.4	1.1
	10th Grade	2.0	1.9	1.4	1.1
	12th Grade	2.0	1.9	1.4	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	3.3	3.2	1.8	1.2
	10th Grade	3.3	3.2	1.8	1.2
	12th Grade	3.3	3.2	1.8	1.2
African American	8th Grade	3.6	2.4	1.8	1.2
	10th Grade	3.6	2.4	1.8	1.2
	12th Grade	3.6	2.4	1.8	1.2
Hispanic	8th Grade	2.6	2.3	1.5	1.2
	10th Grade	2.6	2.3	1.5	1.2
	12th Grade	2.6	2.3	1.5	1.2

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-1g**  
**Design Effects for 1-Year Trends in Prevalence of Use**

		<b>ALCOHOL AND BEEN DRUNK<sup>a</sup></b>		<b>CIGARETTES AND SMOKELESS TOBACCO</b>	
		Lifetime, Last 12 Months, Last 30 Days, <u>5+2 Weeks</u>	<u>Daily</u>	Lifetime, Last 30 Days, <u>Daily</u>	Half Pack or More <u>per Day</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>b</sup></b>					
	8th Grade	3.7	1.3	3.8	3.0
	10th Grade	3.7	1.3	3.8	3.0
	12th Grade	3.7	1.3	3.8	3.0
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.4	1.3	2.3	2.0
	10th Grade	2.4	1.3	2.3	2.0
	12th Grade	2.4	1.3	2.3	2.0
Female	8th Grade	3.1	1.3	3.6	2.6
	10th Grade	3.1	1.3	3.6	2.6
	12th Grade	3.1	1.3	3.6	2.6
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.1	1.3	2.0	2.0
	10th Grade	2.1	1.3	2.0	2.0
	12th Grade	2.1	1.3	2.0	2.0
Complete 4 years	8th Grade	3.2	1.3	3.2	2.3
	10th Grade	3.2	1.3	3.2	2.3
	12th Grade	3.2	1.3	3.2	2.3
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.3	2.1	1.9
	10th Grade	2.0	1.3	2.1	1.9
	12th Grade	2.0	1.3	2.1	1.9
<b>Racial/Ethnic Group:</b>					
White	8th Grade	3.6	1.4	3.7	2.6
	10th Grade	3.6	1.4	3.7	2.6
	12th Grade	3.6	1.4	3.7	2.6
African American	8th Grade	4.5	1.4	2.4	1.4
	10th Grade	4.5	1.4	2.4	1.4
	12th Grade	4.5	1.4	2.4	1.4
Hispanic	8th Grade	3.0	1.4	2.7	1.9
	10th Grade	3.0	1.4	2.7	1.9
	12th Grade	3.0	1.4	2.7	1.9

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>See Table C-1e for flavored alcoholic beverages.

<sup>b</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2a**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>ANY ILLICIT DRUG OTHER THAN MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	5.6	4.6	3.3	1.3
	10th Grade	6.2	5.0	3.4	1.4
	12th Grade	7.2	6.4	4.6	2.0
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	3.6	3.2	2.6	1.4
	10th Grade	4.1	3.5	3.0	1.4
	12th Grade	4.4	3.7	3.0	2.0
Female	8th Grade	4.2	3.7	2.4	1.3
	10th Grade	4.5	3.9	2.6	1.2
	12th Grade	4.9	4.6	3.6	1.9
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.3	2.2	1.8	1.3
	10th Grade	2.7	2.5	2.2	1.5
	12th Grade	2.4	2.3	1.9	1.6
Complete 4 years	8th Grade	4.8	3.6	2.8	1.4
	10th Grade	5.9	4.5	3.2	1.2
	12th Grade	6.4	5.3	4.0	2.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.4	2.2	1.8	1.2
	10th Grade	2.6	2.3	2.0	1.3
	12th Grade	2.9	2.6	2.0	1.5
<b>Racial/Ethnic Group:</b>					
White	8th Grade	5.0	4.8	3.6	1.8
	10th Grade	6.1	5.3	3.8	1.9
	12th Grade	5.2	5.0	3.7	2.5
African American	8th Grade	3.3	2.5	1.8	1.5
	10th Grade	3.8	3.3	2.4	1.6
	12th Grade	4.6	4.1	3.8	2.0
Hispanic	8th Grade	4.7	3.4	2.5	1.8
	10th Grade	5.7	3.6	2.3	1.6
	12th Grade	5.0	4.0	3.0	2.0

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2b**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>ANY ILLICIT DRUG, ANY ILLICIT DRUG INCLUDING INHALANTS, AND MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	5.8	4.8	4.3	1.6
	10th Grade	7.5	6.2	4.7	1.7
	12th Grade	10.7	10.2	8.1	3.6
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	3.0	3.0	3.0	1.8
	10th Grade	4.6	4.0	4.0	1.7
	12th Grade	5.4	4.6	4.0	3.5
Female	8th Grade	4.6	4.0	2.9	1.4
	10th Grade	5.7	4.6	3.5	1.1
	12th Grade	6.8	6.7	6.5	3.3
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.7	2.7	2.2	1.5
	10th Grade	3.7	3.7	3.4	2.2
	12th Grade	3.0	3.0	2.5	2.5
Complete 4 years	8th Grade	4.5	3.0	3.0	1.7
	10th Grade	7.6	5.7	4.3	1.1
	12th Grade	9.3	8.0	6.6	3.9
<b>Parental Education:</b>					
Any stratum	8th Grade	2.5	2.4	2.0	1.2
	10th Grade	3.1	2.8	2.6	1.6
	12th Grade	4.0	3.6	2.8	2.0
<b>Racial/Ethnic Group:</b>					
White	8th Grade	5.6	5.5	5.1	2.4
	10th Grade	9.0	7.3	5.6	2.6
	12th Grade	6.3	6.3	5.3	4.6
African American	8th Grade	3.8	2.6	1.6	1.4
	10th Grade	5.0	5.0	3.3	1.9
	12th Grade	7.5	7.5	7.5	3.1
Hispanic	8th Grade	3.3	3.3	2.6	2.5
	10th Grade	6.1	3.8	2.0	1.9
	12th Grade	5.0	4.8	4.0	3.0

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2c**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>HALLUCINOGENS (UNADJUSTED AND ADJUSTED), LSD, COCAINE, AND OTHER COCAINE</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	6.2	4.9	3.2	1.2
	10th Grade	6.2	4.9	3.2	1.2
	12th Grade	6.2	4.9	3.2	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	4.3	3.7	2.9	1.2
	10th Grade	4.3	3.7	2.9	1.2
	12th Grade	4.3	3.7	2.9	1.2
Female	8th Grade	4.4	3.6	2.2	1.2
	10th Grade	4.4	3.6	2.2	1.2
	12th Grade	4.4	3.6	2.2	1.2
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.2	2.0	1.6	1.2
	10th Grade	2.2	2.0	1.6	1.2
	12th Grade	2.2	2.0	1.6	1.2
Complete 4 years	8th Grade	6.0	4.4	3.0	1.2
	10th Grade	6.0	4.4	3.0	1.2
	12th Grade	6.0	4.4	3.0	1.2
<b>Parental Education:</b>					
Any stratum	8th Grade	2.4	2.1	1.7	1.2
	10th Grade	2.4	2.1	1.7	1.2
	12th Grade	2.4	2.1	1.7	1.2
<b>Racial/Ethnic Group:</b>					
White	8th Grade	5.3	4.8	3.5	1.5
	10th Grade	5.3	4.8	3.5	1.5
	12th Grade	5.3	4.8	3.5	1.5
African American	8th Grade	1.8	1.8	1.6	1.5
	10th Grade	1.8	1.8	1.6	1.5
	12th Grade	1.8	1.8	1.6	1.5
Hispanic	8th Grade	7.6	4.1	2.9	1.5
	10th Grade	7.6	4.1	2.9	1.5
	12th Grade	7.6	4.1	2.9	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2d**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>NITRITES, PCP, CRACK COCAINE, HEROIN (INCLUDING HEROIN WITH AND WITHOUT A NEEDLE), METHAMPHETAMINE, CRYSTAL METHAMPHETAMINE (ICE), METHAQUALONE, OTC COUGH/COLD MEDICINES, <u>ROHYPNOL, GHB, KETAMINE, AND STEROIDS</u></b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	2.0	1.5	1.5	1.2
	10th Grade	2.0	1.5	1.5	1.2
	12th Grade	2.0	1.5	1.5	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	1.4	1.4	1.4	1.2
	10th Grade	1.4	1.4	1.4	1.2
	12th Grade	1.4	1.4	1.4	1.2
Female	8th Grade	2.1	1.7	1.5	1.2
	10th Grade	2.1	1.7	1.5	1.2
	12th Grade	2.1	1.7	1.5	1.2
<b>College Plans:</b>					
None or under 4 years	8th Grade	1.6	1.6	1.6	1.2
	10th Grade	1.6	1.6	1.6	1.2
	12th Grade	1.6	1.6	1.6	1.2
Complete 4 years	8th Grade	1.7	1.4	1.2	1.2
	10th Grade	1.7	1.4	1.2	1.2
	12th Grade	1.7	1.4	1.2	1.2
<b>Parental Education:</b>					
Any stratum	8th Grade	1.4	1.4	1.4	1.2
	10th Grade	1.4	1.4	1.4	1.2
	12th Grade	1.4	1.4	1.4	1.2
<b>Racial/Ethnic Group:</b>					
White	8th Grade	2.0	1.9	1.8	1.5
	10th Grade	2.0	1.9	1.8	1.5
	12th Grade	2.0	1.9	1.8	1.5
African American	8th Grade	2.3	2.3	2.3	1.5
	10th Grade	2.3	2.3	2.3	1.5
	12th Grade	2.3	2.3	2.3	1.5
Hispanic	8th Grade	2.5	2.0	1.9	1.5
	10th Grade	2.5	2.0	1.9	1.5
	12th Grade	2.5	2.0	1.9	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2e**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		HALLUCINOGENS OTHER THAN LSD, ECSTASY (MDMA), NARCOTICS OTHER THAN HEROIN, OXYCONTIN, RITALIN, SEDATIVES (BARBITURATES), TRANQUILIZERS, FLAVORED ALCOHOLIC BEVERAGES, <u>BIDIS, KRETEKS, ANDROSTENEDIONE, AND CREATINE</u>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	2.9	2.6	1.7	1.2
	10th Grade	2.9	2.6	1.7	1.2
	12th Grade	2.9	2.6	1.7	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.4	2.4	1.9	1.2
	10th Grade	2.4	2.4	1.9	1.2
	12th Grade	2.4	2.4	1.9	1.2
Female	8th Grade	2.2	1.9	1.4	1.2
	10th Grade	2.2	1.9	1.4	1.2
	12th Grade	2.2	1.9	1.4	1.2
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.2	1.9	1.4	1.2
	10th Grade	2.2	1.9	1.4	1.2
	12th Grade	2.2	1.9	1.4	1.2
Complete 4 years	8th Grade	2.2	1.9	1.4	1.2
	10th Grade	2.2	1.9	1.4	1.2
	12th Grade	2.2	1.9	1.4	1.2
<b>Parental Education:</b>					
Any stratum	8th Grade	2.2	1.9	1.4	1.2
	10th Grade	2.2	1.9	1.4	1.2
	12th Grade	2.2	1.9	1.4	1.2
<b>Racial/Ethnic Group:</b>					
White	8th Grade	3.1	3.1	2.4	1.5
	10th Grade	3.1	3.1	2.4	1.5
	12th Grade	3.1	3.1	2.4	1.5
African American	8th Grade	1.9	1.9	1.8	1.5
	10th Grade	1.9	1.9	1.8	1.5
	12th Grade	1.9	1.9	1.8	1.5
Hispanic	8th Grade	2.0	1.8	1.6	1.5
	10th Grade	2.0	1.8	1.6	1.5
	12th Grade	2.0	1.8	1.6	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2f**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>INHALANTS, VICODIN, AND AMPHETAMINES (UNADJUSTED AND ADJUSTED)</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	4.8	4.0	2.4	1.2
	10th Grade	4.8	4.0	2.4	1.2
	12th Grade	4.8	4.0	2.4	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	3.4	2.9	2.0	1.2
	10th Grade	3.4	2.9	2.0	1.2
	12th Grade	3.4	2.9	2.0	1.2
Female	8th Grade	3.5	3.4	2.1	1.2
	10th Grade	3.5	3.4	2.1	1.2
	12th Grade	3.5	3.4	2.1	1.2
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.1	1.8	1.5	1.2
	10th Grade	2.1	1.8	1.5	1.2
	12th Grade	2.1	1.8	1.5	1.2
Complete 4 years	8th Grade	4.0	3.5	2.3	1.2
	10th Grade	4.0	3.5	2.3	1.2
	12th Grade	4.0	3.5	2.3	1.2
<b>Parental Education:</b>					
Any stratum	8th Grade	2.3	2.1	1.6	1.2
	10th Grade	2.3	2.1	1.6	1.2
	12th Grade	2.3	2.1	1.6	1.2
<b>Racial/Ethnic Group:</b>					
White	8th Grade	4.1	4.0	2.3	1.5
	10th Grade	4.1	4.0	2.3	1.5
	12th Grade	4.1	4.0	2.3	1.5
African American	8th Grade	4.5	3.0	2.3	1.5
	10th Grade	4.5	3.0	2.3	1.5
	12th Grade	4.5	3.0	2.3	1.5
Hispanic	8th Grade	3.3	2.9	1.9	1.5
	10th Grade	3.3	2.9	1.9	1.5
	12th Grade	3.3	2.9	1.9	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-2g**  
**Design Effects for (a) Prevalence of Use or**  
**(b) a Change in Prevalence of Use Across Nonadjacent Years**

		<b>ALCOHOL AND BEEN DRUNK<sup>a</sup></b>		<b>CIGARETTES AND SMOKELESS TOBACCO</b>	
		Lifetime, Last 12 Months, Last 30 Days, <u>5+2 Weeks</u>	<u>Daily</u>	Lifetime, Last 30 Days, <u>Daily</u>	Half Pack or More <u>per Day</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>b</sup></b>					
	8th Grade	5.2	1.4	5.4	3.9
	10th Grade	5.2	1.4	5.4	3.9
	12th Grade	5.2	1.4	5.4	3.9
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.9	1.4	2.8	2.2
	10th Grade	2.9	1.4	2.8	2.2
	12th Grade	2.9	1.4	2.8	2.2
Female	8th Grade	4.2	1.4	5.1	3.3
	10th Grade	4.2	1.4	5.1	3.3
	12th Grade	4.2	1.4	5.1	3.3
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.5	1.4	2.3	2.2
	10th Grade	2.5	1.4	2.3	2.2
	12th Grade	2.5	1.4	2.3	2.2
Complete 4 years	8th Grade	4.3	1.4	4.3	2.7
	10th Grade	4.3	1.4	4.3	2.7
	12th Grade	4.3	1.4	4.3	2.7
<b>Parental Education:</b>					
Any stratum	8th Grade	2.3	1.4	2.4	2.0
	10th Grade	2.3	1.4	2.4	2.0
	12th Grade	2.3	1.4	2.4	2.0
<b>Racial/Ethnic Group:</b>					
White	8th Grade	4.5	1.8	4.6	3.3
	10th Grade	4.5	1.8	4.6	3.3
	12th Grade	4.5	1.8	4.6	3.3
African American	8th Grade	5.6	1.8	3.0	1.8
	10th Grade	5.6	1.8	3.0	1.8
	12th Grade	5.6	1.8	3.0	1.8
Hispanic	8th Grade	3.8	1.8	3.4	2.4
	10th Grade	3.8	1.8	3.4	2.4
	12th Grade	3.8	1.8	3.4	2.4

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>See Table C-2e for flavored alcoholic beverages.

<sup>b</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3a**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>ANY ILLICIT DRUG OTHER THAN MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	5.6	4.6	3.3	1.3
	10th Grade	6.2	5.0	3.4	1.4
	12th Grade	7.2	6.4	4.6	2.0
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
<b>Male</b>					
	8th Grade	2.8	2.5	2.2	1.3
	10th Grade	3.1	2.7	2.4	1.2
	12th Grade	3.2	2.9	2.4	1.7
<b>Female</b>					
	8th Grade	3.1	2.8	2.1	1.2
	10th Grade	3.3	2.9	2.2	1.1
	12th Grade	3.5	3.3	2.8	1.6
<b>College Plans:</b>					
<b>None or under 4 years</b>					
	8th Grade	2.0	1.9	1.6	1.2
	10th Grade	2.2	2.1	1.8	1.4
	12th Grade	2.1	1.9	1.6	1.5
<b>Complete 4 years</b>					
	8th Grade	3.5	2.8	2.3	1.2
	10th Grade	4.1	3.3	2.5	1.1
	12th Grade	4.4	3.8	3.0	1.7
<b>Parental Education:</b>					
<b>Any stratum</b>					
	8th Grade	2.1	2.0	1.6	1.1
	10th Grade	2.2	2.0	1.7	1.2
	12th Grade	2.4	2.2	1.7	1.4
<b>Racial/Ethnic Group:</b>					
<b>White</b>					
	8th Grade	3.6	3.4	2.8	1.8
	10th Grade	4.2	3.8	2.9	1.9
	12th Grade	3.7	3.6	2.8	2.2
<b>African American</b>					
	8th Grade	2.6	2.5	1.8	1.5
	10th Grade	2.9	2.6	2.4	1.6
	12th Grade	3.4	3.1	2.9	2.0
<b>Hispanic</b>					
	8th Grade	3.4	2.7	2.5	1.8
	10th Grade	4.0	2.8	2.3	1.6
	12th Grade	5.7	4.9	2.9	2.4

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3b**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>ANY ILLICIT DRUG, ANY ILLICIT DRUG INCLUDING INHALANTS, AND MARIJUANA</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	5.8	4.8	4.3	1.6
	10th Grade	7.5	6.2	4.7	1.7
	12th Grade	10.7	10.2	8.1	3.6
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
<b>Male</b>					
	8th Grade	2.4	2.4	2.4	1.5
	10th Grade	3.4	3.0	3.0	1.5
	12th Grade	3.8	3.4	3.0	2.7
<b>Female</b>					
	8th Grade	3.4	3.0	2.4	1.3
	10th Grade	4.0	3.4	2.7	1.1
	12th Grade	4.6	4.6	4.5	2.6
<b>College Plans:</b>					
<b>None or under 4 years</b>					
	8th Grade	2.3	2.3	2.0	1.3
	10th Grade	2.8	2.8	2.7	2.0
	12th Grade	2.4	2.4	2.1	2.1
<b>Complete 4 years</b>					
	8th Grade	3.3	2.4	2.4	1.5
	10th Grade	5.1	4.0	3.2	1.1
	12th Grade	6.1	5.3	4.5	3.0
<b>Parental Education:</b>					
<b>Any stratum</b>					
	8th Grade	2.1	2.1	1.9	1.1
	10th Grade	2.5	2.3	2.2	1.4
	12th Grade	3.0	2.8	2.3	1.9
<b>Racial/Ethnic Group:</b>					
<b>White</b>					
	8th Grade	4.0	3.9	3.7	2.1
	10th Grade	5.9	4.9	4.0	2.2
	12th Grade	4.3	4.3	3.7	3.4
<b>African American</b>					
	8th Grade	2.9	2.2	1.6	1.4
	10th Grade	3.6	3.6	2.6	1.9
	12th Grade	5.0	5.0	5.0	2.5
<b>Hispanic</b>					
	8th Grade	2.6	2.6	2.2	2.1
	10th Grade	4.2	2.9	2.0	1.9
	12th Grade	9.4	9.2	4.5	3.2

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3c**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>HALLUCINOGENS (UNADJUSTED AND ADJUSTED), LSD, COCAINE, AND OTHER COCAINE</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	6.2	4.9	3.2	1.2
	10th Grade	6.2	4.9	3.2	1.2
	12th Grade	6.2	4.9	3.2	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
<b>Male</b>					
	8th Grade	3.2	2.8	2.4	1.1
	10th Grade	3.2	2.8	2.4	1.1
	12th Grade	3.2	2.8	2.4	1.1
<b>Female</b>					
	8th Grade	3.2	2.8	2.0	1.1
	10th Grade	3.2	2.8	2.0	1.1
	12th Grade	3.2	2.8	2.0	1.1
<b>College Plans:</b>					
<b>None or under 4 years</b>					
	8th Grade	2.0	1.9	1.4	1.1
	10th Grade	2.0	1.9	1.4	1.1
	12th Grade	2.0	1.9	1.4	1.1
<b>Complete 4 years</b>					
	8th Grade	4.2	3.2	2.4	1.1
	10th Grade	4.2	3.2	2.4	1.1
	12th Grade	4.2	3.2	2.4	1.1
<b>Parental Education:</b>					
<b>Any stratum</b>					
	8th Grade	2.1	1.9	1.5	1.1
	10th Grade	2.1	1.9	1.5	1.1
	12th Grade	2.1	1.9	1.5	1.1
<b>Racial/Ethnic Group:</b>					
<b>White</b>					
	8th Grade	3.7	3.4	2.7	1.5
	10th Grade	3.7	3.4	2.7	1.5
	12th Grade	3.7	3.4	2.7	1.5
<b>African American</b>					
	8th Grade	1.8	1.8	1.6	1.5
	10th Grade	1.8	1.8	1.6	1.5
	12th Grade	1.8	1.8	1.6	1.5
<b>Hispanic</b>					
	8th Grade	5.1	3.1	2.4	1.5
	10th Grade	5.1	3.1	2.4	1.5
	12th Grade	5.1	3.1	2.4	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3d**  
**Design Effects for Subgroup Comparisons within Any Single Year**

**NITRITES, PCP, CRACK COCAINE, HEROIN  
(INCLUDING HEROIN WITH AND WITHOUT A NEEDLE),  
METHAMPHETAMINE, CRYSTAL METHAMPHETAMINE (ICE),  
METHAQUALONE, OTC COUGH/COLD MEDICINES,  
ROHYPNOL, GHB, KETAMINE, AND STEROIDS**

		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	2.0	1.5	1.5	1.2
	10th Grade	2.0	1.5	1.5	1.2
	12th Grade	2.0	1.5	1.5	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	1.3	1.3	1.3	1.1
	10th Grade	1.3	1.3	1.3	1.1
	12th Grade	1.3	1.3	1.3	1.1
Female	8th Grade	1.9	1.5	1.3	1.1
	10th Grade	1.9	1.5	1.3	1.1
	12th Grade	1.9	1.5	1.3	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	1.4	1.4	1.4	1.1
	10th Grade	1.4	1.4	1.4	1.1
	12th Grade	1.4	1.4	1.4	1.1
Complete 4 years	8th Grade	1.5	1.3	1.1	1.1
	10th Grade	1.5	1.3	1.1	1.1
	12th Grade	1.5	1.3	1.1	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	1.3	1.3	1.3	1.1
	10th Grade	1.3	1.3	1.3	1.1
	12th Grade	1.3	1.3	1.3	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	2.0	1.9	1.8	1.5
	10th Grade	2.0	1.9	1.8	1.5
	12th Grade	2.0	1.9	1.8	1.5
African American	8th Grade	2.0	2.0	2.0	1.5
	10th Grade	2.0	2.0	2.0	1.5
	12th Grade	2.0	2.0	2.0	1.5
Hispanic	8th Grade	2.1	2.0	1.9	1.5
	10th Grade	2.1	2.0	1.9	1.5
	12th Grade	2.1	2.0	1.9	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3e**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>HALLUCINOGENS OTHER THAN LSD, ECSTASY (MDMA), NARCOTICS OTHER THAN HEROIN, OXYCONTIN, RITALIN, SEDATIVES (BARBITURATES), TRANQUILIZERS, FLAVORED ALCOHOLIC BEVERAGES, BIDIS, KRETEKS, ANDROSTENEDIONE, AND CREATINE</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	2.9	2.6	1.7	1.2
	10th Grade	2.9	2.6	1.7	1.2
	12th Grade	2.9	2.6	1.7	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.1	2.1	1.6	1.1
	10th Grade	2.1	2.1	1.6	1.1
	12th Grade	2.1	2.1	1.6	1.1
Female	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
Complete 4 years	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.6	1.3	1.1
	10th Grade	2.0	1.6	1.3	1.1
	12th Grade	2.0	1.6	1.3	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	2.5	2.5	2.1	1.5
	10th Grade	2.5	2.5	2.1	1.5
	12th Grade	2.5	2.5	2.1	1.5
African American	8th Grade	1.9	1.9	1.8	1.5
	10th Grade	1.9	1.9	1.8	1.5
	12th Grade	1.9	1.9	1.8	1.5
Hispanic	8th Grade	2.0	1.8	1.6	1.5
	10th Grade	2.0	1.8	1.6	1.5
	12th Grade	1.2	1.8	1.6	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3f**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>INHALANTS, VICODIN, AND AMPHETAMINES (UNADJUSTED AND ADJUSTED)</b>			
		<u>Lifetime</u>	<u>Last 12 Months</u>	<u>Last 30 Days</u>	<u>Daily</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>a</sup></b>					
	8th Grade	4.8	4.0	2.4	1.2
	10th Grade	4.8	4.0	2.4	1.2
	12th Grade	4.8	4.0	2.4	1.2
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.7	2.4	1.9	1.1
	10th Grade	2.7	2.4	1.9	1.1
	12th Grade	2.7	2.4	1.9	1.1
Female	8th Grade	2.7	2.7	1.9	1.1
	10th Grade	2.7	2.7	1.9	1.1
	12th Grade	2.7	2.7	1.9	1.1
<b>College Plans:</b>					
None or under 4 years	8th Grade	1.9	1.5	1.3	1.1
	10th Grade	1.9	1.5	1.3	1.1
	12th Grade	1.9	1.5	1.3	1.1
Complete 4 years	8th Grade	3.0	2.7	2.0	1.1
	10th Grade	3.0	2.7	2.0	1.1
	12th Grade	3.0	2.7	2.0	1.1
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.9	1.4	1.1
	10th Grade	2.0	1.9	1.4	1.1
	12th Grade	2.0	1.9	1.4	1.1
<b>Racial/Ethnic Group:</b>					
White	8th Grade	3.1	3.0	2.0	1.5
	10th Grade	3.1	3.0	2.0	1.5
	12th Grade	3.1	3.0	2.0	1.5
African American	8th Grade	3.3	2.4	2.0	1.5
	10th Grade	3.3	2.4	2.0	1.5
	12th Grade	3.3	2.4	2.0	1.5
Hispanic	8th Grade	2.6	2.4	1.9	1.5
	10th Grade	2.6	2.4	1.9	1.5
	12th Grade	2.6	2.4	1.9	1.5

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

**TABLE C-3g**  
**Design Effects for Subgroup Comparisons within Any Single Year**

		<b>ALCOHOL AND BEEN DRUNK<sup>a</sup></b>		<b>CIGARETTES AND SMOKELESS TOBACCO</b>	
		Lifetime, Last 12 Months, Last 30 Days, <u>5+2 Weeks</u>	<u>Daily</u>	Lifetime, Last 30 Days, <u>Daily</u>	Half Pack or More <u>per Day</u>
<b>SEGREGATED GROUPS</b>					
<b>Total Sample:<sup>b</sup></b>					
	8th Grade	5.2	1.4	5.4	3.9
	10th Grade	5.2	1.4	5.4	3.9
	12th Grade	5.2	1.4	5.4	3.9
<b>CROSS-CLASS GROUPS</b>					
<b>Gender:</b>					
Male	8th Grade	2.4	1.3	2.3	2.0
	10th Grade	2.4	1.3	2.3	2.0
	12th Grade	2.4	1.3	2.3	2.0
Female	8th Grade	3.1	1.3	3.6	2.6
	10th Grade	3.1	1.3	3.6	2.6
	12th Grade	3.1	1.3	3.6	2.6
<b>College Plans:</b>					
None or under 4 years	8th Grade	2.1	1.3	2.0	2.0
	10th Grade	2.1	1.3	2.0	2.0
	12th Grade	2.1	1.3	2.0	2.0
Complete 4 years	8th Grade	3.2	1.3	3.2	2.3
	10th Grade	3.2	1.3	3.2	2.3
	12th Grade	3.2	1.3	3.2	2.3
<b>Parental Education:</b>					
Any stratum	8th Grade	2.0	1.3	2.1	1.9
	10th Grade	2.0	1.3	2.1	1.9
	12th Grade	2.0	1.3	2.1	1.9
<b>Racial/Ethnic Group:</b>					
White	8th Grade	3.3	1.8	3.4	2.6
	10th Grade	3.3	1.8	3.4	2.6
	12th Grade	3.3	1.8	3.4	2.6
African American	8th Grade	4.0	1.8	2.4	1.8
	10th Grade	4.0	1.8	2.4	1.8
	12th Grade	4.0	1.8	2.4	1.8
Hispanic	8th Grade	2.9	1.8	2.7	2.1
	10th Grade	2.9	1.8	2.7	2.1
	12th Grade	2.9	1.8	2.7	2.1

Source. The Monitoring the Future study, the University of Michigan.

<sup>a</sup>See Table C-3e for flavored alcoholic beverages.

<sup>b</sup>Any region (Northeast, Midwest, South, and West) and any population density stratum (Large MSA, Other MSA, and Non-MSA).

## Appendix D

### TRENDS BY SUBGROUP: SUPPLEMENTAL TABLES FOR SECONDARY SCHOOL STUDENTS

Trend data for the population subgroups discussed in this volume (i.e., defined by gender, college plans, region, community size, level of parental education, and race/ethnicity) are presented here for all of the major classes of licit and illicit drugs. Due to the sheer quantity of information such trend tables generate for each prevalence measure (e.g., lifetime, annual, 30-day, daily), we have selected the prevalence periods that seem most useful for understanding subgroup differences. Thus, for most drugs, we include only annual prevalence; but rates for different prevalence periods are provided for alcohol, cigarettes, and smokeless tobacco because of their more frequent use.

The subgroups distinguished in these tables are used throughout this volume and defined in appendix B. The reader should note that *two-year moving averages* are given for the three major racial/ethnic groups included here in order to reduce random fluctuations in the trends, particularly among Hispanics. A footnote in each table describes the procedure. A question change was introduced in half of the questionnaire forms in 2005 for the race/ethnicity variable, allowing respondents to select multiple categories of race/ethnicity rather than just one (see appendix B). In 2006, the remaining questionnaire forms were changed in a like manner. However, we believe that this change has had little or no effect on the results because so few respondents selected more than one of the categories offered.

For nearly all drugs there is one table presenting the subgroup trends for 8th graders, a second table for 10th graders, and a third table giving the longer term trends for 12th graders. However, for two of the drugs—sedatives (barbiturates) and narcotics other than heroin—the 8th- and 10th-grade data have been omitted, as they have been throughout the volume, because we are less certain about the validity of the answers provided by those younger students. Specifically, we believe that they often fail to omit nonprescription substances. Usage questions for a few other drugs are simply not asked of 8th and 10th graders; thus only 12th-grade tables are presented.

Sample sizes, provided in Tables D-107 through D-109, should be taken into account when interpreting the importance of any changes observed. The reader should be aware that the numbers provided in those tables assume that all respondents were asked about their use of the drug. Some of the drugs were not contained in all questionnaire forms, meaning that the subgroup and total *Ns* must be adjusted accordingly. The “Notes” section at the bottom of each table will indicate if only a fraction of the sample received the question.

Chart presentations of the trends presented in these tables for the various demographic subgroups may be found in Occasional Paper No. 71, which is on the study’s Web site ([www.monitoringthefuture.org](http://www.monitoringthefuture.org)) under “Publications” and then under “Occasional Papers.”<sup>121</sup>

<sup>121</sup>Johnston, L. D., O’Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Demographic subgroup trends for various licit and illicit drugs, 1975–2008* (Monitoring the Future Occasional Paper No. 71) [Online]. Ann Arbor, MI: Institute for Social Research, 425 pp.

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This chart presentation, which uses color to help distinguish the various subgroups, is published in electronic form only due to the high cost of printing a document of this length in color. Because the figures are considerably easier to comprehend than large data tables, the reader interested in these trends is encouraged to make use of the occasional paper.

**List of 2008 Appendix D Tables**

Substance	Table Number			Time Period		
	8th Grade	10th Grade	12th Grade	Annual	30-Day	Daily
Any illicit drug	D-1	D-2	D-3	X		
Any illicit drug other than marijuana	D-4	D-5	D-6	X		
Marijuana	D-7	D-8	D-9	X		
Inhalants	D-10	D-11	D-12	X		
Hallucinogens	D-13	D-14	D-15	X		
LSD	D-16	D-17	D-18	X		
Hallucinogens other than LSD	D-19	D-20	D-21	X		
Ecstasy (MDMA)	D-22	D-23	D-24	X		
Cocaine	D-25	D-26	D-27	X		
Crack	D-28	D-29	D-30	X		
Other cocaine	D-31	D-32	D-33	X		
Heroin	D-34	D-35	D-36	X		
Heroin with a needle	D-37	D-38	D-39	X		
Heroin without a needle	D-40	D-41	D-42	X		
Narcotics other than heroin	—	—	D-43	X		
OxyContin	D-44	D-44	D-45	X		
Vicodin	D-46	D-46	D-47	X		
Amphetamines	D-48	D-49	D-50	X		
Ritalin	D-51	D-51	D-52	X		
Methamphetamine	D-53	D-54	D-55	X		
Crystal methamphetamine (ice)	—	—	D-56	X		
Sedatives (barbiturates)	—	—	D-57	X		
Tranquilizers	D-58	D-59	D-60	X		
OTC cough/cold medicines	D-61	D-61	D-61	X		
Rohypnol	D-62	D-63	D-64	X		
Alcohol	D-65	D-66	D-67		X	
Been drunk	D-68	D-69	D-70		X	
5+ drinks in a row	D-71	D-72	D-73			X
Beer	D-74	D-75	D-76		X	
5+ drinks in a row	D-77	D-78	D-79			X
Liquor	—	—	D-80		X	
5+ drinks in a row	—	—	D-81			X
Wine	—	—	D-82		X	
5+ drinks in a row	—	—	D-83			X
Wine coolers	D-84	D-85	D-86		X	
5+ drinks in a row	—	—	D-87			X
Flavored alcoholic beverages	D-88	D-88	D-88		X	
Cigarettes	D-89	D-90	D-91		X	
Daily	D-92	D-93	D-94			X
1/2 pack+/day	D-95	D-96	D-97			X
Smokeless tobacco	D-98	D-99	D-100		X	
Daily	D-101	D-102	D-103			X
Steroids	D-104	D-105	D-106	X		
Weighted Ns by subgroups	D-107	D-108	D-109			

**TABLE D-1**  
**Any Illicit Drug:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months																2007- 2008 change		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	11.3	12.9	15.1	18.5	21.4	23.6	22.1	21.0	20.5	19.5	19.5	17.7	16.1	15.2	15.5	14.8	13.2	14.1	+0.8
Gender:																			
Male	11.7	11.9	15.2	19.4	22.3	23.6	22.6	21.3	21.3	19.7	21.3	19.2	16.4	15.0	15.2	15.1	13.2	14.3	+1.1
Female	11.0	13.6	14.9	17.6	20.2	23.3	21.3	20.4	19.7	19.0	17.5	16.3	15.5	15.2	15.6	14.2	12.9	13.7	+0.8
College Plans:																			
None or under 4 years	22.8	25.6	30.7	34.6	38.4	40.3	39.6	41.3	39.9	38.9	38.5	36.8	34.7	33.6	35.2	33.1	31.9	34.5	+2.6
Complete 4 years	9.5	10.9	12.8	16.3	19.1	21.0	19.9	18.4	18.0	17.1	17.2	15.7	14.0	13.2	13.3	13.0	11.4	12.3	+0.8
Region:																			
Northeast	9.3	10.6	11.5	16.6	17.9	20.3	20.2	16.0	18.2	16.6	18.1	13.8	13.1	13.0	12.3	10.8	8.1	11.3	+3.2 s
Midwest	11.2	13.0	13.9	17.2	23.3	24.7	22.3	21.9	22.6	20.6	18.0	17.0	15.7	14.2	15.9	13.9	12.9	15.5	+2.7
South	11.5	12.9	15.1	17.6	20.8	22.5	21.6	22.3	21.0	19.2	21.5	20.1	18.1	16.8	17.4	17.7	15.2	15.6	+0.4
West	13.3	15.0	21.1	23.7	23.3	27.1	24.4	22.0	19.2	21.0	18.9	18.4	15.6	15.5	14.5	13.9	13.3	12.4	-0.9
Population Density:																			
Large MSA	10.5	12.0	13.1	16.2	15.2	23.4	20.5	19.8	19.1	18.1	16.4	15.9	14.3	14.0	14.9	13.5	11.5	12.5	+1.0
Other MSA	12.1	14.4	17.3	21.5	23.7	24.9	22.6	21.4	19.5	18.8	21.5	18.3	16.2	15.9	16.2	15.6	13.8	15.1	+1.3
Non-MSA	10.8	11.2	12.9	14.0	20.3	21.4	22.9	21.6	24.3	22.7	19.1	18.9	18.1	15.3	15.0	15.2	14.5	14.2	-0.3
Parental Education: <sup>b</sup>																			
1.0-2.0 (Low)	19.5	18.5	20.8	26.1	29.8	26.7	29.5	30.4	30.2	30.9	29.9	27.3	26.4	25.7	24.9	23.7	23.2	23.3	0.0
2.5-3.0	11.7	14.1	17.1	20.2	24.3	25.7	25.5	24.2	24.9	23.9	23.3	22.4	20.4	18.5	20.5	18.6	16.8	19.2	+2.4
3.5-4.0	11.6	13.6	15.4	19.7	23.4	26.2	23.8	21.8	21.0	20.1	21.5	18.5	16.9	16.7	16.7	16.5	14.9	15.3	+0.4
4.5-5.0	8.7	10.2	12.8	15.7	17.4	21.3	19.3	17.8	15.6	14.6	15.0	14.5	12.0	12.1	11.4	11.0	9.2	10.5	+1.3
5.5-6.0 (High)	10.2	10.1	11.8	14.9	17.7	19.8	16.8	17.1	15.8	15.0	13.4	12.1	11.0	10.9	9.8	9.9	8.1	9.6	+1.5
Race (2-year average): <sup>c</sup>																			
White	—	11.8	13.6	15.7	19.2	22.4	23.0	21.5	19.9	19.1	19.0	18.3	16.5	14.9	14.4	14.1	13.1	13.0	-0.1
African American	—	7.9	9.3	13.0	15.8	17.5	18.1	18.1	18.6	18.3	16.7	15.1	14.6	14.6	15.6	14.9	12.7	12.3	-0.4
Hispanic	—	18.1	20.6	24.6	26.7	26.9	26.5	26.7	27.4	25.1	24.3	24.8	22.8	20.9	18.8	17.9	16.8	16.1	-0.6

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of amphetamines or tranquilizers not under a doctor's orders. The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because 8th and 10th graders appear to overreport their use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-2**  
**Any Illicit Drug:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months																2007–			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	21.4	20.4	24.7	30.0	33.3	37.5	38.5	35.0	35.9	36.4	37.2	34.8	32.0	31.1	29.8	28.7	28.1	26.9	-1.2	
Gender:																				
Male	21.6	20.4	25.1	31.8	33.7	38.8	40.1	35.3	37.0	39.4	39.6	35.9	33.2	32.0	30.5	29.3	29.5	27.9	-1.6	
Female	21.1	20.1	24.0	28.0	32.5	36.3	36.8	34.7	34.6	33.5	35.0	33.7	30.8	30.2	28.9	28.1	26.7	25.6	-1.1	
College Plans:																				
None or under 4 years	32.7	32.0	37.7	43.2	47.3	52.4	55.2	50.5	51.8	53.5	52.7	51.5	48.6	46.9	45.8	46.2	45.7	47.0	+1.3	
Complete 4 years	18.9	17.8	21.9	27.0	30.8	35.0	35.7	32.2	33.2	33.9	34.6	32.1	29.2	28.9	27.6	26.4	25.7	24.2	-1.5	
Region:																				
Northeast	21.8	19.0	26.9	29.6	32.4	37.7	37.8	39.0	38.2	34.0	37.4	35.2	32.6	32.8	31.3	27.8	27.7	28.6	+0.9	
Midwest	21.7	20.7	22.4	28.5	32.1	37.6	37.7	32.0	35.2	34.8	35.9	33.7	28.8	28.8	29.1	28.2	28.1	25.8	-2.3	
South	19.2	17.9	23.3	29.2	33.2	37.9	38.7	35.1	34.8	36.0	36.7	33.9	34.0	32.9	31.1	29.7	26.7	27.1	+0.5	
West	23.7	25.5	28.9	34.4	36.1	36.8	40.2	34.5	36.0	41.6	40.7	37.7	32.3	29.8	26.9	29.0	30.2	26.2	-4.0	
Population Density:																				
Large MSA	21.4	19.9	24.0	29.4	28.7	35.5	37.2	32.6	35.0	36.5	34.0	33.0	30.5	28.9	28.0	27.3	27.9	26.4	-1.6	
Other MSA	22.0	20.8	25.1	32.7	35.5	40.0	40.0	36.9	37.3	36.6	39.0	36.9	32.4	32.0	31.1	28.6	28.3	28.1	-0.3	
Non-MSA	20.4	20.1	24.4	24.7	30.7	35.1	37.2	34.5	33.9	35.8	37.4	32.8	33.5	32.3	29.5	31.4	27.8	24.8	-3.0	
Parental Education: <sup>b</sup>																				
1.0–2.0 (Low)	25.5	24.8	29.2	32.6	38.2	39.5	38.3	36.6	42.2	42.4	39.0	39.4	38.8	37.7	33.2	36.2	32.0	33.6	+1.6	
2.5–3.0	23.0	21.3	25.4	31.1	37.1	39.1	40.8	39.1	39.4	39.2	41.6	39.4	36.4	34.0	34.3	33.7	33.0	31.7	-1.3	
3.5–4.0	21.2	20.6	24.9	30.5	34.7	40.1	41.6	35.6	35.4	39.5	38.2	35.5	33.3	33.6	30.6	30.6	30.2	29.2	-1.0	
4.5–5.0	19.4	18.7	22.5	28.1	30.9	35.5	36.3	31.9	32.8	32.6	35.1	31.9	27.8	27.7	27.6	24.6	24.7	22.3	-2.5	
5.5–6.0 (High)	21.1	18.5	23.6	27.2	26.6	33.6	33.7	31.5	34.6	31.3	32.7	29.1	27.5	26.2	25.9	24.3	21.7	21.7	-0.1	
Race (2-year average): <sup>c</sup>																				
White	—	22.4	23.7	27.9	32.6	36.5	39.3	38.2	36.4	36.9	37.6	37.6	35.0	32.2	31.0	30.2	29.4	28.0	-1.3	
African American	—	10.8	11.9	18.5	23.6	27.3	30.2	28.9	28.4	29.7	30.5	28.5	27.3	29.3	29.0	26.2	24.2	22.4	-1.8	
Hispanic	—	23.6	26.3	30.3	34.3	40.0	41.3	38.1	38.4	39.3	38.8	36.2	33.8	34.5	32.8	28.5	27.3	30.1	+2.8	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of amphetamines or tranquilizers not under a doctor's orders. The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because 8th and 10th graders appear to overreport their use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-3**  
**Any Illicit Drug:<sup>a,b</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																↑ Cont.
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	45.0	48.1	51.1	53.8	54.2	53.1	52.1	49.4	47.4	45.8	46.3	44.3	41.7	38.5	35.4	32.5	29.4
Gender:																	
Male	49.0	52.6	55.4	58.6	58.1	56.0	53.6	51.8	49.7	48.0	48.3	45.7	43.2	40.6	37.7	34.3	32.1
Female	41.4	43.0	46.7	48.7	50.1	49.8	50.8	46.3	44.4	42.8	43.8	42.3	39.7	36.1	32.8	30.1	26.2
College Plans:																	
None or under 4 years	—	50.6	54.3	55.5	56.8	56.5	55.8	53.4	50.8	50.3	50.1	48.6	46.7	42.0	40.9	37.8	33.9
Complete 4 years	—	44.3	46.8	50.5	50.5	49.7	48.6	45.5	43.7	41.4	43.1	41.2	39.0	36.5	32.6	29.6	27.1
Region:																	
Northeast	51.5	55.3	56.8	61.6	62.9	58.9	58.8	55.1	53.8	54.7	53.2	49.7	45.8	41.2	36.0	36.4	31.9
Midwest	45.5	47.6	51.9	54.6	55.0	53.1	53.4	50.3	46.9	42.4	45.7	45.0	42.7	39.7	38.7	34.0	31.3
South	38.1	42.3	46.2	47.5	45.4	47.0	43.7	42.2	41.3	41.4	37.2	37.4	35.9	34.2	30.7	27.6	24.5
West	48.3	49.7	50.0	53.2	56.4	55.8	55.5	51.7	50.7	49.1	53.3	47.8	45.7	41.8	39.5	34.4	32.6
Population Density:																	
Large MSA	54.5	54.6	56.3	60.3	61.3	59.9	57.8	54.8	52.0	49.7	49.9	48.0	43.9	39.1	32.9	32.6	28.6
Other MSA	45.0	47.8	52.4	54.5	55.2	53.8	52.1	49.8	49.6	46.7	46.5	45.1	42.7	40.5	36.3	33.5	33.0
Non-MSA	38.8	43.7	45.2	47.4	47.6	47.0	47.6	44.0	41.1	41.4	43.0	40.0	37.6	34.3	36.0	30.1	23.8
Parental Education: <sup>c</sup>																	
1.0–2.0 (Low)	—	43.4	45.3	47.7	50.2	49.5	48.1	44.3	45.1	42.7	42.8	38.1	35.4	35.8	28.4	26.6	28.7
2.5–3.0	—	49.2	51.8	53.3	53.2	53.0	51.2	48.8	46.3	45.7	46.0	44.8	41.8	37.2	35.3	32.7	28.7
3.5–4.0	—	48.9	53.1	55.1	56.1	54.2	52.8	50.8	46.5	47.6	47.2	45.6	42.2	38.6	37.7	33.8	29.6
4.5–5.0	—	50.8	51.7	56.3	57.1	54.0	53.4	49.7	48.9	44.9	48.4	44.7	43.1	40.0	35.5	33.1	28.7
5.5–6.0 (High)	—	51.3	51.8	59.1	54.3	55.0	54.8	48.5	46.1	45.5	44.5	44.5	43.5	40.6	36.3	33.3	31.9
Race (2-year average): <sup>d</sup>																	
White	—	—	50.4	53.5	55.2	54.9	54.4	50.7	49.3	47.4	47.6	47.2	45.2	43.0	40.3	37.5	33.9
African American	—	—	40.8	42.8	41.5	40.5	39.0	36.4	38.5	37.8	35.9	33.3	28.9	25.0	21.3	17.0	14.7
Hispanic	—	—	49.9	49.5	48.4	48.1	46.8	42.7	42.0	43.1	43.9	42.8	38.9	35.4	30.1	26.4	29.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-3 (cont.)**  
**Any Illicit Drug:<sup>a,b</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

		Percentage who used in last 12 months														2007- 2008 change			
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
		15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Approximate wtd. N =		27.1	31.0	35.8	39.0	40.2	42.4	41.4	42.1	40.9	41.4	41.0	39.3	38.8	38.4	36.5	35.9	36.6	+0.6
Total																			
Gender:																			
Male		29.0	33.5	38.6	41.5	43.4	44.1	45.2	45.0	43.4	43.8	43.5	41.3	41.4	42.1	37.5	38.4	38.8	+0.4
Female		24.7	27.9	32.7	35.8	36.2	40.0	37.2	38.9	38.0	38.4	37.8	36.7	35.9	34.5	35.0	33.2	34.1	+1.0
College Plans:																			
None or under 4 years		33.5	34.9	40.8	44.1	46.2	48.8	47.3	47.9	45.1	46.2	46.2	46.8	44.4	46.5	46.1	43.7	46.0	+2.3
Complete 4 years		24.4	29.2	33.6	36.7	37.8	40.1	39.1	40.3	38.8	39.6	39.3	36.6	36.8	36.1	33.8	34.0	34.2	+0.2
Region:																			
Northeast		28.7	36.1	39.4	41.7	44.6	47.7	46.2	42.5	46.2	47.4	45.7	43.7	43.9	43.2	42.0	41.9	40.0	-2.0
Midwest		27.8	30.8	36.5	40.9	40.9	40.6	38.1	42.1	38.9	42.0	41.6	40.0	38.2	38.8	36.3	37.3	35.1	-2.2
South		23.7	28.2	34.1	36.4	37.6	38.8	40.5	40.8	35.3	37.3	38.1	34.8	35.7	36.6	34.9	33.6	36.0	+2.4
West		31.1	31.8	34.7	38.2	39.1	45.9	43.1	44.2	47.4	41.9	40.5	41.4	39.6	36.3	34.6	33.4	36.5	+3.1
Population Density:																			
Large MSA		26.8	32.9	36.4	41.7	41.3	42.1	42.0	42.4	41.1	43.9	41.9	35.7	36.3	38.5	38.2	37.9	37.7	-0.3
Other MSA		27.3	31.7	37.8	39.0	42.3	44.2	42.1	43.3	42.6	41.0	42.4	42.7	42.4	39.8	36.7	35.1	35.7	+0.6
Non-MSA		27.0	28.4	31.6	35.9	35.4	39.2	39.3	39.9	37.5	39.4	37.1	37.6	34.9	35.5	33.5	34.7	37.2	+2.6
Parental Education: <sup>c</sup>																			
1.0-2.0 (Low)		27.7	29.5	32.9	37.7	36.6	40.3	38.9	40.9	41.3	38.8	35.3	35.8	34.7	32.0	37.6	35.6	34.6	-0.9
2.5-3.0		26.4	29.2	35.4	38.3	39.9	40.8	40.5	43.7	40.5	41.9	39.3	39.0	37.7	38.9	38.2	37.8	37.5	-0.3
3.5-4.0		28.1	31.6	36.4	38.8	40.4	42.0	42.9	42.9	41.6	42.7	43.2	41.3	42.1	41.3	37.1	35.0	35.9	+0.9
4.5-5.0		26.2	31.5	36.5	39.0	40.5	43.6	40.9	40.0	39.6	41.3	42.0	38.9	38.2	38.8	33.2	34.9	36.5	+1.6
5.5-6.0 (High)		26.8	33.4	35.7	40.7	40.6	44.0	41.8	42.3	41.1	40.1	40.6	36.5	37.4	36.0	37.3	36.9	36.7	-0.1
Race (2-year average): <sup>d</sup>																			
White		30.5	31.4	35.5	39.0	40.8	42.8	44.0	43.3	42.8	43.1	43.6	42.8	42.0	41.6	40.0	38.5	38.7	+0.1
African American		14.5	16.6	23.5	29.6	32.4	33.0	32.3	32.8	32.7	31.7	30.4	28.3	27.7	29.0	30.0	28.7	28.6	-0.1
Hispanic		30.3	28.8	31.2	35.5	38.0	41.2	41.9	42.5	44.8	41.8	39.0	35.8	34.4	34.5	34.2	32.2	31.4	-0.7

<sup>a</sup>Use of "any illicit drug" includes any use of marijuana, LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers not under a doctor's orders.

<sup>b</sup>Beginning in 1982 the question about amphetamine use was revised to get respondents to exclude the inappropriate reporting of nonprescription amphetamines. The prevalence-of-use rate dropped slightly as a result of this methodological change.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-4**  
**Any Illicit Drug other than Marijuana:<sup>a</sup> Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007-					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	8.4	9.3	10.4	11.3	12.6	13.1	11.8	11.0	10.5	10.2†	10.8	8.8	8.8	7.9	8.1	7.7	7.0	7.4	+0.4
Gender:																			
Male	8.0	8.0	9.2	10.1	11.5	11.0	10.8	9.6	9.7	9.1†	10.0	8.1	7.9	7.0	6.6	6.5	5.9	6.0	+0.2
Female	8.8	10.4	11.5	12.3	13.5	14.7	12.6	12.1	11.2	10.9†	11.2	9.3	9.4	8.8	9.3	8.7	8.0	8.7	+0.7
College Plans:																			
None or under 4 years	16.3	18.5	21.3	21.2	25.3	23.0	22.1	23.8	23.4	22.7†	21.5	19.7	20.0	18.0	18.2	17.7	18.1	20.3	+2.2
Complete 4 years	7.2	8.0	8.9	9.9	10.9	11.6	10.6	9.4	9.0	8.7†	9.5	7.6	7.5	6.9	7.0	6.7	6.0	6.3	+0.3
Region:																			
Northeast	6.8	6.6	8.2	10.3	10.7	11.3	9.5	8.5	8.5	8.0†	9.5	5.8	7.1	5.9	5.8	4.4	4.4	5.2	+0.7
Midwest	8.6	10.4	9.4	10.2	14.0	14.3	12.5	10.5	11.9	11.2†	9.9	8.7	8.7	7.7	8.1	7.1	7.4	7.6	+0.1
South	8.6	9.7	11.0	11.7	12.5	12.6	11.8	12.5	11.2	10.3†	12.4	10.6	10.0	9.0	9.5	9.8	7.8	8.8	+1.0
West	9.3	9.8	13.4	12.7	12.7	14.0	13.0	11.1	9.3	10.5†	10.1	8.4	7.9	8.2	7.7	7.4	6.9	6.7	-0.3
Population Density:																			
Large MSA	8.0	8.1	8.8	9.8	8.7	12.3	9.9	8.9	8.4	8.5†	9.7	7.4	7.1	6.9	7.1	6.6	6.1	6.8	+0.8
Other MSA	8.6	10.4	11.8	12.5	13.5	14.1	12.2	11.2	10.7	10.1†	11.8	9.2	8.7	8.5	8.8	8.0	7.6	7.7	+0.1
Non-MSA	8.6	8.9	9.8	9.8	13.2	12.1	13.0	12.8	12.8	12.3†	10.3	9.8	11.0	8.0	8.1	8.8	7.1	7.6	+0.5
Parental Education: <sup>c</sup>																			
1.0-2.0 (Low)	12.9	12.9	14.4	15.6	18.0	15.5	14.8	17.3	16.0	15.8†	14.3	13.0	14.1	15.2	14.3	12.3	11.9	13.6	+1.7
2.5-3.0	8.5	10.1	11.8	12.4	14.2	13.9	12.9	12.2	12.1	12.2†	13.2	10.9	10.9	8.8	10.3	9.4	8.3	9.7	+1.4
3.5-4.0	8.7	10.1	10.6	11.8	14.2	14.5	12.5	11.2	11.3	10.6†	11.7	9.0	9.0	8.4	9.0	8.4	7.8	8.0	+0.2
4.5-5.0	7.1	7.5	9.1	9.5	9.7	12.0	10.6	9.4	8.5	7.7†	8.9	7.6	6.7	6.8	5.7	6.0	4.7	5.4	+0.7
5.5-6.0 (High)	7.8	8.0	8.2	9.4	10.1	11.7	10.3	9.5	8.3	8.4†	8.0	6.5	6.8	5.9	5.3	6.2	5.5	5.7	+0.3
Race (2-year average): <sup>d</sup>																			
White	—	9.0	10.0	10.8	12.6	13.9	13.5	12.5	11.5	11.1	10.6†	10.3 <sup>e</sup>	9.3	8.7	8.1	8.1	7.6	7.6	0.0
African American	—	4.9	5.0	5.9	5.7	5.3	4.7	4.0	4.1	3.8	3.9†	4.4 <sup>e</sup>	4.4	4.4	4.2	3.9	3.3	3.4	+0.1
Hispanic	—	12.2	13.7	15.2	15.3	14.7	13.6	13.5	14.5	13.9	12.2†	11.9 <sup>e</sup>	10.8	10.4	9.9	9.2	8.6	8.4	-0.2

(Table continued on next page.)

**TABLE D-4 (cont.)**  
**Any Illicit Drug other than Marijuana:<sup>a</sup> Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 8**

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant footnote. See relevant footnote. See relevant footnote.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Use of "any illicit drug other than marijuana" includes any use of LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of amphetamines or tranquilizers not under a doctor's orders. The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because 8th and 10th graders appear to overreport their use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data are based on the changed forms only; *N* is one half of *N* indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens and hallucinogens other than LSD are also affected by these changes and have been treated in a parallel manner.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-5**  
**Any Illicit Drug other than Marijuana:<sup>a</sup> Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	2003	2004	2005	2006	2007	2008	2007– 2008 change
Percentage who used in last 12 months																			
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	12.2	12.3	13.9	15.2	17.5	18.4	18.2	16.6	16.7	16.7†	17.9	15.7	13.8	13.5	12.9	12.7	13.1	11.3	-1.7 s
Gender:																			
Male	11.2	11.1	13.4	14.1	15.8	17.2	17.2	15.6	15.9	16.7†	18.3	15.1	13.0	12.7	12.0	12.0	12.9	10.9	-2.0 s
Female	13.1	13.2	14.3	16.0	18.9	19.6	19.1	17.5	17.3	16.6†	17.4	16.4	14.3	14.2	13.6	13.1	13.2	11.5	-1.7
College Plans:																			
None or under 4 years	19.6	20.2	23.1	24.0	27.5	29.5	29.6	27.8	27.3	27.7†	32.1	27.1	23.8	25.3	24.0	24.7	25.0	22.9	-2.2
Complete 4 years	10.7	10.5	12.0	13.3	15.7	16.5	16.3	14.6	15.0	15.0†	15.5	14.0	12.1	11.9	11.4	11.1	11.5	9.8	-1.7 s
Region:																			
Northeast	10.6	9.6	12.8	13.7	14.1	17.2	16.0	17.2	18.2	14.7†	16.2	13.4	11.7	13.7	13.0	10.4	11.3	8.2	-3.1 s
Midwest	13.2	12.9	12.8	14.8	19.0	20.0	16.2	14.4	16.1	15.8†	16.5	15.3	13.1	12.0	12.2	12.7	13.4	11.8	-1.6
South	11.9	12.2	14.7	15.3	18.4	18.6	20.8	18.3	16.8	17.5†	19.5	16.8	15.7	14.8	13.9	13.7	13.3	12.6	-0.7
West	12.7	14.1	15.6	17.2	17.2	17.4	18.7	15.8	15.7	18.5†	19.0	16.7	13.8	13.5	12.0	13.3	13.8	11.5	-2.3
Population Density:																			
Large MSA	11.8	11.4	12.2	13.1	13.5	16.8	16.3	14.6	15.0	17.2†	15.6	14.3	10.8	10.4	10.9	11.5	12.0	9.9	-2.2
Other MSA	12.3	12.3	14.1	16.1	18.5	19.5	18.0	16.6	17.3	15.6†	17.4	16.5	14.2	15.1	13.2	12.9	13.4	12.1	-1.3
Non-MSA	12.4	13.1	15.0	14.6	17.6	18.3	20.8	18.9	17.5	18.1†	21.5	16.1	17.2	14.5	14.7	14.1	14.0	11.8	-2.2
Parental Education: <sup>c</sup>																			
1.0–2.0 (Low)	14.4	16.6	18.1	17.1	20.8	22.7	19.1	21.5	19.2	20.4†	19.6	21.0	19.1	16.5	15.9	16.0	15.6	15.2	-0.4
2.5–3.0	13.7	12.5	14.6	16.3	19.7	19.4	19.9	19.1	19.1	19.4†	20.3	18.3	16.7	15.6	14.4	14.9	15.2	13.2	-2.0
3.5–4.0	12.1	12.7	14.8	15.9	18.3	19.9	19.8	16.4	16.5	17.4†	19.7	16.1	14.5	14.6	13.7	13.4	14.2	12.7	-1.5
4.5–5.0	11.0	10.9	11.7	13.3	15.9	16.6	16.5	14.1	15.4	14.5†	15.6	13.7	11.2	11.6	11.5	10.7	11.6	9.0	-2.5 ss
5.5–6.0 (High)	11.6	10.7	12.2	12.8	13.4	15.4	15.4	14.4	15.6	14.5†	14.6	12.2	10.5	11.0	10.8	11.1	9.9	8.6	-1.3
Race (2-year average): <sup>d</sup>																			
White	—	13.7	14.4	15.4	17.7	20.0	20.5	19.7	18.7	18.6	19.2†	18.9 <sup>e</sup>	17.2	15.7	14.9	14.4	14.5	13.8	-0.6
African American	—	4.3	4.6	5.4	5.4	4.5	4.8	4.7	4.5	4.2	4.7†	5.7 <sup>e</sup>	4.7	4.6	4.8	4.9	4.2	4.1	-0.2
Hispanic	—	11.8	13.7	16.1	16.9	18.8	19.1	17.5	17.9	17.8	15.8†	15.7 <sup>e</sup>	15.2	15.1	14.9	13.0	11.8	12.4	+0.6

(Table continued on next page.)

**TABLE D-5 (cont.)  
Any Illicit Drug other than Marijuana:<sup>a</sup> Trends in Annual Prevalence of Use  
by Subgroups in Grade 10**

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant footnote to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Use of "any illicit drug other than marijuana" includes any use of LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of amphetamines or tranquilizers not under a doctor's orders. The use of narcotics other than heroin and sedatives (barbiturates) has been excluded because 8th and 10th graders appear to overreport their use (perhaps because they include the use of nonprescription drugs in their answers).

<sup>b</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. For the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens and hallucinogens other than LSD are also affected by these changes and have been treated in a parallel manner.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-6**  
**Any Illicit Drug other than Marijuana:<sup>a,b</sup> Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Percentage who used in last 12 months																	
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	26.2	25.4	26.0	27.1	28.2	30.4	34.0	30.1	28.4	28.0	27.4	25.9	24.1	21.1	20.0	17.9	16.2
Gender:																	
Male	25.9	25.7	26.3	27.9	29.4	30.2	32.8	31.0	28.9	28.2	27.9	26.2	24.3	22.2	21.0	19.2	17.0
Female	26.2	24.4	25.3	25.7	26.3	30.0	34.3	28.3	27.3	26.9	26.2	24.8	23.3	19.3	18.5	16.0	14.8
College Plans:																	
None or under 4 years	—	28.7	30.1	30.0	31.8	35.5	38.3	34.0	32.3	32.9	31.6	31.3	28.8	24.5	25.5	23.1	20.1
Complete 4 years	—	20.9	20.8	22.7	23.5	25.5	30.1	26.0	24.7	23.3	24.1	22.2	21.3	19.0	17.2	15.2	14.3
Region:																	
Northeast	26.0	26.1	27.8	30.7	32.0	32.1	38.0	33.5	31.2	33.8	32.9	29.5	25.5	20.2	19.2	17.1	15.6
Midwest	29.2	26.1	27.7	26.8	27.6	30.9	36.1	31.1	28.6	26.1	25.9	25.1	22.7	20.3	21.5	18.0	17.4
South	22.5	23.4	22.9	24.0	23.2	25.8	26.1	24.7	23.8	24.2	21.0	20.6	21.1	20.0	18.1	16.9	14.4
West	28.2	26.6	26.0	28.8	33.3	35.2	38.7	32.7	33.0	31.3	33.0	31.6	29.5	24.8	22.3	20.4	17.9
Population Density:																	
Large MSA	30.3	27.5	27.1	30.2	32.1	34.6	38.3	33.8	31.5	30.5	30.4	28.3	24.5	20.7	16.9	16.0	14.2
Other MSA	26.3	25.8	26.8	27.3	28.7	30.1	33.3	30.0	29.7	27.8	26.9	26.4	24.5	22.7	20.9	18.5	17.9
Non-MSA	23.4	23.3	24.2	24.2	24.7	27.5	31.4	27.0	24.4	26.2	25.5	23.1	23.0	18.4	21.1	18.4	14.9
Parental Education: <sup>c</sup>																	
1.0–2.0 (Low)	—	23.2	23.2	24.7	25.2	28.2	29.2	25.7	25.6	27.3	25.8	23.2	21.5	19.7	18.2	15.2	17.4
2.5–3.0	—	25.6	27.0	26.4	27.6	30.7	33.5	30.4	28.1	28.2	27.4	27.0	24.2	20.5	20.0	17.9	16.8
3.5–4.0	—	26.1	26.2	27.8	29.2	30.7	34.7	30.9	28.6	29.3	28.9	26.6	24.7	20.5	21.4	19.1	16.3
4.5–5.0	—	27.2	25.9	27.3	28.7	29.9	34.8	29.4	30.0	26.2	27.1	24.9	23.8	21.7	19.3	17.5	14.6
5.5–6.0 (High)	—	25.6	24.8	28.6	30.4	30.8	36.7	31.3	29.0	26.2	23.8	23.8	24.9	22.0	19.6	17.2	14.9
Race (2-year average): <sup>d</sup>																	
White	—	—	26.6	27.7	28.8	30.6	34.5	32.1	31.2	30.2	29.6	28.2	26.6	24.4	22.5	21.0	18.7
African American	—	—	14.2	13.4	13.0	13.8	13.2	14.5	15.2	12.9	12.0	12.1	11.1	10.3	8.6	6.5	5.7
Hispanic	—	—	23.8	23.5	23.3	24.7	27.6	25.5	25.2	26.2	27.2	26.2	23.0	20.5	17.7	15.6	15.8

(Table continued on next page.)



**TABLE D-6 (cont.)**  
**Any Illicit Drug other than Marijuana:<sup>a,b</sup> Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 12**

		Percentage who used in last 12 months														2007- 2008 change			
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>e</sup>	2002 <sup>e</sup>	2003	2004	2005	2006	2007	2008	change
		15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total		14.9	17.1	18.0	19.4	19.8	20.7	20.2	20.7	20.4‡	21.6	20.9	19.8	20.5	19.7	19.2	18.5	18.3	-0.3
Gender:																			
Male		15.5	17.8	18.5	20.7	21.7	21.7	21.7	22.5	21.5‡	23.3	22.0	21.1	21.5	21.4	19.7	20.0	19.9	-0.1
Female		13.8	15.8	16.9	17.3	16.8	18.8	18.0	18.5	18.6‡	19.0	19.0	17.9	18.7	17.5	18.3	16.7	16.2	-0.5
College Plans:																			
None or under 4 years		19.5	19.8	22.9	23.9	24.2	25.8	26.5	24.4	24.7‡	24.5	27.2	26.5	26.0	25.3	25.4	26.0	25.0	-1.0
Complete 4 years		13.0	15.9	16.0	17.5	17.9	18.4	17.8	19.4	18.5‡	19.9	19.0	17.4	18.4	18.0	17.4	16.7	16.5	-0.1
Region:																			
Northeast		14.7	18.6	17.2	20.2	22.9	24.1	20.7	19.5	21.7‡	22.4	21.5	19.3	20.4	18.0	20.3	19.4	18.9	-0.5
Midwest		15.5	16.4	20.1	19.1	19.2	18.9	19.8	20.9	18.9‡	24.0	19.9	18.7	19.1	21.4	17.9	18.4	16.8	-1.6
South		14.0	16.0	17.3	19.0	18.6	19.8	20.3	21.2	19.0‡	18.6	21.3	19.4	20.8	20.5	19.7	18.8	19.1	+0.3
West		15.8	18.5	17.3	19.9	19.2	20.9	20.0	20.8	23.2‡	22.6	21.1	22.4	21.9	18.0	19.1	17.3	18.1	+0.7
Population Density:																			
Large MSA		13.5	15.1	16.7	20.2	18.9	18.6	19.0	17.6	19.4‡	23.6	20.6	15.9	18.0	18.6	20.1	18.4	16.9	-1.5
Other MSA		14.9	18.2	19.2	19.2	20.2	21.5	20.4	21.6	20.9‡	21.2	21.6	22.0	22.3	20.6	18.7	18.1	18.2	+0.2
Non-MSA		16.1	16.8	17.2	18.7	19.8	21.2	21.3	22.4	20.7‡	20.3	20.2	20.9	19.7	19.3	18.9	19.5	19.8	+0.3
Parental Education: <sup>c</sup>																			
1.0-2.0 (Low)		14.9	15.6	17.8	19.4	16.9	19.9	20.0	22.2	20.0‡	17.3	17.8	19.4	18.7	14.8	19.7	16.7	16.4	-0.3
2.5-3.0		15.0	16.1	18.5	19.4	19.7	19.4	20.1	21.0	19.9‡	20.9	20.3	19.6	20.0	20.5	19.4	19.7	17.7	-2.0
3.5-4.0		15.0	17.8	17.6	19.2	19.8	20.4	21.0	21.9	20.5‡	24.5	22.0	21.7	23.0	21.5	20.2	18.4	18.7	+0.3
4.5-5.0		14.3	17.5	18.4	19.4	19.3	21.0	19.1	19.3	20.1‡	20.1	21.2	18.5	19.7	19.7	18.6	18.5	18.2	-0.3
5.5-6.0 (High)		14.3	17.6	16.5	18.3	20.2	21.7	18.9	19.4	20.3‡	18.7	19.8	17.0	17.6	17.5	18.0	17.4	17.9	+0.5
Race (2-year average): <sup>d</sup>																			
White		17.1	17.9	19.4	20.3	21.2	22.3	23.1	22.9	22.7	23.0‡	24.1 <sup>f</sup>	23.0	22.8	22.7	22.0	21.6	21.5	-0.1
African American		5.3	4.8	6.1	6.9	6.0	6.4	7.1	6.8	6.4	6.3‡	6.0 <sup>f</sup>	6.3	6.5	7.1	7.2	7.0	7.0	-0.1
Hispanic		15.1	15.6	16.5	17.9	19.7	18.9	17.5	18.5	21.2	18.2‡	16.1 <sup>f</sup>	16.0	16.2	16.7	17.3	15.8	13.7	-2.0

(Table continued on next page.)

**TABLE D-6 (cont.)**  
**Any Illicit Drug other than Marijuana:<sup>a,b</sup> Trends in Annual Prevalence of Use  
 by Subgroups in Grade 12**

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Use of "any illicit drug other than marijuana" includes any use of LSD, other hallucinogens, crack, other cocaine, or heroin; or any use of narcotics other than heroin, amphetamines, sedatives (barbiturates), methaqualone (excluded since 1990), or tranquilizers not under a doctor's orders.

<sup>b</sup>Beginning in 1982 the question about amphetamine use was revised to get respondents to exclude the inappropriate reporting of nonprescription amphetamines. The prevalence-of-use rate dropped slightly as a result of this methodological change.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens" and "shrooms" was added to the list of examples. For the tranquilizer list of examples, Milltown was replaced with Xanax. The 2001 data are based on the changed forms only;  $M$  is one half of  $N$  indicated.

In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for hallucinogens and hallucinogens other than LSD are also affected by these changes and have been treated in a parallel manner.

<sup>f</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-7**  
**Marijuana: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months												2007– 2008						
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	6.2	7.2	9.2	13.0	15.8	18.3	17.7	16.9	16.5	15.6	15.4	14.6	12.8	11.8	12.2	11.7	10.3	10.9	+0.6
Gender:																			
Male	7.3	7.4	10.5	15.1	17.7	19.6	19.2	18.0	18.1	16.7	18.1	17.0	13.9	12.3	13.0	12.7	11.2	12.2	+1.1
Female	5.1	6.9	8.0	10.9	13.7	16.9	16.1	15.3	14.9	14.3	12.8	12.4	11.5	11.2	11.4	10.4	9.3	9.5	+0.2
College Plans:																			
None or under 4 years	15.8	17.5	22.4	27.7	30.3	34.6	34.5	35.0	34.9	33.6	34.4	33.1	31.3	29.0	30.5	28.8	28.1	27.7	-0.4
Complete 4 years	4.6	5.5	7.3	11.0	13.8	15.8	15.5	14.5	14.0	13.4	13.2	12.7	10.7	10.0	10.2	10.0	8.6	9.4	+0.7
Region:																			
Northeast	5.0	5.8	6.2	12.1	13.0	15.3	16.2	11.7	14.4	13.2	14.5	11.3	10.0	10.2	9.8	9.3	6.4	8.3	+1.8
Midwest	5.9	6.0	8.0	12.0	17.5	18.6	17.0	18.1	18.5	16.6	14.1	14.3	12.3	10.9	12.8	11.0	9.8	12.6	+2.8 s
South	6.1	7.3	9.0	11.4	14.7	17.1	17.2	17.9	16.7	15.2	16.8	16.3	14.4	12.9	13.5	13.8	11.9	11.5	-0.4
West	7.8	10.3	14.8	18.1	18.4	22.5	20.6	18.2	15.6	16.9	15.5	15.3	12.9	12.3	11.4	10.6	10.5	10.3	-0.2
Population Density:																			
Large MSA	5.2	6.7	8.0	13.1	15.6	18.3	16.4	16.0	15.6	14.5	12.4	12.7	11.5	10.8	11.7	10.3	8.7	9.9	+1.1
Other MSA	7.2	8.3	10.9	15.7	17.2	19.5	18.2	17.4	15.4	14.8	17.4	15.2	12.9	12.4	12.9	12.5	10.8	11.8	+1.0
Non-MSA	5.3	5.7	7.2	8.0	13.7	15.8	18.0	16.9	19.7	18.5	15.3	16.1	14.1	11.9	11.6	12.0	11.4	10.4	-1.1
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	13.2	12.7	13.6	18.7	23.0	20.2	24.8	25.0	25.8	26.2	26.0	24.2	22.5	19.7	18.2	19.4	19.4	18.5	-0.9
2.5–3.0	7.0	7.7	10.7	14.5	17.9	20.6	20.3	20.0	20.8	19.4	19.5	18.7	16.5	15.4	17.4	15.1	13.8	14.6	+0.8
3.5–4.0	6.2	7.0	9.7	13.2	17.2	20.2	19.5	17.7	16.3	15.9	16.7	15.4	13.7	12.8	12.8	13.1	11.3	11.8	+0.5
4.5–5.0	3.7	5.4	7.4	10.9	12.7	16.2	15.7	13.7	11.7	10.8	11.1	11.4	8.9	9.0	8.9	8.0	7.2	8.2	+0.9
5.5–6.0 (High)	4.6	5.2	6.4	11.0	13.0	14.7	12.1	12.7	12.4	11.5	9.4	9.7	8.0	7.7	7.1	7.1	4.9	6.7	+1.8
Race (2-year average): <sup>b</sup>																			
White	—	6.4	7.8	10.0	13.5	16.7	17.8	16.7	15.4	14.9	14.7	14.5	13.0	11.5	11.1	10.9	9.9	9.6	-0.3
African American	—	4.1	5.7	8.9	11.9	14.0	15.3	16.0	16.3	16.1	14.6	12.7	12.6	12.8	13.6	12.9	11.1	10.6	-0.5
Hispanic	—	11.9	13.9	18.1	20.4	20.8	21.8	22.7	22.8	20.1	19.9	21.1	19.1	16.7	14.7	14.3	13.7	13.2	-0.5

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-8**  
**Marijuana: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007– 2008	
	Percentage who used in last 12 months																		
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Approximate wtd. N =	16.5	15.2	19.2	25.2	28.7	33.6	34.8	31.1	32.1	32.2	32.7	30.3	28.2	27.5	26.6	25.2	24.6	23.9	-0.6
Gender:																			
Male	17.7	16.3	21.2	28.2	30.6	36.0	37.3	32.2	34.3	36.1	36.0	32.3	30.0	29.0	28.1	26.3	26.8	25.5	-1.3
Female	15.1	13.9	16.9	21.9	26.5	31.4	32.3	30.1	29.7	28.4	29.6	28.4	26.4	25.8	24.9	24.0	22.4	22.2	-0.2
College Plans:																			
None or under 4 years	26.9	25.1	31.5	37.3	41.8	48.9	51.5	46.8	48.3	48.8	47.4	46.6	44.6	41.9	41.4	42.0	42.1	43.5	+1.3
Complete 4 years	14.2	13.0	16.5	22.4	26.4	31.0	32.0	28.2	29.3	29.7	30.3	27.7	25.5	25.4	24.6	23.0	22.2	21.4	-0.8
Region:																			
Northeast	17.1	14.9	22.4	25.6	28.8	34.8	34.6	35.4	34.4	30.3	34.1	31.7	29.5	29.2	28.7	24.9	25.0	26.3	+1.3
Midwest	15.8	14.8	17.4	23.4	26.6	33.1	34.4	28.5	31.6	31.1	31.7	29.0	25.0	25.3	26.4	24.8	24.9	22.6	-2.2
South	14.5	12.5	16.4	23.8	28.4	33.9	34.4	30.7	30.9	31.4	31.2	28.9	29.6	29.0	27.4	25.5	22.7	24.0	+1.2
West	19.4	20.4	24.0	30.0	32.2	32.4	36.5	30.7	32.0	37.1	36.4	33.4	28.8	26.4	23.4	25.3	26.2	23.4	-2.9
Population Density:																			
Large MSA	16.5	15.1	19.0	26.3	27.8	31.5	34.1	28.7	31.2	32.4	30.0	29.0	27.1	25.9	25.3	24.0	24.5	24.2	-0.3
Other MSA	17.3	15.9	19.8	28.2	31.2	36.2	36.6	33.1	33.6	32.8	35.2	32.4	28.7	27.8	28.0	25.1	24.9	24.7	-0.2
Non-MSA	14.9	13.9	18.2	18.5	24.8	30.9	32.5	30.2	30.0	31.1	30.9	27.6	29.0	29.0	25.5	27.4	23.9	21.7	-2.3
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	20.3	18.9	22.4	25.8	32.0	32.9	34.5	31.7	38.1	37.1	33.6	33.5	33.7	33.2	28.6	31.9	28.4	30.2	+1.8
2.5–3.0	17.8	16.0	19.7	26.3	31.8	35.6	36.8	35.3	35.4	34.9	37.1	35.1	32.2	30.6	31.1	29.6	29.4	28.3	-1.1
3.5–4.0	16.2	15.1	19.3	25.6	30.0	36.4	37.8	31.6	31.9	35.0	32.6	30.1	29.4	29.5	27.1	26.6	26.3	26.0	-0.3
4.5–5.0	14.9	14.1	17.6	23.8	27.0	31.7	33.1	28.3	28.8	28.9	31.4	27.9	24.3	24.3	24.5	21.8	21.2	19.8	-1.4
5.5–6.0 (High)	15.9	13.7	18.5	23.3	23.4	30.3	30.5	27.7	30.6	27.3	29.4	25.8	24.3	22.5	23.6	21.2	18.9	18.9	-0.1
Race (2-year average): <sup>b</sup>																			
White	—	17.0	18.0	22.6	27.7	32.0	35.3	34.2	32.5	32.6	32.9	32.7	30.6	28.2	27.3	26.6	25.7	24.6	-1.1
African American	—	7.6	8.7	15.3	20.9	25.7	28.4	26.9	26.3	27.6	28.7	26.5	25.1	27.0	27.2	24.5	22.3	20.6	-1.7
Hispanic	—	18.9	21.3	25.1	29.2	34.6	36.8	34.4	34.0	34.8	34.9	31.6	28.8	29.8	28.6	24.9	23.7	26.6	+2.9

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-9**  
**Marijuana: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	40.0	44.5	47.6	50.2	50.8	48.8	46.1	44.3	42.3	40.0	40.6	38.8	36.3	33.1	29.6	27.0	23.9
Gender:																	
Male	45.8	50.6	53.2	55.9	55.8	53.4	49.2	47.2	45.7	43.2	43.1	41.2	38.6	35.8	32.8	29.4	27.2
Female	34.9	37.8	42.0	44.3	45.7	44.1	42.5	40.8	38.4	36.0	37.8	36.0	33.8	30.3	26.3	24.2	20.1
College Plans:																	
None or under 4 years	—	46.8	50.7	51.6	53.1	51.7	49.7	48.2	46.0	44.2	44.0	42.7	40.6	36.2	34.4	31.1	27.6
Complete 4 years	—	40.7	43.4	47.1	47.3	45.9	42.6	40.6	38.3	35.9	37.5	36.1	34.0	31.3	27.3	24.7	22.0
Region:																	
Northeast	47.4	52.7	53.5	59.2	60.6	55.5	53.2	50.9	49.3	49.6	48.2	44.6	41.2	36.7	31.3	32.2	28.2
Midwest	40.1	44.0	48.1	51.6	52.2	48.9	46.8	45.6	42.0	36.4	40.8	40.2	37.4	34.3	33.0	28.7	26.1
South	32.4	37.9	42.5	42.7	41.2	42.0	38.0	36.7	36.1	35.6	31.0	31.7	30.2	28.7	25.0	21.4	18.1
West	44.1	45.8	46.8	49.1	51.9	51.7	49.6	45.5	44.8	43.2	46.2	41.2	39.6	35.6	32.3	28.3	26.8
Population Density:																	
Large MSA	50.4	51.3	53.2	57.2	58.7	56.3	51.4	50.4	47.0	44.2	44.4	42.6	39.3	34.3	27.8	27.7	24.3
Other MSA	40.3	44.2	48.9	50.8	51.9	49.8	46.4	44.8	44.0	41.0	40.7	39.4	36.9	34.7	30.3	28.3	27.5
Non-MSA	32.9	39.8	41.2	43.3	43.3	41.9	41.6	38.5	36.5	35.3	37.3	34.7	32.2	29.0	30.0	23.5	17.5
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	35.2	38.9	41.0	42.5	46.0	43.7	41.8	38.9	39.7	35.7	37.1	33.4	30.7	30.7	23.3	21.0	22.4
2.5–3.0	39.2	46.1	48.2	50.3	50.0	49.0	45.3	44.5	42.2	40.1	40.6	38.8	36.3	31.1	29.6	26.9	22.5
3.5–4.0	38.5	44.9	49.5	51.4	52.7	49.8	47.0	46.5	42.2	41.4	41.0	40.1	36.8	33.4	31.4	27.6	24.0
4.5–5.0	40.6	46.8	49.3	53.2	53.7	50.5	47.6	45.9	43.5	39.6	43.2	39.9	37.5	35.1	29.7	28.5	23.8
5.5–6.0 (High)	38.7	47.5	48.6	55.2	51.2	52.0	48.5	45.7	43.7	39.9	37.9	38.9	38.6	35.9	30.7	29.4	28.2
Race (2-year average): <sup>b</sup>																	
White	—	—	46.8	50.1	51.8	51.2	49.1	47.1	44.6	42.0	41.6	41.4	39.7	37.6	34.5	31.6	28.2
African American	—	—	37.9	39.6	38.4	37.5	36.1	35.5	37.4	36.4	33.4	30.6	25.7	21.2	17.8	13.7	11.4
Hispanic	—	—	45.8	43.4	42.1	44.1	41.2	38.8	38.3	38.8	37.8	36.7	33.3	29.6	25.0	21.6	23.6

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-9 (cont.)**  
**Marijuana: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months													2007–				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N = 15,800</i>																		
Total	21.9	26.0	30.7	34.7	35.8	38.5	37.5	37.8	36.5	37.0	36.2	34.9	34.3	33.6	31.5	31.7	32.4	+0.7
<b>Gender:</b>																		
Male	24.4	29.0	35.1	38.1	39.4	40.9	41.7	41.4	39.2	40.1	39.9	37.8	37.4	37.6	32.7	35.0	35.1	+0.1
Female	18.9	22.4	26.4	30.6	31.6	35.5	33.0	34.1	33.4	33.6	32.4	31.6	30.8	29.6	29.7	28.3	29.5	+1.2
<b>College Plans:</b>																		
None or under 4 years	27.5	29.1	34.4	39.0	41.7	44.6	43.0	43.2	40.3	41.5	40.9	42.1	39.0	41.3	39.9	38.6	41.0	+2.5
Complete 4 years	19.4	24.4	29.1	32.6	33.4	36.4	35.2	35.9	34.6	35.3	34.7	32.3	32.6	31.5	29.1	29.8	30.2	+0.3
<b>Region:</b>																		
Northeast	23.9	31.2	36.0	37.7	40.0	43.5	43.0	39.0	42.3	43.8	41.9	40.5	40.1	39.6	38.1	39.2	36.6	-2.6
Midwest	22.7	26.0	30.5	36.9	36.9	36.5	33.8	38.0	34.5	36.9	37.5	36.5	34.0	33.7	32.0	32.6	31.1	-1.5
South	18.1	23.2	28.7	31.8	32.8	35.0	36.5	36.0	30.7	32.4	32.6	29.4	30.1	31.2	29.4	29.0	31.0	+2.0
West	26.1	26.4	30.0	33.8	35.6	42.6	39.0	39.8	43.1	38.4	35.2	36.2	35.6	32.0	28.8	29.1	32.8	+3.7
<b>Population Density:</b>																		
Large MSA	22.6	29.1	32.0	37.5	37.2	38.3	38.4	38.7	37.1	39.2	37.7	32.3	32.3	34.5	33.4	33.9	34.8	+1.0
Other MSA	22.1	26.2	32.7	34.9	38.6	40.5	38.8	39.1	38.1	36.7	38.0	38.1	37.9	35.0	31.9	31.6	31.2	-0.3
Non-MSA	21.0	23.1	25.8	31.0	29.6	34.9	33.5	34.7	32.9	35.1	30.8	32.2	29.7	29.7	28.1	28.8	32.2	+3.4
<b>Parental Education:<sup>a</sup></b>																		
1.0–2.0 (Low)	21.2	23.0	26.3	30.9	31.3	34.8	34.2	35.5	36.5	33.9	30.8	31.4	28.7	27.3	32.0	31.1	30.5	-0.7
2.5–3.0	21.1	24.1	29.7	33.8	35.1	37.4	36.1	38.6	35.1	37.0	34.9	34.2	33.1	34.8	33.2	33.8	32.8	-1.0
3.5–4.0	22.7	26.6	31.5	34.2	36.1	38.1	39.0	38.6	36.8	38.4	38.5	36.2	36.9	35.5	31.6	30.6	32.0	+1.4
4.5–5.0	20.8	27.2	32.0	35.0	36.6	40.1	37.4	35.9	35.8	37.4	37.0	35.4	34.4	33.9	28.4	30.4	32.7	+2.3
5.5–6.0 (High)	22.6	28.0	32.3	37.5	36.7	39.7	38.3	39.2	38.0	35.2	36.1	32.6	34.0	32.3	32.9	32.8	32.8	+0.1
<b>Race (2-year average):<sup>b</sup></b>																		
White	24.9	25.9	30.2	34.2	36.4	38.7	39.9	39.1	38.2	38.5	38.7	37.9	37.3	36.6	34.8	33.4	33.9	+0.5
African American	11.5	14.2	20.7	26.8	30.2	30.4	30.0	30.4	30.0	29.0	27.3	26.3	25.5	26.3	27.7	27.0	26.8	-0.3
Hispanic	24.7	23.5	25.7	29.7	32.3	36.4	37.2	37.8	40.5	37.6	34.6	31.1	29.5	29.6	28.7	27.2	27.3	+0.1

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-10**  
**Inhalants: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007–						
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	9.0	9.5	11.0	11.7	12.8	12.2	11.8	11.1	10.3	9.4	9.1	7.7	8.7	9.6	9.5	9.1	8.3	8.9	+0.6	
Gender:																				
Male	9.0	9.2	10.4	11.2	11.5	10.3	10.5	10.6	9.5	8.9	8.4	7.6	7.7	8.8	7.8	7.7	7.3	7.0	-0.4	
Female	9.0	9.8	11.9	12.2	14.0	14.1	12.9	11.6	11.1	9.9	9.9	7.8	9.6	10.5	11.1	10.5	9.3	11.0	+1.7 s	
College Plans:																				
None or under 4 years	15.0	15.6	17.7	18.3	19.6	18.2	18.1	20.9	17.9	17.2	15.1	14.5	16.5	17.9	15.3	17.3	18.1	19.1	+1.0	
Complete 4 years	8.1	8.8	10.2	10.9	11.9	11.4	11.2	10.2	9.5	8.6	8.6	7.1	8.0	8.7	9.0	8.3	7.5	8.0	+0.5	
Region:																				
Northeast	8.0	8.6	11.3	12.0	13.1	11.7	12.1	9.1	9.8	8.7	9.4	6.9	9.0	8.9	9.1	7.2	5.9	7.9	+2.0	
Midwest	9.8	10.5	9.9	10.3	13.8	13.3	11.3	11.3	10.6	10.6	8.8	8.0	9.6	9.6	8.5	9.0	8.1	9.1	+1.0	
South	8.9	9.1	10.0	11.3	12.1	11.3	11.6	11.3	9.9	8.4	9.5	8.4	7.9	9.9	9.8	9.1	9.1	9.6	+0.5	
West	8.8	9.8	14.2	14.0	12.4	12.9	12.6	12.4	10.9	10.5	8.6	6.4	8.9	9.6	10.4	10.5	8.8	8.4	-0.4	
Population Density:																				
Large MSA	9.9	9.1	10.8	11.6	11.7	11.4	10.4	8.6	8.8	8.3	8.3	7.1	8.0	8.8	8.8	8.8	8.6	8.7	+0.1	
Other MSA	8.5	10.3	12.3	13.1	13.7	13.4	11.5	11.1	10.1	9.4	8.9	8.0	8.5	10.3	10.7	9.0	8.3	8.9	+0.5	
Non-MSA	9.1	8.6	8.5	9.3	12.3	11.0	13.9	14.0	12.3	10.9	10.4	7.8	10.1	9.2	8.3	9.7	7.9	9.2	+1.3	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	12.0	11.4	11.5	12.4	13.0	11.3	12.1	14.4	12.9	13.1	10.7	10.3	10.6	12.6	11.6	10.5	11.9	13.3	+1.4	
2.5–3.0	9.5	9.9	10.9	12.1	13.9	12.6	12.6	12.0	11.8	11.3	9.7	8.3	10.1	10.2	11.6	10.7	9.3	10.8	+1.4	
3.5–4.0	8.9	10.0	11.5	12.3	14.7	13.4	13.5	12.8	10.8	9.9	9.4	8.9	10.3	11.0	10.0	10.3	9.2	9.5	+0.3	
4.5–5.0	8.0	8.4	10.6	11.0	12.3	13.2	11.4	9.7	9.2	7.1	9.0	7.3	7.4	9.3	8.4	7.8	7.6	7.3	-0.3	
5.5–6.0 (High)	8.4	10.3	12.6	12.2	11.6	11.7	10.8	10.6	9.1	9.2	7.7	6.2	6.5	6.9	8.0	7.9	6.3	7.8	+1.5	
Race (2-year average): <sup>b</sup>																				
White	—	10.1	11.3	12.4	13.8	14.6	14.1	13.3	12.1	10.9	10.1	9.1	8.8	9.6	9.8	9.7	8.9	8.5	-0.4	
African American	—	4.4	4.6	5.3	5.0	4.2	3.8	4.2	4.2	4.3	4.8	5.0	4.9	5.4	5.8	5.4	5.5	5.6	+0.1	
Hispanic	—	10.4	11.5	12.5	13.3	12.7	11.4	11.5	12.7	12.2	11.0	9.9	9.6	10.6	11.0	9.5	9.2	10.2	+1.0	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-11**  
**Inhalants: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months																2007–	2008	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	7.1	7.5	8.4	9.1	9.6	9.5	8.7	8.0	7.2	7.3	6.6	5.8	5.4	5.9	6.0	6.5	6.6	5.9	-0.7
Gender:																			
Male	7.4	7.6	9.1	9.7	10.3	10.1	9.1	8.4	7.6	7.7	6.7	5.4	5.2	5.8	5.0	5.9	6.3	5.4	-0.9
Female	6.6	7.5	7.7	8.6	8.9	8.9	8.2	7.6	6.9	7.0	6.5	6.0	5.6	6.1	6.9	7.1	7.0	6.3	-0.7
College Plans:																			
None or under 4 years	12.0	12.4	14.0	15.1	14.6	14.3	14.4	13.5	11.6	11.2	11.0	9.8	9.6	11.2	9.9	10.6	12.0	11.1	-0.9
Complete 4 years	5.9	6.4	7.3	7.8	8.7	8.7	7.7	7.0	6.5	6.7	5.9	5.2	4.8	5.2	5.5	5.9	5.9	5.3	-0.7
Region:																			
Northeast	7.2	7.8	10.6	9.8	10.4	11.5	8.9	9.3	8.3	7.2	6.5	6.0	5.9	6.1	6.2	6.5	6.4	4.9	-1.6
Midwest	7.5	8.0	8.3	8.4	10.4	9.8	8.3	6.7	8.4	7.5	6.5	5.8	6.1	5.7	6.1	6.7	6.8	5.7	-1.1
South	7.2	6.6	7.3	9.0	9.4	9.1	8.8	8.3	6.5	7.4	6.8	5.4	4.6	5.6	5.6	5.7	6.1	5.6	-0.5
West	6.2	8.0	8.4	9.9	8.1	8.0	8.5	7.8	6.1	7.2	6.7	6.2	5.5	6.6	6.1	7.2	7.3	7.2	-0.1
Population Density:																			
Large MSA	7.7	7.8	8.5	7.9	8.7	8.1	8.1	6.7	6.9	7.1	6.0	5.1	4.8	5.0	6.2	6.0	6.0	5.3	-0.7
Other MSA	7.1	7.4	8.4	9.8	9.7	9.6	8.4	7.7	7.0	6.8	6.9	5.4	5.2	6.3	5.6	6.4	6.8	6.4	-0.4
Non-MSA	6.5	7.5	8.6	9.1	10.5	11.0	9.8	10.1	8.3	8.5	7.0	7.4	7.1	6.5	6.5	7.4	7.1	5.5	-1.6
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	7.0	8.2	10.2	8.7	9.4	10.8	9.3	9.7	8.7	8.5	7.6	5.6	5.8	6.2	6.3	6.9	9.3	8.7	-0.6
2.5–3.0	8.0	7.9	9.1	9.5	11.0	9.9	8.5	9.1	8.0	8.1	7.5	6.0	6.3	6.9	6.9	6.2	7.5	6.7	-0.7
3.5–4.0	7.5	8.3	8.3	9.6	10.2	10.1	9.4	8.1	6.9	7.4	5.9	6.3	5.8	5.7	6.2	7.1	7.0	6.3	-0.7
4.5–5.0	6.4	6.5	7.2	8.7	9.4	8.4	8.3	7.1	6.7	6.5	6.8	5.6	5.1	5.7	5.8	5.5	5.8	5.0	-0.8
5.5–6.0 (High)	6.6	6.7	8.2	8.2	7.0	10.1	8.2	6.7	7.2	7.2	5.5	5.2	4.4	5.1	5.3	7.5	5.4	4.5	-0.9
Race (2-year average): <sup>b</sup>																			
White	—	8.3	8.8	9.6	10.6	11.0	10.4	9.6	8.9	8.4	7.9	7.1	6.6	6.5	6.6	6.8	7.1	6.5	-0.6
African American	—	3.6	3.7	3.3	2.8	2.3	2.3	2.4	2.0	2.0	2.1	2.4	2.0	2.1	2.8	2.9	2.9	2.9	0.0
Hispanic	—	6.4	8.3	9.0	8.5	8.2	7.9	7.6	7.3	6.3	5.9	4.8	4.8	5.7	6.2	6.4	6.4	7.2	+0.8

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-12**  
**Inhalants:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Approximate wd. N =																	
Total	—	3.0	3.7	4.1	5.4	4.6	4.1	4.5	4.3	5.1	5.7	6.1	6.9	8.1	6.9	7.5	6.6
Adjusted <sup>b</sup>	—	—	—	—	8.9	7.9	6.1	6.6	6.2	7.2	7.5	8.9	8.1	7.1	6.9	7.5	6.9
Gender:																	
Male	—	3.8	5.1	5.6	6.7	5.9	5.1	5.8	5.8	6.5	6.9	7.8	8.3	8.2	7.8	8.8	8.2
Female	—	2.0	2.4	2.8	4.2	3.5	3.2	3.1	2.8	3.8	4.5	4.7	5.6	4.9	4.0	4.9	5.0
College Plans:																	
None or under 4 years	—	3.6	4.7	5.0	6.3	5.0	4.3	4.9	4.7	5.8	5.8	7.7	8.0	8.1	7.1	7.8	7.7
Complete 4 years	—	2.2	2.9	3.4	4.5	4.3	4.0	4.1	3.9	4.7	5.7	5.2	6.4	6.0	5.4	6.4	6.3
Region:																	
Northeast	—	3.2	4.1	4.4	6.4	6.0	5.2	6.2	5.0	6.1	8.0	5.6	6.7	6.0	6.3	7.4	6.7
Midwest	—	2.6	4.2	4.8	5.9	4.6	3.8	3.6	4.5	5.0	5.8	6.7	8.6	7.2	6.7	8.0	8.6
South	—	3.8	3.3	3.6	4.3	3.4	3.2	3.8	3.8	4.6	4.2	5.7	6.1	6.8	5.5	6.4	5.0
West	—	1.7	3.0	3.6	4.9	4.9	4.7	4.4	4.3	5.3	5.4	6.6	6.2	5.6	4.8	5.7	6.8
Population Density:																	
Large MSA	—	2.9	3.4	3.4	5.1	5.7	4.7	5.5	4.8	5.3	5.9	5.2	6.0	6.5	5.1	6.7	5.2
Other MSA	—	2.6	3.6	3.7	4.8	4.2	4.0	3.9	4.4	5.0	5.9	6.3	6.9	6.0	5.8	6.8	7.8
Non-MSA	—	3.4	4.2	5.3	6.2	4.4	3.7	4.4	3.9	5.2	5.4	6.6	7.8	7.5	6.8	7.4	5.8
Parental Education: <sup>c</sup>																	
1.0–2.0 (Low)	—	3.7	3.9	4.5	5.2	3.6	3.6	3.2	3.1	4.5	4.2	4.9	4.6	5.3	5.9	5.0	6.1
2.5–3.0	—	3.1	4.1	4.0	5.0	4.8	4.0	4.8	4.0	5.2	5.6	6.1	6.8	6.3	5.5	6.9	6.6
3.5–4.0	—	3.1	3.4	4.1	5.1	4.7	4.0	4.6	4.9	5.6	5.5	6.2	7.1	5.8	6.1	7.2	6.1
4.5–5.0	—	2.7	3.0	3.9	5.8	4.3	4.4	4.4	5.2	5.0	7.0	6.9	7.2	7.0	5.7	7.4	7.4
5.5–6.0 (High)	—	3.7	4.2	5.0	7.2	5.8	4.9	6.0	4.7	5.6	6.8	6.4	8.7	9.1	6.8	7.6	7.1
Race (2-year average): <sup>d</sup>																	
White	—	—	3.6	4.3	5.1	5.3	4.7	4.7	4.8	5.1	5.9	6.5	7.3	7.6	7.0	7.2	7.6
African American	—	—	1.5	1.3	2.1	2.2	2.1	1.9	1.8	2.2	2.0	2.1	3.0	3.1	2.2	2.1	2.7
Hispanic	—	—	2.7	3.0	2.9	2.9	3.5	4.1	3.4	4.6	6.5	5.5	4.6	4.1	4.7	4.8	5.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on four of five forms in 1976–1988;  $N$  is four fifths of  $N$  indicated in Table D-109. Data based on five of six forms in 1989–1998;  $N$  is five sixths of  $N$  indicated in

Table D-109. Data based on three of six forms beginning in 1999;  $N$  is three sixths of  $N$  indicated in Table D-109.

(Table continued on next page.)

**TABLE D-12 (cont.)**  
**Inhalants:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–	2008		
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	6.2	7.0	7.7	8.0	7.6	6.7	6.2	5.6	5.9	4.5	4.5	3.9	4.2	5.0	4.5	3.7	3.8	+0.1
Adjusted <sup>b</sup>	6.4	7.4	8.2	8.4	8.5	7.3	7.1	6.0	6.2	4.9	4.9	4.5	4.6	5.4	4.7	4.1	4.0	-0.1
Gender:																		
Male	8.0	9.2	9.6	9.9	9.1	8.3	7.5	6.5	6.8	5.5	5.8	5.2	4.8	6.2	5.1	3.9	4.4	+0.5
Female	4.5	4.8	6.0	6.2	6.1	5.2	5.1	4.9	5.1	3.5	3.3	2.9	3.4	4.1	3.9	3.4	3.2	-0.2
College Plans:																		
None or under 4 years	7.7	8.0	9.0	9.7	8.2	8.0	7.9	6.5	6.7	6.6	6.3	5.1	5.6	7.3	6.8	4.4	6.1	+1.7
Complete 4 years	5.7	6.7	7.4	7.4	7.3	6.5	5.7	5.4	5.5	3.9	4.2	3.5	3.8	4.6	3.9	3.5	3.3	-0.1
Region:																		
Northeast	6.0	8.9	10.3	10.3	10.8	9.4	8.0	6.2	6.3	5.7	5.4	5.1	4.3	6.0	5.9	3.9	3.5	-0.4
Midwest	7.4	6.3	9.5	8.6	7.6	6.9	7.6	6.3	5.5	5.0	5.6	3.7	3.8	5.6	4.8	3.9	3.0	-0.9
South	4.8	6.5	6.2	7.0	6.5	5.6	5.1	5.2	5.5	3.4	4.1	3.5	4.1	4.6	3.6	3.4	3.7	+0.2
West	7.5	7.0	5.7	6.7	6.0	5.4	4.7	4.9	6.7	4.8	3.2	3.6	4.6	4.3	4.7	3.7	5.0	+1.4
Population Density:																		
Large MSA	6.0	7.4	7.6	8.5	7.8	5.9	5.5	4.8	6.3	4.4	4.4	3.5	4.0	5.0	4.1	2.8	3.1	+0.2
Other MSA	6.6	7.3	7.7	7.8	7.9	6.5	6.1	5.3	4.9	4.3	4.4	4.4	4.1	5.1	4.5	3.8	3.7	0.0
Non-MSA	5.6	6.0	7.6	7.8	7.0	8.1	7.4	6.9	7.2	5.2	4.8	3.7	4.3	4.9	5.2	4.7	4.7	+0.1
Parental Education: <sup>c</sup>																		
1.0–2.0 (Low)	4.2	4.3	5.3	7.5	5.8	5.4	6.3	4.8	4.0	3.2	5.7	3.4	4.6	5.2	5.0	3.6	3.6	0.0
2.5–3.0	6.7	6.0	7.8	8.0	7.9	6.3	6.0	5.4	5.2	5.7	4.3	3.8	4.9	5.7	4.8	3.8	3.6	-0.1
3.5–4.0	6.3	7.7	7.1	6.7	7.8	7.1	7.3	6.1	6.1	4.2	4.5	3.9	5.0	4.8	4.7	3.9	4.4	+0.5
4.5–5.0	6.3	7.6	8.9	8.9	7.4	7.9	5.3	5.6	5.9	3.8	4.7	4.4	3.4	5.8	4.3	3.7	3.6	-0.2
5.5–6.0 (High)	6.7	9.4	9.7	9.7	8.5	6.0	6.2	6.1	7.5	5.8	4.6	4.0	3.2	3.0	3.9	3.4	3.4	+0.1
Race (2-year average): <sup>d</sup>																		
White	7.2	7.6	8.6	9.1	9.0	8.6	7.9	7.0	6.4	5.9	5.2	4.9	4.7	5.1	5.3	4.7	4.3	-0.4
African American	2.5	2.2	2.4	2.6	2.2	1.9	1.7	1.4	1.9	2.2	1.9	1.5	1.3	1.9	1.9	1.6	1.5	0.0
Hispanic	6.0	5.7	5.5	5.8	5.9	4.7	4.5	5.5	6.3	4.5	3.4	2.7	2.9	5.3	5.7	4.3	3.3	-1.0

<sup>a</sup>All data are unadjusted for underreporting of amyl and butyl nitrites, except where otherwise noted.

<sup>b</sup>Adjusted for underreporting of amyl and butyl nitrites. See text for details.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-13**  
**Hallucinogens: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

		Percentage who used in last 12 months														2007- 2008				
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>a</sup>	2002 <sup>a</sup>	2003	2004	2005	2006	2007	2008	change
		17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Approximate wtd. N =		1.9	2.5	2.6	2.7	3.6	4.1	3.7	3.4	2.9	2.8†	3.4	2.6	2.6	2.2	2.4	2.1	1.9	2.1	+0.2
Total		2.2	2.6	2.8	3.0	4.0	4.3	4.0	3.7	3.3	3.2†	3.8	2.9	2.9	2.3	2.5	2.1	2.1	2.2	+0.1
Gender:		1.6	2.3	2.3	2.4	3.3	3.7	3.2	2.9	2.4	2.5†	2.9	2.2	2.3	2.1	2.2	2.0	1.8	2.0	+0.3
Female		5.1	7.2	7.1	6.7	9.6	9.6	10.1	9.2	9.4	7.7†	9.5	7.8	8.7	7.8	7.6	6.7	6.9	8.4	+1.5
None or under 4 years		1.4	1.8	1.9	2.2	2.9	3.2	2.9	2.7	2.1	2.3†	2.6	2.0	1.9	1.7	1.8	1.6	1.5	1.6	+0.1
Complete 4 years		1.5	1.6	1.9	2.9	3.4	3.7	2.8	2.4	2.6	2.3†	2.9	1.5	2.5	2.0	1.9	1.4	1.0	1.4	+0.4
Region:		1.6	2.4	1.7	2.2	3.8	3.9	3.8	3.5	3.4	3.5†	2.7	2.7	2.6	1.9	2.2	1.9	2.0	2.0	-0.1
Northeast		1.9	2.7	2.8	2.4	3.3	3.9	3.4	3.7	2.9	2.7†	4.0	2.9	2.6	2.4	2.9	2.3	1.7	2.3	+0.6
Midwest		2.8	3.2	4.2	3.9	4.2	5.1	4.8	3.5	2.4	2.7†	3.3	2.9	2.7	2.6	2.3	2.4	2.8	2.5	-0.3
South		2.1	2.2	2.2	3.1	4.0	3.8	3.3	2.9	2.5	2.3†	2.7	2.0	2.2	1.9	2.2	1.4	1.5	2.1	+0.6
West		2.0	3.0	3.1	3.1	3.8	4.8	4.0	3.4	3.1	3.0†	3.6	2.4	2.5	2.6	2.4	2.4	2.0	2.3	+0.3
Population Density:		1.5	2.0	1.8	1.6	3.0	3.2	3.5	3.8	2.8	3.2†	3.6	3.5	3.3	2.1	2.7	2.5	2.4	1.7	-0.7
Large MSA		3.9	3.7	3.5	3.1	5.1	4.8	5.0	5.0	4.8	5.4†	5.9	4.4	4.3	4.8	3.4	2.9	3.0	4.2	+1.2
Other MSA		2.2	2.3	2.7	2.8	3.8	4.7	3.9	3.4	3.5	3.2†	3.9	3.2	3.2	2.5	3.3	2.6	2.0	2.4	+0.4
Non-MSA		1.6	2.5	2.8	2.8	4.1	4.1	3.8	3.7	2.8	2.8†	3.7	2.6	2.6	2.1	3.0	2.3	2.3	2.1	-0.1
Parental Education: <sup>b</sup>		1.6	2.0	2.3	2.8	3.2	4.0	3.4	3.0	2.1	2.1†	2.4	2.1	2.0	2.0	1.8	1.9	1.6	1.7	+0.2
1.0-2.0 (Low)		1.4	2.4	2.0	2.5	3.2	3.5	3.5	3.1	2.5	3.1†	2.3	1.7	1.9	1.7	1.1	1.5	1.1	1.9	+0.7
2.5-3.0		—	2.2	2.6	2.8	3.6	4.5	4.5	3.9	3.2	3.1	2.9†	2.7 <sup>d</sup>	2.8	2.5	2.4	2.5	2.2	2.1	-0.1
3.5-4.0		—	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.6	0.7	0.7†	0.7 <sup>d</sup>	0.9	1.2	1.3	1.1	0.7	0.8	+0.1
4.5-5.0		—	3.8	4.1	4.0	4.0	4.1	4.2	4.6	4.5	4.0	3.4†	3.6 <sup>d</sup>	2.9	2.9	2.7	1.8	2.1	2.5	+0.4
5.5-6.0 (High)		Race (2-year average): <sup>c</sup>																		
White																				
African American																				
Hispanic																				

(Table continued on next page.)

## TABLE D-13 (cont.) Hallucinogens: Trends in Annual Prevalence of Use by Subgroups in Grade 8

Source. The Monitoring the Future study, the University of Michigan.

Notes. "†" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only,  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-14**  
**Hallucinogens: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>a</sup>	2002 <sup>a</sup>	2003	2004	2005	2006	2007	2008	change
Approximate N =																			
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	4.0	4.3	4.7	5.8	7.2	7.8	7.6	6.9	6.9	6.1†	6.2	4.7	4.1	4.1	4.0	4.1	4.4	3.9	-0.5
Gender:																			
Male	4.4	4.7	5.7	6.6	8.1	8.5	8.7	7.4	8.1	7.2†	7.9	5.5	4.9	4.6	4.8	4.5	5.4	4.7	-0.8
Female	3.6	3.8	3.6	4.8	6.1	7.0	6.4	6.3	5.7	4.9†	4.6	3.9	3.4	3.5	3.1	3.5	3.4	3.1	-0.3
College Plans:																			
None or under 4 years	7.5	7.5	9.1	10.4	12.5	14.5	13.6	14.2	14.3	12.3†	15.0	10.3	8.9	9.3	9.4	10.0	10.0	10.4	+0.3
Complete 4 years	3.3	3.6	3.7	4.8	6.2	6.6	6.5	5.6	5.7	5.1†	4.8	3.9	3.3	3.3	3.2	3.3	3.6	3.1	-0.6
Region:																			
Northeast	4.0	2.7	4.7	5.8	5.6	7.7	6.2	8.1	8.6	5.8†	6.0	4.2	4.0	4.7	5.0	4.0	4.4	3.5	-0.8
Midwest	3.4	4.3	4.6	5.7	7.8	9.0	7.0	5.6	6.7	6.1†	6.0	5.1	3.5	3.7	3.9	4.1	4.7	3.8	-1.0
South	3.6	3.9	3.6	5.1	7.3	7.5	8.3	7.6	6.5	5.7†	5.3	4.0	3.9	3.6	3.5	3.5	3.6	4.1	+0.5
West	5.2	6.5	6.7	7.1	7.6	6.6	8.5	6.1	6.1	6.9†	8.7	5.9	5.0	4.7	3.7	5.1	5.1	4.2	-0.9
Population Density:																			
Large MSA	4.1	4.6	4.9	6.0	7.1	8.6	7.8	6.3	5.8	7.5†	5.0	4.7	3.2	2.9	3.4	4.1	3.9	3.9	-0.1
Other MSA	4.8	4.4	4.9	6.4	8.0	8.2	7.9	7.6	7.8	5.8†	6.6	4.9	4.4	5.0	4.3	4.1	4.7	4.2	-0.6
Non-MSA	2.5	3.7	4.1	4.4	5.5	6.0	6.7	6.3	6.5	5.1†	6.8	4.4	4.6	3.9	4.2	3.8	4.2	3.4	-0.9
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	3.7	4.9	6.0	6.1	7.7	8.0	6.5	8.3	7.0	5.2†	6.4	5.3	6.5	3.2	3.7	5.3	5.4	5.0	-0.3
2.5–3.0	4.3	4.2	4.5	5.5	7.6	8.5	7.3	8.2	8.1	5.8†	6.7	5.2	4.7	4.8	4.5	4.5	4.6	4.1	-0.5
3.5–4.0	3.7	4.6	4.8	5.9	7.6	8.6	8.2	6.6	6.6	6.7†	6.1	4.8	4.0	3.9	4.0	3.8	4.5	4.2	-0.3
4.5–5.0	4.1	3.8	4.5	5.5	6.6	6.9	8.2	6.1	6.6	6.3†	6.0	4.0	3.5	3.7	4.0	3.9	4.2	3.3	-0.9
5.5–6.0 (High)	4.6	4.2	4.6	6.2	6.5	7.2	6.8	6.0	6.5	6.2†	5.8	5.2	3.4	4.1	3.7	4.0	3.9	3.3	-0.6
Race (2-year average): <sup>c</sup>																			
White	—	4.9	5.1	5.6	7.1	8.6	8.9	8.4	8.2	7.6	6.6†	5.6 <sup>d</sup>	5.3	4.9	4.7	4.7	4.9	4.8	-0.2
Black	—	0.2	0.6	1.1	1.2	0.9	1.0	1.1	1.0	1.0	1.3†	1.4 <sup>d</sup>	1.0	0.8	1.2	1.4	1.0	1.1	+0.1
Hispanic	—	3.6	4.5	5.7	6.3	6.6	7.3	7.3	6.4	5.2	4.4†	4.5 <sup>d</sup>	3.9	3.8	4.0	3.5	2.8	3.6	+0.8

(Table continued on next page.)

## TABLE D-14 (cont.) Hallucinogens: Trends in Annual Prevalence of Use by Subgroups in Grade 10

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only; N is one half of N indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-15**  
**Hallucinogens:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<i>Approximate wtd. N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	11.2	9.4	8.8	9.6	9.9	9.3	9.0	8.1	7.3	6.5	6.3	6.0	6.4	5.5	5.6	5.9	5.8
Adjusted <sup>b</sup>	—	—	—	—	11.8	10.4	10.1	9.0	8.3	7.3	7.6	7.6	6.7	5.8	6.2	6.0	6.1
Gender:																	
Male	13.7	11.6	10.8	11.6	11.8	11.7	10.9	9.6	8.6	7.9	8.1	7.2	7.5	7.2	7.4	7.7	7.5
Female	9.0	6.9	6.5	7.3	7.6	6.7	6.8	6.1	5.5	4.7	4.4	4.7	5.2	3.7	3.6	3.8	3.9
College Plans:																	
None or under 4 years	—	11.2	10.6	11.0	11.3	11.2	10.7	9.5	8.9	8.3	7.7	7.4	7.9	6.4	7.1	6.6	7.0
Complete 4 years	—	6.9	6.4	7.3	7.5	7.1	7.4	6.2	5.4	4.7	5.0	4.7	5.4	4.7	4.8	5.3	5.3
Region:																	
Northeast	13.2	10.9	10.6	13.0	12.9	12.2	12.9	11.4	8.7	11.3	9.9	7.9	7.5	5.8	5.6	6.6	7.0
Midwest	13.0	10.3	9.7	10.7	11.1	11.3	10.3	9.1	8.9	6.0	6.8	6.6	6.9	5.3	6.6	5.7	6.5
South	8.5	7.4	6.8	6.3	5.7	5.4	4.1	4.6	5.2	3.9	3.2	3.3	4.8	5.2	4.9	5.0	3.7
West	10.2	9.3	8.2	9.6	11.0	9.2	10.4	7.8	6.3	7.0	6.3	7.2	7.4	6.0	5.5	6.9	7.3
Population Density:																	
Large MSA	13.9	11.1	9.9	11.9	12.3	11.6	12.0	10.9	9.2	8.8	8.3	7.6	7.9	6.5	5.4	5.7	5.1
Other MSA	12.1	9.8	9.1	9.3	10.5	9.8	9.0	7.6	7.6	6.3	6.1	5.9	6.3	6.0	5.9	6.6	7.7
Non-MSA	8.5	7.7	7.5	8.3	7.1	7.1	6.8	6.5	5.3	5.0	5.0	4.9	5.3	3.5	5.0	4.5	3.3
Parental Education: <sup>c</sup>																	
1.0–2.0 (Low)	8.9	7.4	6.8	7.7	7.1	8.0	6.7	6.5	6.5	5.4	4.8	5.4	5.8	4.9	4.2	3.8	4.9
2.5–3.0	10.2	10.0	9.1	9.6	9.6	9.5	8.9	8.0	6.8	6.7	6.4	6.0	6.2	4.2	4.9	4.6	4.9
3.5–4.0	10.9	9.8	9.2	9.7	9.7	9.2	9.2	8.6	7.7	6.3	7.2	6.3	6.0	4.8	5.6	6.5	6.2
4.5–5.0	11.1	10.1	8.8	10.2	10.9	9.1	9.4	7.8	7.0	5.9	6.2	5.5	6.8	6.7	6.6	6.8	6.1
5.5–6.0 (High)	8.9	9.4	9.5	10.2	11.7	9.9	10.6	9.0	7.0	7.6	4.3	5.9	7.2	7.2	7.0	8.2	7.3
Race (2-year average): <sup>d</sup>																	
White	—	—	9.8	9.9	10.5	10.3	10.0	9.3	8.3	7.5	7.0	6.7	6.8	6.8	6.4	6.7	6.8
African American	—	—	2.4	2.3	2.0	1.9	1.9	1.8	2.2	1.7	1.2	1.6	1.5	1.0	0.9	0.8	0.6
Hispanic	—	—	7.9	7.2	7.0	7.1	7.0	7.7	6.6	5.2	5.7	5.7	5.0	4.0	3.2	3.3	4.4

(Table continued on next page.)

**TABLE D-15 (cont.)  
Hallucinogens:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months													2007–	2008			
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>e</sup>	2002 <sup>e</sup>	2003	2004	2005	2006	2007	2008	change
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	5.9	7.4	7.6	9.3	10.1	9.8	9.0	9.4	8.1†	9.1	6.6	5.9	6.2	5.5	4.9	5.4	5.9	+0.5
Adjusted <sup>b</sup>	6.2	7.8	7.8	9.7	10.7	10.0	9.2	9.8	8.7†	9.7	7.2	6.5	6.4	5.9	5.3	5.8	6.1	+0.3
Gender:																		
Male	7.1	8.9	9.2	11.9	12.4	12.0	11.0	11.4	9.6†	11.1	8.4	7.8	8.4	7.4	6.2	7.5	7.8	+0.3
Female	4.7	5.6	5.8	6.3	7.3	7.4	6.8	7.4	6.3†	6.8	4.7	3.8	3.8	3.4	3.6	3.3	3.9	+0.5
College Plans:																		
None or under 4 years	7.8	8.1	8.4	11.9	12.1	11.3	12.0	10.5	10.3†	10.4	9.8	8.2	7.7	7.8	7.0	8.3	8.4	+0.1
Complete 4 years	5.1	6.9	7.0	8.2	9.0	9.0	7.8	8.7	7.0†	8.0	5.5	5.0	5.4	4.7	4.4	4.6	5.2	+0.6
Region:																		
Northeast	7.1	9.0	9.0	10.1	13.3	13.9	10.7	9.8	9.3†	9.8	9.1	7.8	7.0	5.5	7.1	6.7	8.0	+1.3
Midwest	5.9	6.8	8.1	9.2	8.8	7.6	8.4	9.8	7.0†	11.4	6.4	5.4	5.3	6.7	4.9	5.3	4.5	-0.8
South	4.7	5.9	6.7	8.8	8.9	9.2	8.5	8.6	6.9†	5.8	5.6	4.9	5.7	5.2	4.1	4.2	5.7	+1.5
West	7.3	9.2	7.1	9.6	10.5	9.5	9.1	10.0	10.5†	10.8	6.2	6.3	7.4	4.4	4.3	6.5	6.2	-0.3
Population Density:																		
Large MSA	6.2	7.3	8.1	11.0	10.5	8.8	8.7	8.4	8.9†	11.5	6.8	4.4	5.6	5.5	6.0	6.2	6.9	+0.8
Other MSA	6.0	8.1	8.6	9.5	11.4	11.2	9.9	10.4	8.3†	8.7	7.2	7.2	7.2	5.9	4.5	5.1	5.7	+0.5
Non-MSA	5.5	6.3	5.1	7.0	7.4	8.3	7.4	8.8	7.0†	7.3	5.2	5.5	4.8	4.5	4.1	4.8	5.3	+0.5
Parental Education: <sup>c</sup>																		
1.0–2.0 (Low)	3.6	4.9	5.0	7.2	7.4	7.3	7.9	9.0	7.0†	6.3	5.1	5.3	4.9	3.0	4.9	3.9	4.4	+0.5
2.5–3.0	5.6	5.9	7.0	8.7	8.8	8.5	8.8	8.6	7.4†	9.1	6.6	4.9	5.6	5.7	5.1	4.9	5.0	+0.1
3.5–4.0	6.0	7.5	8.0	9.5	10.3	9.9	9.5	10.6	8.2†	9.4	7.1	6.4	6.6	5.4	5.1	5.5	5.5	0.0
4.5–5.0	6.2	8.9	7.7	9.6	10.5	10.4	8.6	9.3	7.7†	8.6	6.7	6.5	6.4	5.7	4.6	5.4	6.7	+1.3
5.5–6.0 (High)	7.4	8.9	9.0	9.5	11.4	11.6	9.4	8.4	9.6†	8.8	5.9	5.3	6.1	5.7	4.6	6.7	7.2	+0.5
Race (2-year average): <sup>d</sup>																		
White	6.9	7.9	8.6	9.5	10.8	11.6	11.3	10.7	9.9	9.0†	8.4†	7.2	7.0	6.7	6.0	6.2	6.9	+0.7
Black	0.7	0.8	1.2	1.2	1.7	1.9	1.4	1.2	1.6	1.4†	1.2†	1.3	1.2	1.3	1.5	1.4	1.4	-0.1
Hispanic	4.6	5.3	5.8	7.1	8.3	7.3	6.8	7.9	9.6	7.8†	6.0†	4.6	4.1	3.9	3.8	3.9	3.5	-0.3

(Table continued on next page.)

**TABLE D-15 (cont.)**  
**Hallucinogens:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>All data are unadjusted for the underreporting of PCP, unless otherwise indicated.

<sup>b</sup>Adjusted for the underreporting of PCP. See text for details.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only; *N* is one half of *N* indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>f</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-16**  
**LSD: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007- 2008						
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	1.7	2.1	2.3	2.4	3.2	3.5	3.2	2.8	2.4	2.4	2.2	1.5	1.3	1.1	1.2	0.9	1.1	1.3	+0.2	
Gender:																				
Male	2.0	2.1	2.5	2.6	3.4	3.7	3.5	3.2	2.7	2.6	2.3	1.7	1.4	1.1	1.2	0.8	1.1	1.4	+0.3	
Female	1.3	2.0	2.1	2.1	2.9	3.2	2.8	2.4	2.0	2.2	2.1	1.3	1.1	1.1	1.1	1.0	1.0	1.2	+0.1	
College Plans:																				
None or under 4 years	4.5	6.4	6.4	6.2	8.5	8.2	9.3	7.8	8.2	6.7	5.8	5.7	4.3	4.7	4.1	3.4	3.9	5.2	+1.3	
Complete 4 years	1.2	1.5	1.6	1.8	2.5	2.7	2.5	2.2	1.7	2.0	1.8	1.1	0.9	0.7	0.8	0.7	0.8	1.0	+0.2	
Region:																				
Northeast	1.3	1.4	1.8	2.6	2.9	2.9	2.3	2.1	2.2	1.9	1.9	0.9	1.4	1.0	0.9	0.5	0.6	0.8	+0.2	
Midwest	1.4	1.8	1.4	1.7	3.5	3.4	3.3	2.5	2.7	3.0	1.7	1.8	1.2	0.9	0.9	0.7	1.2	1.3	+0.1	
South	1.8	2.4	2.4	2.1	2.8	3.4	3.0	3.2	2.5	2.4	2.7	1.8	1.3	1.2	1.5	1.1	1.0	1.4	+0.4	
West	2.2	2.9	3.7	3.3	3.8	4.3	4.3	3.2	1.9	2.3	2.0	1.2	1.2	1.2	1.1	1.0	1.4	1.4	+0.1	
Population Density:																				
Large MSA	1.9	2.0	2.0	2.7	3.6	3.2	2.9	2.6	2.2	2.0	1.8	1.3	1.3	1.1	1.0	0.6	0.7	1.4	+0.7	
Other MSA	1.7	2.5	2.8	2.8	3.3	4.1	3.6	2.9	2.7	2.6	2.3	1.5	1.2	1.3	1.1	1.1	1.2	1.3	+0.1	
Non-MSA	1.3	1.6	1.4	1.3	2.4	2.6	2.8	2.9	1.9	2.8	2.4	1.9	1.4	0.7	1.4	1.0	1.3	1.0	-0.3	
Parental Education: <sup>a</sup>																				
1.0-2.0 (Low)	3.5	3.1	3.1	2.8	4.6	4.4	4.7	4.4	3.7	4.9	4.1	3.4	2.3	2.8	1.7	1.8	1.8	2.4	+0.6	
2.5-3.0	1.8	2.1	2.3	2.6	3.1	4.0	3.2	2.8	2.7	2.9	2.6	2.0	1.4	1.2	1.7	1.0	1.1	1.6	+0.5	
3.5-4.0	1.4	2.0	2.4	2.4	3.6	3.5	3.4	3.1	2.4	2.2	2.4	1.3	1.3	1.0	1.5	1.0	1.0	1.1	+0.1	
4.5-5.0	1.4	1.5	2.1	2.1	2.6	3.4	2.9	2.5	1.9	1.8	1.5	1.2	1.1	1.0	0.6	0.7	1.0	1.0	+0.1	
5.5-6.0 (High)	1.3	2.0	2.0	2.1	2.9	3.0	2.9	2.4	1.9	2.3	1.3	0.8	0.8	0.6	0.4	0.7	0.6	1.3	+0.7	
Race (2-year average): <sup>b</sup>																				
White	—	1.9	2.3	2.5	3.1	3.9	3.9	3.2	2.6	2.6	2.6	2.0	1.5	1.1	1.0	1.0	1.0	1.1	+0.1	
African American	—	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.6	0.8	0.9	0.6	0.3	0.6	+0.2	
Hispanic	—	3.3	3.7	3.6	3.3	3.5	3.9	4.2	3.9	3.5	3.2	2.4	1.7	1.8	1.7	1.0	1.3	1.6	+0.3	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-17**  
**LSD: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	3.7	4.0	4.2	5.2	6.5	6.9	6.7	5.9	6.0	5.1	4.1	2.6	1.7	1.6	1.5	1.7	1.9	1.8	-0.1
<b>Gender:</b>																			
Male	3.9	4.3	5.1	5.9	7.4	7.6	7.6	6.3	7.0	5.9	5.1	3.1	1.9	1.8	1.9	2.1	2.3	2.2	0.0
Female	3.4	3.6	3.2	4.3	5.5	6.2	5.8	5.4	5.1	4.3	3.1	2.0	1.6	1.4	1.0	1.3	1.5	1.3	-0.2
<b>College Plans:</b>																			
None or under 4 years	6.8	7.0	8.4	9.4	11.1	13.1	12.8	12.4	13.1	11.1	9.9	6.0	4.4	4.5	4.1	5.1	4.3	5.1	+0.8
Complete 4 years	3.0	3.4	3.3	4.2	5.6	5.8	5.7	4.7	4.9	4.1	3.2	2.0	1.3	1.2	1.1	1.2	1.5	1.3	-0.2
<b>Region:</b>																			
Northeast	3.6	2.6	3.8	5.1	4.7	6.4	5.2	7.1	7.5	4.1	4.0	2.2	1.8	1.7	2.3	1.7	1.8	1.5	-0.3
Midwest	3.2	4.1	4.4	5.2	7.3	8.3	6.0	4.5	6.0	5.4	4.3	2.8	1.7	1.5	1.2	1.6	2.2	2.0	-0.2
South	3.3	3.7	3.2	4.6	6.8	6.8	7.9	6.5	5.8	5.0	3.5	2.3	1.7	1.4	1.4	1.7	1.6	1.8	+0.2
West	4.8	5.9	6.1	6.3	6.5	5.7	7.4	5.2	5.1	5.9	5.3	3.2	1.7	1.9	1.0	1.8	1.9	1.7	-0.3
<b>Population Density:</b>																			
Large MSA	3.8	4.4	4.4	5.4	6.6	7.6	7.0	5.4	4.9	6.4	3.8	2.6	1.3	1.1	1.2	1.6	1.6	1.5	-0.1
Other MSA	4.4	4.1	4.4	5.9	7.1	7.4	7.0	6.6	6.7	4.8	4.1	2.7	1.7	1.9	1.5	1.7	2.1	1.9	-0.2
Non-MSA	2.3	3.5	3.7	3.7	5.0	5.2	6.0	5.0	5.9	4.4	4.6	2.3	2.3	1.5	1.8	1.8	1.7	1.7	0.0
<b>Parental Education:<sup>a</sup></b>																			
1.0–2.0 (Low)	3.1	4.4	5.5	5.5	6.9	7.6	5.9	7.9	6.3	4.9	3.9	2.7	3.7	1.3	1.8	2.5	2.9	2.2	-0.7
2.5–3.0	4.0	4.2	4.2	5.1	6.9	7.6	6.6	7.0	7.3	5.1	4.8	2.9	2.0	1.7	1.7	2.1	2.0	1.6	-0.4
3.5–4.0	3.4	4.1	4.2	5.3	6.9	7.9	7.4	5.6	5.8	5.6	4.3	2.8	1.7	1.4	1.6	1.6	1.8	1.9	+0.1
4.5–5.0	3.8	3.6	3.9	4.8	6.0	6.0	7.0	5.0	5.7	5.0	3.8	2.0	1.2	1.4	1.2	1.3	1.7	1.5	-0.2
5.5–6.0 (High)	4.2	3.9	3.9	5.4	5.9	5.8	6.0	4.6	5.3	5.0	3.5	2.4	1.2	1.6	1.4	1.3	1.7	1.9	+0.2
<b>Race (2-year average):<sup>b</sup></b>																			
White	—	4.6	4.6	5.0	6.4	7.7	7.9	7.3	7.0	6.5	5.2	3.8	2.4	1.9	1.7	1.8	2.0	2.0	0.0
African American	—	0.2	0.5	0.9	1.0	0.8	0.9	1.0	0.9	0.9	0.9	0.6	0.4	0.4	0.6	0.7	0.6	0.7	+0.1
Hispanic	—	3.2	4.1	5.0	5.7	6.1	6.7	6.6	5.6	4.6	3.7	2.9	2.4	1.7	1.6	1.6	1.4	1.8	+0.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-18**  
**LSD: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

Percentage who used in last 12 months

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	7.2	6.4	5.5	6.3	6.6	6.5	6.5	6.1	5.4	4.7	4.4	4.5	5.2	4.8	4.9	5.4	5.2
Gender:																	
Male	9.6	7.9	7.1	7.8	8.0	8.1	8.0	7.4	6.7	5.8	5.9	5.5	6.4	6.5	6.5	7.1	6.8
Female	5.6	4.6	3.9	4.5	4.8	4.8	4.7	4.3	3.8	3.1	2.8	3.4	3.9	3.0	3.2	3.6	3.4
College Plans:																	
None or under 4 years	—	7.5	6.7	7.2	8.0	8.2	8.0	7.5	6.9	6.1	5.6	5.9	6.6	5.7	6.5	6.2	6.4
Complete 4 years	—	4.7	4.0	4.6	4.5	4.7	5.0	4.3	3.8	3.1	3.4	3.3	4.3	4.1	4.2	4.8	4.7
Region:																	
Northeast	8.5	8.0	7.2	8.0	7.9	6.8	9.0	8.0	5.6	7.0	5.4	5.1	5.3	4.7	5.1	5.9	6.1
Midwest	8.7	7.0	6.5	7.9	7.9	8.5	7.8	7.3	7.0	4.4	5.3	5.3	5.7	4.7	6.0	5.3	5.9
South	5.4	4.7	3.7	3.7	3.4	4.3	3.4	3.9	4.4	3.5	2.8	2.6	4.2	4.7	4.2	4.7	3.4
West	7.6	5.9	5.0	5.8	8.3	6.5	6.3	4.8	4.2	4.5	4.6	5.9	6.2	5.2	4.4	6.4	6.5
Population Density:																	
Large MSA	9.4	7.9	6.4	7.2	7.6	7.3	8.0	7.3	5.7	4.7	4.1	4.4	5.6	5.2	4.6	5.2	4.3
Other MSA	7.4	6.8	5.6	6.1	7.3	6.8	6.9	6.3	6.0	4.9	4.8	4.9	5.4	5.6	5.3	6.1	7.0
Non-MSA	5.7	4.8	4.8	5.8	4.9	5.6	4.9	4.8	4.4	4.2	4.1	4.0	4.4	3.1	4.3	4.2	3.0
Parental Education: <sup>a</sup>																	
1.0-2.0 (Low)	6.1	4.8	4.5	5.0	4.5	5.2	4.8	5.0	4.9	4.1	3.0	3.9	4.4	4.1	3.6	3.4	4.3
2.5-3.0	6.5	6.8	5.8	6.1	6.3	6.8	6.5	6.1	5.1	4.8	4.5	4.6	4.9	3.8	4.3	4.4	4.4
3.5-4.0	6.4	6.7	5.6	6.1	6.7	6.7	6.7	6.4	5.7	4.3	4.7	4.6	4.9	4.2	5.1	6.0	5.5
4.5-5.0	7.0	6.4	5.3	6.7	7.5	5.7	6.4	5.7	5.2	4.3	4.8	4.1	5.8	6.2	5.9	6.2	5.3
5.5-6.0 (High)	6.5	6.4	6.1	7.0	7.4	7.2	7.7	6.0	4.8	5.0	3.8	4.7	6.1	6.2	5.5	7.4	7.1
Race (2-year average): <sup>b</sup>																	
White	—	—	6.3	6.3	6.8	7.0	7.2	6.9	6.2	5.5	5.0	4.9	5.4	5.8	5.7	6.1	6.3
African American	—	—	1.3	1.3	1.2	1.1	1.0	0.9	0.9	0.7	0.7	1.0	0.8	0.6	0.7	0.6	0.6
Hispanic	—	—	6.1	5.0	4.9	5.2	4.5	5.2	5.0	4.1	3.9	3.9	4.0	3.1	2.3	2.7	3.6

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)



**TABLE D-18 (cont.)**  
**LSD: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																2007– 2008 change		
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		2008	
<i>Approximate wtd. N =</i>																			
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	5.6	6.8	6.9	8.4	8.8	8.4	7.6	8.1	6.6	6.6	3.5	1.9	2.2	1.8	1.7	2.1	2.7	+0.6	
Gender:																			
Male	6.7	8.4	8.4	10.7	10.9	10.3	9.3	10.0	7.6	7.9	4.4	2.5	3.1	2.7	2.1	3.0	3.7	+0.7	
Female	4.4	5.1	5.3	5.8	6.5	6.2	5.7	6.1	5.3	5.0	2.3	1.2	1.2	0.9	1.1	1.2	1.6	+0.4	
College Plans:																			
None or under 4 years	7.6	7.5	7.7	11.2	11.4	10.3	10.9	9.4	8.7	8.2	5.7	3.0	3.2	3.4	2.6	4.1	4.8	+0.8	
Complete 4 years	4.8	6.4	6.3	7.3	7.7	7.4	6.3	7.3	5.6	5.7	2.7	1.4	1.8	1.3	1.4	1.6	2.1	+0.5	
Region:																			
Northeast	6.6	8.6	8.2	8.8	11.9	11.8	8.2	7.8	7.1	6.7	5.4	2.4	2.3	1.7	3.0	2.1	3.0	+0.9	
Midwest	5.5	6.3	7.3	8.3	7.7	7.0	7.6	9.1	5.9	8.6	3.7	1.8	1.8	2.1	1.6	2.7	2.5	-0.3	
South	4.4	5.5	6.3	8.1	7.9	8.1	7.4	7.7	6.0	4.7	3.1	1.9	2.6	1.8	1.4	1.7	3.0	+1.3 s	
West	7.0	8.5	6.2	8.5	8.8	6.9	7.1	7.7	7.9	6.6	2.1	1.4	2.3	1.6	1.1	2.0	2.2	+0.2	
Population Density:																			
Large MSA	5.7	6.7	7.3	9.7	9.0	7.7	7.2	6.8	6.7	7.7	3.3	1.5	1.9	1.8	2.2	2.4	2.7	+0.3	
Other MSA	5.8	7.6	7.9	8.7	10.0	9.3	8.4	9.2	6.9	6.4	4.0	2.2	2.6	1.9	1.5	2.0	2.8	+0.7	
Non-MSA	5.1	5.6	4.6	6.5	6.5	7.3	6.1	7.4	5.9	5.6	2.7	1.7	1.9	1.7	1.2	1.8	2.6	+0.8	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	3.3	4.6	4.4	6.6	6.7	6.8	6.8	8.6	5.6	5.4	2.4	1.5	3.2	1.7	1.5	2.3	2.3	0.0	
2.5–3.0	5.2	5.6	6.5	8.1	8.2	7.3	7.8	7.6	6.4	6.7	3.4	1.9	2.4	1.9	2.0	1.9	2.4	+0.5	
3.5–4.0	5.7	7.0	7.4	8.6	9.3	8.5	8.2	9.0	6.7	6.3	4.0	1.7	1.8	1.5	1.9	2.1	2.4	+0.3	
4.5–5.0	5.8	8.3	6.9	8.6	8.7	8.6	6.5	8.0	6.0	6.7	3.1	1.7	2.0	1.7	1.3	2.0	2.8	+0.8	
5.5–6.0 (High)	7.0	8.2	7.9	8.3	9.2	9.5	7.3	6.4	7.0	5.6	2.8	1.7	2.2	1.7	1.1	2.3	3.2	+0.9	
Race (2-year average): <sup>b</sup>																			
White	6.4	7.4	8.0	8.6	9.7	10.1	9.5	9.1	8.3	7.5	5.8	3.0	2.2	2.2	1.8	2.1	2.8	+0.7	
African American	0.6	0.6	0.9	1.0	1.3	1.6	1.1	0.8	1.3	1.3	0.8	0.8	0.8	0.7	0.9	0.8	0.8	0.0	
Hispanic	4.1	5.1	5.4	6.4	7.4	6.3	5.9	7.0	7.6	5.8	3.8	1.8	1.7	1.7	1.4	1.8	1.8	-0.1	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-19**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 8**

		Percentage who used in last 12 months														2007- 2008				
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>a</sup>	2002 <sup>a</sup>	2003	2004	2005	2006	2007	2008	change
		17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	Approximate wtd. N =	0.7	1.1	1.0	1.3	1.7	2.0	1.8	1.6	1.5	1.4†	2.4	2.1	2.1	1.9	2.0	1.8	1.6	1.6	0.0
Gender:																				
Male		0.8	1.1	1.2	1.6	1.9	2.1	2.1	1.8	1.8	1.5†	2.8	2.4	2.4	1.9	2.2	1.8	1.7	1.6	-0.1
Female		0.6	1.0	0.9	0.9	1.4	1.7	1.4	1.4	1.1	1.3†	2.0	1.7	1.8	1.8	1.8	1.7	1.4	1.5	+0.1
College Plans:																				
None or under 4 years		1.7	3.6	2.9	3.6	4.8	5.2	4.7	5.1	5.3	3.9†	7.4	6.5	7.5	6.5	6.1	5.5	6.0	6.9	+0.9
Complete 4 years		0.5	0.7	0.7	1.0	1.3	1.4	1.4	1.2	1.0	1.2†	1.8	1.6	1.5	1.4	1.6	1.4	1.2	1.1	-0.1
Region:																				
Northeast		0.4	0.6	0.7	1.4	1.8	2.1	1.7	1.2	1.4	1.3†	2.1	1.3	1.9	1.6	1.5	1.2	0.8	1.0	+0.2
Midwest		0.6	1.3	0.6	1.1	1.6	1.8	1.8	1.9	1.7	1.8†	1.8	2.1	2.2	1.7	1.9	1.7	1.7	1.4	-0.3
South		0.7	1.0	1.0	1.0	1.5	1.7	1.4	1.8	1.6	1.3†	2.9	2.2	2.2	1.9	2.4	1.8	1.4	1.7	+0.3
West		1.4	1.3	1.9	1.9	1.9	2.6	2.7	1.3	1.1	1.4†	2.4	2.6	2.3	2.2	2.0	2.2	2.3	1.8	-0.5
Population Density:																				
Large MSA		0.7	0.8	0.7	1.6	1.6	1.8	1.4	1.3	1.1	1.2†	1.9	1.6	1.6	1.4	2.0	1.2	1.3	1.4	+0.2
Other MSA		0.7	1.3	1.3	1.4	1.8	2.2	1.9	1.6	1.5	1.7†	2.6	1.9	2.1	2.1	2.0	2.0	1.6	1.7	+0.1
Non-MSA		0.7	1.0	0.9	0.8	1.5	1.7	1.9	2.0	1.9	1.3†	2.6	3.0	3.0	2.0	2.2	2.1	2.0	1.3	-0.6
Parental Education: <sup>b</sup>																				
1.0-2.0 (Low)		1.5	1.8	1.4	1.6	2.4	2.2	2.6	2.7	2.6	2.5†	5.0	3.4	3.5	3.9	2.7	2.3	2.5	3.1	+0.6
2.5-3.0		0.8	0.7	1.1	1.1	1.7	2.1	2.0	1.3	1.9	1.5†	2.3	2.6	2.8	2.0	2.9	2.2	1.5	1.7	+0.1
3.5-4.0		0.4	1.2	1.2	1.2	1.8	2.0	1.6	1.8	1.3	1.3†	2.6	1.9	2.2	1.7	2.6	1.8	1.9	1.7	-0.3
4.5-5.0		0.8	0.9	0.7	1.5	1.6	2.0	1.6	1.5	0.9	1.1†	1.6	1.7	1.5	1.6	1.6	1.7	1.2	1.2	0.0
5.5-6.0 (High)		0.8	1.3	0.9	1.5	1.7	1.4	1.9	1.9	1.5	2.0†	1.9	1.5	1.6	1.6	1.0	1.2	0.9	1.3	+0.5
Race (2-year average): <sup>c</sup>																				
White		—	0.9	1.0	1.2	1.7	2.1	2.1	1.8	1.6	1.6	1.4†	1.5 <sup>d</sup>	2.3	2.2	2.1	2.2	1.8	1.7	-0.2
African American		—	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3†	0.4 <sup>d</sup>	0.6	0.8	0.9	0.9	0.6	0.6	0.0
Hispanic		—	1.5	1.5	1.5	1.8	2.1	2.0	2.2	2.2	1.8	1.2†	1.8 <sup>d</sup>	2.2	2.2	2.1	1.4	1.6	1.9	+0.3

(Table continued on next page.)

**TABLE D-19 (cont.)**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 8**

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only,  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-20**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 10**

		Percentage who used in last 12 months															2007- 2008			
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>a</sup>	2002 <sup>a</sup>	2003	2004	2005	2006	2007	2008	change
		14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Approximate wtd. N =		14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total		1.3	1.4	1.9	2.4	2.8	3.3	3.3	3.4	3.2	3.1†	4.4	4.0	3.6	3.7	3.5	3.7	3.8	3.3	-0.5
Gender:																				
Male		1.5	1.6	2.5	3.0	3.4	3.8	4.1	3.9	4.1	3.8†	5.7	4.6	4.4	4.3	4.2	4.1	4.7	4.0	-0.7
Female		1.1	1.1	1.2	1.7	2.1	2.7	2.5	2.8	2.3	2.4†	3.1	3.4	2.8	3.2	2.9	3.1	3.0	2.6	-0.4
College Plans:																				
None or under 4 years		2.5	2.7	3.7	4.8	5.3	6.2	4.8	7.3	6.7	6.1†	10.9	8.8	7.3	8.2	8.5	9.0	8.9	9.0	+0.1
Complete 4 years		1.1	1.1	1.5	1.9	2.3	2.7	3.0	2.6	2.6	2.6†	3.3	3.3	2.9	3.1	2.8	3.0	3.2	2.6	-0.6 s
Region:																				
Northeast		1.4	0.7	2.3	3.2	3.0	3.9	3.2	4.7	4.5	3.4†	4.2	3.6	3.4	4.3	4.4	3.7	4.1	2.9	-1.1
Midwest		1.0	1.2	1.7	1.9	2.2	3.2	3.4	3.2	2.8	3.3†	4.0	4.3	2.9	3.3	3.6	3.7	4.0	3.3	-0.7
South		1.3	1.2	1.5	2.1	2.7	3.1	3.1	3.2	2.7	2.9†	3.6	3.4	3.5	3.3	3.0	3.0	3.1	3.5	+0.3
West		1.6	2.6	2.5	3.0	3.5	3.0	3.6	2.5	3.3	3.0†	6.7	5.1	4.5	4.2	3.3	4.7	4.4	3.6	-0.8
Population Density:																				
Large MSA		1.4	1.5	1.9	2.4	2.7	3.4	3.3	3.1	3.1	3.9†	3.4	4.0	2.8	2.7	2.9	3.8	3.4	3.3	-0.1
Other MSA		1.4	1.4	1.9	2.5	3.0	3.5	3.2	3.4	3.5	2.9†	4.8	4.0	3.9	4.4	3.9	3.7	4.1	3.6	-0.6
Non-MSA		1.0	1.2	2.0	2.3	2.5	2.7	3.5	3.5	2.7	2.8†	4.5	3.9	3.8	3.6	3.6	3.3	3.8	2.9	-0.8
Parental Education: <sup>b</sup>																				
1.0-2.0 (Low)		1.5	1.5	2.0	2.6	3.3	3.4	2.4	2.9	3.4	2.5†	4.8	4.4	5.2	2.8	3.1	4.7	4.5	4.7	+0.2
2.5-3.0		1.2	1.0	1.4	1.8	2.7	3.4	2.7	4.2	3.0	2.6†	4.4	4.3	4.2	4.5	4.1	3.8	3.9	3.3	-0.5
3.5-4.0		1.3	1.7	2.3	2.3	3.0	3.2	3.6	3.0	2.8	3.2†	4.3	4.0	3.3	3.6	3.6	3.4	4.1	3.5	-0.6
4.5-5.0		1.2	1.5	1.9	2.6	2.5	3.3	3.7	3.0	3.7	3.7†	4.4	3.5	3.2	3.5	3.5	3.7	3.8	2.9	-0.9
5.5-6.0 (High)		1.8	1.1	2.1	2.8	2.5	3.5	3.6	3.7	3.7	3.7†	3.9	4.6	3.0	3.5	3.3	3.8	3.3	2.6	-0.7
Race (2-year average): <sup>c</sup>																				
White		—	1.5	1.8	2.3	2.8	3.4	3.9	4.0	4.0	3.8	3.4†	4.0 <sup>d</sup>	4.7	4.4	4.2	4.2	4.4	4.2	-0.2
African American		—	0.1	0.4	0.7	0.7	0.4	0.3	0.4	0.5	0.6	1.1†	1.3 <sup>d</sup>	0.9	0.7	1.1	1.2	0.8	0.7	0.0
Hispanic		—	1.3	1.5	1.9	2.0	2.1	2.4	2.8	2.6	2.0	1.6†	2.5 <sup>d</sup>	2.9	3.2	3.5	3.0	2.3	2.9	+0.6

(Table continued on next page.)

**TABLE D-20 (cont.)**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 10**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "†" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-21**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	9.4	7.0	6.9	7.3	6.8	6.2	5.6	4.7	4.1	3.8	3.6	3.0	3.2	2.1	2.2	2.1	2.0
Gender:																	
Male	12.1	8.8	8.9	8.8	8.0	8.0	6.9	5.7	4.9	4.8	4.6	3.4	3.7	2.7	3.1	3.0	2.7
Female	7.5	5.0	4.9	5.5	5.3	4.2	4.0	3.6	3.1	2.7	2.5	2.5	2.6	1.4	1.1	1.1	1.3
College Plans:																	
None or under 4 years	—	8.3	8.6	8.1	7.6	6.7	6.0	5.1	4.8	4.5	4.1	3.3	3.5	2.5	2.7	2.1	2.4
Complete 4 years	—	5.2	4.9	5.7	5.3	5.1	5.0	4.1	3.1	3.0	2.9	2.5	2.8	1.8	1.9	1.9	1.9
Region:																	
Northeast	12.0	7.8	8.2	10.3	10.2	10.0	9.0	8.1	6.1	8.4	7.1	5.1	4.8	2.6	2.5	2.9	3.5
Midwest	11.3	7.9	7.9	7.6	6.8	6.7	5.7	4.8	4.4	2.9	3.1	2.7	3.5	1.6	2.3	1.7	1.9
South	7.1	5.7	5.4	4.8	4.1	3.1	2.0	1.8	2.4	1.5	1.5	1.4	1.7	2.0	1.9	1.7	1.0
West	7.7	6.7	6.3	7.2	6.6	5.9	6.9	4.9	4.1	4.5	3.6	3.3	3.3	2.5	2.3	2.6	2.6
Population Density:																	
Large MSA	11.1	7.8	7.5	9.3	8.8	8.5	8.1	7.3	6.6	6.9	6.1	5.1	4.8	3.3	2.6	2.3	1.8
Other MSA	10.7	7.3	7.2	6.9	7.2	6.5	5.0	3.7	4.0	3.1	3.0	2.4	2.5	1.7	2.0	2.4	2.6
Non-MSA	6.8	6.1	6.1	6.1	4.7	4.1	4.4	4.0	2.4	2.4	2.4	2.1	2.9	1.6	2.1	1.5	1.2
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	7.5	5.1	5.4	5.7	4.7	5.8	3.9	3.7	3.6	2.8	2.7	2.3	3.4	2.7	2.0	1.5	1.9
2.5–3.0	8.7	7.6	6.9	7.2	6.5	5.9	5.1	4.7	3.6	3.8	3.5	3.1	2.9	1.5	1.8	1.2	1.6
3.5–4.0	9.1	7.5	7.4	7.3	6.6	5.8	5.8	4.8	4.5	3.6	4.1	3.2	3.0	1.8	1.8	2.2	2.0
4.5–5.0	9.7	8.4	7.0	7.8	7.5	6.4	6.0	4.7	3.9	3.8	3.6	2.7	3.3	2.2	2.6	2.8	2.4
5.5–6.0 (High)	7.4	7.2	7.8	7.9	9.2	7.2	7.0	6.7	4.6	5.3	2.6	2.8	3.5	3.1	3.3	3.6	2.4
Race (2-year average): <sup>b</sup>																	
White	—	—	7.6	7.6	7.5	7.0	6.3	5.6	4.7	4.3	4.0	3.5	3.4	3.0	2.4	2.4	2.4
African American	—	—	1.6	1.6	1.3	1.4	1.3	1.2	1.6	1.3	0.8	0.9	0.9	0.6	0.5	0.4	0.3
Hispanic	—	—	5.1	5.2	4.8	4.4	4.5	4.8	4.2	3.4	3.7	3.3	2.1	1.7	1.6	1.5	1.7

(Table continued on next page.)

**TABLE D-21 (cont.)**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 12**

		Percentage who used in last 12 months														2007- 2008 change		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>c</sup>	2002 <sup>c</sup>	2003	2004	2005	2006	2007	2008
		15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
Approximate wtd. N =		15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
Total		1.7	2.2	3.1	3.8	4.4	4.6	4.6	4.3	4.4†	5.9	5.4	5.4	5.6	5.0	4.6	4.8	5.0
Gender:																		
Male		2.3	3.0	4.3	5.3	5.7	5.9	6.0	5.4	5.8†	7.2	7.2	7.2	7.7	6.7	5.7	6.8	6.7
Female		1.2	1.3	1.9	2.1	2.8	3.2	3.0	3.1	2.9†	4.2	3.5	3.4	3.4	3.2	3.3	2.9	3.4
College Plans:																		
None or under 4 years		2.2	2.5	3.2	4.4	5.1	4.7	6.1	4.4	5.6†	7.3	7.9	7.3	6.9	6.8	6.5	7.2	6.3
Complete 4 years		1.5	2.0	2.9	3.4	4.0	4.4	3.9	4.0	3.8†	5.0	4.6	4.5	4.9	4.4	4.1	4.2	4.7
Region:																		
Northeast		2.5	2.6	5.1	5.3	6.1	6.6	6.3	5.5	5.0†	6.9	7.5	7.3	6.7	4.9	6.4	6.0	7.2
Midwest		1.8	2.0	3.1	3.2	3.5	2.8	4.1	3.7	3.6†	6.9	5.0	4.7	4.6	6.3	4.7	4.6	3.9
South		1.3	1.8	1.9	3.1	3.6	4.0	3.5	3.3	3.3†	3.1	4.5	4.3	4.9	4.7	3.8	3.8	4.6
West		1.8	2.9	3.6	4.5	5.4	6.1	5.5	5.7	6.9†	8.0	5.6	6.0	6.9	4.0	4.2	5.7	5.4
Population Density:																		
Large MSA		2.1	2.5	3.6	4.9	5.2	4.0	4.4	4.5	5.2†	7.6	5.9	3.9	5.2	5.1	5.5	5.5	6.0
Other MSA		1.7	2.2	3.6	3.7	4.7	5.4	5.1	4.2	4.3†	5.4	5.8	6.5	6.6	5.4	4.2	4.7	4.9
Non-MSA		1.4	2.0	1.8	2.7	3.1	3.6	3.7	4.2	3.8†	4.8	4.3	5.1	4.1	4.0	3.9	4.1	4.4
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)		1.3	1.7	2.2	2.7	3.5	2.7	3.7	2.2	3.8†	3.8	4.3	4.7	3.3	2.9	4.9	3.5	3.4
2.5-3.0		1.6	1.5	2.4	3.4	3.0	3.5	3.9	3.3	3.6†	5.4	5.4	4.3	4.9	5.1	4.5	4.3	3.9
3.5-4.0		1.8	2.4	2.9	3.6	4.0	4.8	4.6	5.1	4.2†	6.1	5.6	5.9	6.0	4.9	4.9	4.9	4.8
4.5-5.0		1.7	2.7	3.7	4.2	5.2	5.3	5.0	4.4	4.6†	5.5	5.8	6.0	6.3	5.3	4.3	4.9	6.0
5.5-6.0 (High)		2.1	3.0	4.4	4.1	5.9	5.9	5.4	4.7	5.8†	6.6	5.1	4.8	5.6	5.3	4.5	5.8	6.1
Race (2-year average): <sup>b</sup>																		
White		2.2	2.2	3.0	3.8	4.4	5.2	5.6	5.2	4.8	4.7†	5.4 <sup>d</sup>	6.3	6.4	6.1	5.5	5.6	6.0
African American		0.3	0.5	0.7	0.8	0.8	0.7	0.6	0.6	1.0	0.9†	0.9 <sup>d</sup>	0.9	0.9	1.2	1.4	1.2	1.0
Hispanic		1.4	1.4	1.6	2.6	3.5	3.1	2.7	3.0	4.6	4.8†	4.1 <sup>d</sup>	4.1	3.7	3.6	3.5	3.4	3.0

(Table continued on next page.)

**TABLE D-21 (cont.)**  
**Hallucinogens other than LSD: Trends in Annual Prevalence of Use**  
**by Subgroups in Grade 12**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "+" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>c</sup>In 2001 the question text was changed on half of the questionnaire forms. "Other psychedelics" was changed to "other hallucinogens," and "shrooms" was added to the list of examples. The 2001 data are based on the changed forms only;  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>d</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-22**  
**Ecstasy (MDMA): Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007–	2008					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	—	—	—	—	—	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	—	—	—	—	—	2.3	2.3	1.8	1.7	3.1	3.5	2.9	2.1	1.7	1.7	1.4	1.5	1.7	+0.2	
Gender:																				
Male	—	—	—	—	—	2.2	2.7	2.3	1.7	3.1	3.4	3.1	1.8	1.7	1.6	1.0	1.3	1.4	+0.1	
Female	—	—	—	—	—	2.3	2.0	1.3	1.7	3.0	3.7	2.6	2.2	1.8	1.7	1.7	1.7	2.0	+0.3	
College Plans:																				
None or under 4 years	—	—	—	—	—	4.8	6.1	4.8	5.3	6.5	9.2	9.1	6.9	5.4	5.9	3.8	5.4	6.9	+1.6	
Complete 4 years	—	—	—	—	—	1.9	2.0	1.5	1.2	2.7	2.9	2.3	1.5	1.3	1.3	1.2	1.1	1.3	+0.1	
Region:																				
Northeast	—	—	—	—	—	2.1	1.5	1.6	1.8	2.4	3.8	2.0	1.8	1.8	1.1	0.8	0.5	1.2	+0.7	
Midwest	—	—	—	—	—	1.7	1.7	1.7	1.4	3.5	2.9	2.3	2.1	1.4	1.7	1.6	1.2	1.4	+0.2	
South	—	—	—	—	—	2.8	2.3	2.7	1.8	3.2	3.7	3.7	2.5	1.9	2.1	2.0	1.8	1.8	-0.1	
West	—	—	—	—	—	2.3	3.8	0.8	1.7	2.9	3.6	3.0	1.6	1.7	1.5	0.7	1.9	2.2	+0.3	
Population Density:																				
Large MSA	—	—	—	—	—	2.9	1.8	1.8	1.6	3.0	3.1	2.6	1.8	2.1	1.6	1.1	1.4	1.9	+0.6	
Other MSA	—	—	—	—	—	2.5	3.1	2.1	1.8	3.4	4.3	3.3	1.9	1.9	1.6	1.6	1.5	1.7	+0.3	
Non-MSA	—	—	—	—	—	1.2	1.5	1.5	1.6	2.5	2.5	2.5	2.7	1.0	1.9	1.6	1.8	1.3	-0.6	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	—	—	—	—	—	2.9	2.2	2.1	2.5	4.2	5.8	6.0	3.6	3.6	2.5	2.8	3.1	4.1	+1.0	
2.5–3.0	—	—	—	—	—	2.2	2.4	1.4	2.0	3.9	4.3	3.6	3.1	2.2	3.0	1.5	1.9	1.7	-0.2	
3.5–4.0	—	—	—	—	—	2.2	2.9	2.6	1.5	2.8	2.4	2.9	2.1	1.7	1.7	1.2	1.1	2.1	+1.0	
4.5–5.0	—	—	—	—	—	2.6	2.0	1.4	1.2	3.1	3.3	2.4	1.4	1.2	1.1	1.3	1.4	1.0	-0.4	
5.5–6.0 (High)	—	—	—	—	—	2.4	2.7	2.5	2.3	2.0	3.0	1.2	2.0	1.7	0.9	1.2	0.8	0.8	0.0	
Race (2-year average): <sup>b</sup>																				
White	—	—	—	—	—	—	2.7	2.4	1.9	2.5	3.2	2.9	2.4	1.9	1.5	1.5	1.4	1.6	+0.1	
African American	—	—	—	—	—	—	0.3	0.4	0.5	0.6	1.1	1.1	1.0	1.6	1.8	1.4	1.2	0.7	-0.4	
Hispanic	—	—	—	—	—	—	2.5	1.7	1.9	3.3	5.3	5.9	4.0	2.3	2.3	1.8	1.8	2.1	+0.3	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1996; N is one half of N indicated in Table D-107. Data based on one of four forms in 1997–2001; N is one third of N indicated in Table D-107. Data based on two of four forms beginning in 2002; N is one half of N indicated in Table D-107.

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-23**  
**Ecstasy (MDMA): Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007–2008 change	
	Percentage who used in last 12 months																		
Approximate wtd. N =	—	—	—	—	—	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	—	—	—	—	—	4.6	3.9	3.3	4.4	5.4	6.2	4.9	3.0	2.4	2.6	2.8	3.5	2.9	-0.6
Gender:																			
Male	—	—	—	—	—	4.9	4.7	3.5	4.7	5.7	7.6	4.3	2.8	2.4	2.6	3.3	3.7	3.4	-0.3
Female	—	—	—	—	—	4.2	3.1	2.9	4.2	4.8	4.9	5.2	3.2	2.4	2.5	2.2	3.1	2.4	-0.7
College Plans:																			
None or under 4 years	—	—	—	—	—	7.7	7.5	5.4	8.5	10.7	13.6	10.1	5.7	5.4	5.6	6.9	7.4	7.5	+0.1
Complete 4 years	—	—	—	—	—	4.0	3.3	2.9	3.7	4.5	5.1	4.1	2.6	2.0	2.2	2.2	3.0	2.3	-0.7 s
Region:																			
Northeast	—	—	—	—	—	4.4	3.0	3.8	7.0	6.4	8.2	4.4	2.7	2.6	2.2	2.2	2.9	2.0	-0.8
Midwest	—	—	—	—	—	3.6	3.2	2.2	2.3	5.2	4.8	4.6	2.5	1.9	3.0	2.8	3.5	2.0	-1.5
South	—	—	—	—	—	5.6	5.0	4.1	4.1	5.2	5.9	5.1	3.8	2.6	2.6	3.0	3.6	2.8	-0.8
West	—	—	—	—	—	4.1	3.7	2.7	4.4	5.0	6.8	5.2	3.0	2.7	2.5	3.0	3.8	4.5	+0.7
Population Density:																			
Large MSA	—	—	—	—	—	5.6	4.0	2.5	5.2	7.0	7.3	5.1	2.4	1.8	3.0	2.9	3.0	3.8	+0.7
Other MSA	—	—	—	—	—	4.6	3.6	4.1	4.7	5.3	5.5	5.2	3.1	3.1	2.5	2.7	3.7	2.7	-0.9
Non-MSA	—	—	—	—	—	3.3	4.2	2.7	2.8	3.7	6.3	3.7	3.8	2.0	2.3	2.8	3.8	2.0	-1.8 s
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	—	4.8	3.0	1.9	3.7	7.0	7.2	5.8	2.4	3.3	4.4	3.8	4.3	4.8	+0.5
2.5–3.0	—	—	—	—	—	4.7	3.9	3.1	4.4	4.9	6.5	5.5	3.8	3.3	2.8	2.9	4.7	3.5	-1.2
3.5–4.0	—	—	—	—	—	4.7	5.2	4.3	4.0	6.3	7.0	5.5	3.5	2.1	3.3	2.5	3.2	3.2	0.0
4.5–5.0	—	—	—	—	—	4.2	2.5	2.9	4.3	5.0	5.3	3.9	2.7	2.3	2.2	2.7	3.2	2.0	-1.2
5.5–6.0 (High)	—	—	—	—	—	5.3	4.0	4.4	5.6	4.8	5.8	4.6	2.3	1.4	1.4	3.3	2.8	2.1	-0.7
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	4.8	4.0	4.4	5.3	6.0	6.2	4.6	3.1	2.7	2.9	3.5	3.4	-0.1
African American	—	—	—	—	—	—	0.8	1.2	1.3	1.5	2.2	1.8	1.5	0.9	0.6	1.0	1.3	1.3	0.0
Hispanic	—	—	—	—	—	—	3.6	2.3	2.4	4.6	5.4	4.3	3.4	3.0	4.3	3.9	2.7	3.8	+1.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1996; N is one half of N indicated in Table D-108. Data based on one of four forms in 1997–2001; N is one third of N indicated in Table D-108. Data based on two of four forms beginning in 2002; N is one half of N indicated in Table D-108.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-24**  
**Ecstasy (MDMA): Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months												2007–				
	1975–	1980–	1990–	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate <i>wt</i> . <i>N</i> =	—	—	—	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	—	—	4.6	4.0	3.6	5.6	8.2	9.2	7.4	4.5	4.0	3.0	4.1	4.5	4.3	-0.2
Gender:																	
Male	—	—	—	4.8	5.6	4.8	5.6	8.1	10.5	8.2	4.8	4.7	3.3	4.3	5.0	5.5	+0.4
Female	—	—	—	4.2	2.5	2.7	5.6	8.2	8.0	6.4	4.0	3.2	2.7	4.0	4.1	3.3	-0.7
College Plans:																	
None or under 4 years	—	—	—	6.9	3.8	4.7	4.2	8.5	9.8	8.9	6.5	5.3	3.7	6.0	6.5	7.2	+0.7
Complete 4 years	—	—	—	4.0	3.9	3.3	6.2	8.0	8.7	7.1	3.9	3.6	2.8	3.7	3.9	3.7	-0.2
Region:																	
Northeast	—	—	—	6.3	6.9	3.7	9.4	8.8	10.1	10.3	5.1	3.5	3.0	2.9	4.3	2.9	-1.4
Midwest	—	—	—	3.7	1.3	2.7	3.3	5.7	11.8	5.0	4.7	3.0	3.0	3.4	4.4	2.8	-1.5
South	—	—	—	4.6	4.3	4.0	5.7	5.9	5.7	7.9	4.2	5.1	3.4	4.9	4.6	4.6	0.0
West	—	—	—	3.9	4.1	4.0	5.0	14.4	10.3	6.8	4.2	3.8	2.5	4.6	4.7	6.6	+1.8
Population Density:																	
Large MSA	—	—	—	3.6	3.6	3.2	6.1	8.7	10.9	8.4	4.3	4.0	3.5	6.1	5.8	4.7	-1.1
Other MSA	—	—	—	5.1	4.6	4.3	6.1	8.4	9.7	8.1	5.0	4.5	3.2	3.1	4.0	4.8	+0.7
Non-MSA	—	—	—	4.5	3.4	2.7	4.2	7.4	6.4	4.6	4.0	2.8	2.1	3.1	3.7	2.8	-0.8
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	—	—	5.5	3.5	4.2	6.8	7.3	3.8	4.8	4.1	4.6	3.0	3.8	4.7	4.0	-0.7
2.5–3.0	—	—	—	5.0	3.1	3.2	5.1	7.7	10.3	8.0	3.8	3.7	3.9	3.6	4.9	4.0	-0.9
3.5–4.0	—	—	—	4.9	3.8	3.2	5.7	6.2	8.4	7.5	5.7	4.6	2.8	3.9	4.4	5.3	+0.8
4.5–5.0	—	—	—	4.0	2.9	4.3	6.2	8.3	11.2	7.3	5.0	3.8	3.2	5.1	4.1	3.6	-0.4
5.5–6.0 (High)	—	—	—	4.1	8.7	3.5	4.7	10.6	8.1	7.6	3.3	3.1	2.0	3.6	4.6	4.1	-0.5
Race (2-year average): <sup>b</sup>																	
White	—	—	—	—	5.2	4.7	5.1	7.6	9.6	8.5	6.4	4.7	3.9	4.0	4.9	4.8	0.0
African American	—	—	—	—	0.4	0.4	0.5	1.3	2.4	1.7	1.4	1.6	1.4	1.8	2.1	2.2	0.0
Hispanic	—	—	—	—	2.8	2.7	6.0	10.6	10.2	7.0	5.3	3.7	3.0	3.0	3.3	3.2	-0.1

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated in Table D-109. Data based on two of six forms beginning in 2002; *N* is two sixths of *N* indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-25**  
**Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	1.1	1.5	1.7	2.1	2.6	3.0	2.8	3.1	2.7	2.6	2.5	2.3	2.2	2.0	2.2	2.0	2.0	1.8	-0.2
Gender:																			
Male	1.4	1.5	1.9	2.1	2.5	2.7	3.1	2.9	2.8	2.6	2.4	2.2	1.9	1.7	2.0	1.9	1.7	1.8	+0.1
Female	0.9	1.5	1.5	2.1	2.6	3.1	2.5	3.1	2.7	2.6	2.6	2.3	2.3	2.3	2.3	2.1	2.2	1.8	-0.3
College Plans:																			
None or under 4 years	3.2	4.8	5.4	6.6	7.0	7.9	7.5	9.4	8.1	7.5	7.0	7.2	7.1	6.8	6.1	7.1	6.5	6.9	+0.4
Complete 4 years	0.8	1.0	1.1	1.5	2.0	2.2	2.2	2.3	2.0	2.0	2.0	1.8	1.6	1.5	1.8	1.5	1.5	1.3	-0.2
Region:																			
Northeast	1.3	0.8	1.0	2.2	2.2	2.6	2.4	1.9	2.2	1.6	1.9	1.6	1.6	1.9	1.8	1.3	1.2	1.2	-0.1
Midwest	0.9	1.4	1.0	1.2	2.6	2.9	2.6	2.7	2.6	2.9	2.3	2.3	2.0	1.6	2.0	1.3	1.6	1.9	+0.3
South	1.1	1.7	2.1	2.5	2.4	2.7	2.6	3.8	3.1	2.2	3.2	2.6	2.5	2.1	2.4	2.9	2.3	2.2	-0.1
West	1.5	2.0	2.7	2.3	3.3	3.7	3.7	3.3	2.7	3.7	2.4	2.4	2.3	2.4	2.4	1.9	2.2	1.6	-0.6
Population Density:																			
Large MSA	1.1	1.4	1.3	1.9	2.4	2.8	2.4	2.3	2.1	2.3	2.1	2.0	1.7	2.2	2.2	1.9	1.9	2.0	+0.1
Other MSA	1.1	1.7	2.2	2.5	2.8	3.2	2.9	3.3	2.8	2.5	2.8	2.3	2.2	2.1	2.2	2.0	2.1	1.7	-0.4
Non-MSA	1.2	1.3	1.2	1.4	2.4	2.7	3.0	3.4	3.2	3.1	2.5	2.6	2.7	1.7	2.2	2.2	1.8	1.7	0.0
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	2.4	3.2	2.9	3.5	4.9	3.9	4.7	6.3	5.6	5.3	4.4	3.7	4.1	3.3	4.2	4.4	3.8	3.6	-0.2
2.5–3.0	1.4	1.6	2.0	2.3	2.4	3.3	3.0	3.3	3.1	2.9	2.8	2.8	2.4	2.5	2.9	2.2	2.2	2.3	+0.2
3.5–4.0	0.7	1.2	1.8	2.1	2.8	3.3	2.8	3.1	2.8	2.5	2.4	2.2	2.2	2.0	2.5	2.0	1.8	1.8	0.0
4.5–5.0	0.7	1.0	1.0	1.6	1.9	2.7	2.6	2.2	1.7	1.8	2.1	2.0	1.5	1.8	1.5	1.4	1.4	1.2	-0.1
5.5–6.0 (High)	1.2	1.5	1.1	1.9	2.5	2.5	2.3	2.5	2.5	2.2	1.6	1.5	2.0	1.2	1.2	1.5	1.3	1.4	+0.1
Race (2-year average): <sup>b</sup>																			
White	—	1.2	1.3	1.6	2.3	2.8	3.0	2.8	2.6	2.5	2.5	2.4	2.2	1.9	1.8	1.9	1.7	1.6	-0.1
African American	—	0.7	0.7	0.7	0.6	0.6	0.5	0.7	0.8	0.8	0.8	0.8	0.9	1.0	1.0	0.9	0.9	0.8	-0.1
Hispanic	—	3.1	4.0	4.5	4.7	4.8	4.3	5.2	5.9	4.7	4.2	4.1	3.8	3.6	3.6	3.5	3.8	3.5	-0.3

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-26**  
**Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months													2007–	2008					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>																				
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	2.2	1.9	2.1	2.8	3.5	4.2	4.7	4.7	4.9	4.4	3.6	4.0	3.3	3.7	3.5	3.2	3.4	3.0	-0.5	
Gender:																				
Male	2.2	2.0	2.5	3.1	3.5	4.5	4.7	4.9	5.2	4.7	3.8	4.2	3.3	3.9	3.6	3.2	3.6	3.0	-0.5	
Female	2.2	1.7	1.6	2.5	3.3	4.0	4.6	4.4	4.6	4.1	3.2	3.9	3.2	3.4	3.3	3.1	3.3	2.8	-0.5	
College Plans:																				
None or under 4 years	4.7	4.0	5.1	6.6	7.2	10.0	10.4	10.7	11.6	9.7	9.1	10.1	8.3	9.4	8.8	9.0	8.6	8.7	+0.1	
Complete 4 years	1.7	1.4	1.4	2.0	2.8	3.2	3.7	3.6	3.8	3.5	2.7	3.1	2.4	2.9	2.8	2.4	2.8	2.2	-0.6	
Region:																				
Northeast	1.5	1.0	2.0	2.4	2.5	3.0	3.0	4.9	4.6	3.1	2.3	2.4	3.1	3.4	3.6	2.5	2.9	2.0	-0.9	
Midwest	1.7	1.7	1.4	2.2	2.9	4.1	4.0	3.7	4.4	4.6	3.4	3.6	2.7	3.2	3.4	3.2	3.6	2.5	-1.1	
South	2.0	1.8	1.9	2.6	3.5	4.2	5.4	4.3	5.2	4.2	3.8	3.8	3.5	3.5	2.9	3.2	3.5	3.5	0.0	
West	3.6	3.2	3.7	4.7	5.3	5.9	6.4	6.4	5.3	5.7	4.9	6.5	3.7	4.8	4.4	3.8	3.6	3.3	-0.2	
Population Density:																				
Large MSA	1.9	1.6	1.6	2.3	3.4	3.8	4.5	4.3	4.1	4.3	3.2	3.6	2.5	3.3	3.3	2.8	3.3	2.8	-0.5	
Other MSA	2.7	2.1	2.3	3.1	3.5	4.7	4.3	4.7	5.1	4.2	3.7	4.4	3.2	3.8	3.4	3.2	3.4	3.3	0.0	
Non-MSA	1.6	1.7	2.1	2.7	3.6	3.7	5.7	5.2	5.4	4.7	3.8	3.8	4.6	3.9	3.8	3.8	3.7	2.4	-1.3	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	3.3	3.5	3.2	3.8	5.3	7.4	6.3	8.1	8.2	7.7	5.6	7.9	7.0	6.5	5.3	6.5	6.4	6.8	+0.3	
2.5–3.0	2.4	1.7	2.2	2.9	4.3	4.5	5.0	5.5	5.9	5.4	5.2	4.8	3.9	4.2	4.6	4.1	3.9	3.5	-0.4	
3.5–4.0	2.4	2.1	2.5	3.2	3.7	4.3	5.4	4.4	4.7	4.4	2.9	3.8	3.4	4.0	3.4	2.9	3.5	2.7	-0.8	
4.5–5.0	1.6	1.4	1.6	2.1	2.6	3.4	3.7	3.5	3.9	3.2	2.7	2.4	2.2	3.0	2.8	2.0	2.5	2.2	-0.3	
5.5–6.0 (High)	1.9	1.5	1.1	1.9	1.9	3.4	3.3	3.2	3.9	2.9	2.0	3.2	1.6	1.8	2.4	3.0	2.5	1.6	-0.8	
Race (2-year average): <sup>b</sup>																				
White	—	2.1	2.0	2.2	3.0	3.8	4.4	4.7	4.9	4.7	3.9	3.9	3.9	3.7	3.7	3.5	3.5	3.2	-0.2	
African American	—	0.6	0.6	1.0	0.9	0.7	0.8	1.0	0.9	0.6	0.8	1.0	0.9	0.8	1.0	1.0	0.8	0.8	0.0	
Hispanic	—	3.7	3.7	4.9	5.5	7.0	8.5	8.3	8.2	8.0	6.6	6.0	6.1	5.8	6.4	5.9	4.9	5.2	+0.3	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-27**  
**Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	5.6	6.0	7.2	9.0	12.0	12.3	12.4	11.5	11.4	11.6	13.1	12.7	10.3	7.9	6.5	5.3	3.5
Gender:																	
Male	7.5	7.5	9.3	11.4	14.6	14.8	13.8	13.1	13.2	13.8	14.8	14.3	11.3	9.1	8.1	6.6	4.1
Female	3.9	4.4	4.9	6.5	9.3	9.8	10.4	9.6	9.3	9.1	11.2	10.9	9.2	6.5	4.9	3.8	2.6
College Plans:																	
None or under 4 years	—	6.6	8.1	9.5	13.7	13.2	12.4	12.5	12.2	13.2	14.7	15.7	12.4	9.7	9.3	7.8	4.9
Complete 4 years	—	5.0	5.5	7.7	9.5	10.8	11.5	9.9	9.9	9.7	11.4	10.4	9.0	6.7	5.3	4.1	2.8
Region:																	
Northeast	5.3	6.6	7.9	11.8	13.8	14.2	16.8	16.9	15.2	19.5	20.8	17.9	13.3	9.1	7.3	6.5	3.8
Midwest	5.1	5.5	6.3	8.5	10.5	10.9	9.4	9.0	8.0	5.8	8.2	10.1	7.5	6.1	5.3	4.1	3.2
South	5.4	5.1	6.0	6.8	8.5	7.8	6.8	6.3	7.7	7.7	7.5	7.1	7.0	6.2	6.0	4.8	3.0
West	7.8	7.9	10.2	10.7	18.6	20.6	22.1	17.9	19.2	19.3	19.7	20.0	16.4	12.1	8.5	6.6	4.4
Population Density:																	
Large MSA	7.3	8.6	8.6	12.3	16.6	18.7	17.5	17.2	16.9	16.8	18.8	18.8	12.9	9.3	6.4	5.6	4.1
Other MSA	5.9	5.8	7.3	8.9	11.7	11.3	11.5	10.1	11.2	11.0	12.4	12.0	10.1	8.5	7.1	5.4	3.7
Non-MSA	4.3	4.3	5.8	6.4	8.9	8.9	9.4	8.5	7.3	8.3	9.2	9.0	8.1	5.3	5.4	4.8	2.5
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	4.5	5.3	5.5	6.3	8.4	9.0	8.3	7.6	9.0	9.4	12.0	10.5	8.7	7.6	6.7	4.7	3.5
2.5–3.0	4.6	6.1	6.8	8.7	11.1	11.2	10.5	11.0	9.8	10.9	12.7	12.9	9.9	7.4	6.4	5.6	3.8
3.5–4.0	4.5	5.9	7.2	9.0	13.2	13.3	13.3	12.5	11.7	12.2	14.0	13.6	11.2	7.2	6.4	5.6	3.7
4.5–5.0	6.3	7.6	8.1	10.4	14.0	13.6	14.9	13.6	13.1	12.2	13.7	12.2	10.0	8.7	7.1	4.4	3.1
5.5–6.0 (High)	5.2	7.1	9.5	11.6	15.2	16.3	16.2	13.8	15.1	13.4	11.9	12.5	10.8	8.1	5.8	5.5	2.4
Race (2-year average): <sup>b</sup>																	
White	—	—	6.5	8.3	10.9	12.8	13.0	12.6	11.8	11.9	13.0	13.5	12.0	9.6	7.6	6.3	4.6
African American	—	—	4.8	4.6	4.6	5.2	4.8	5.2	7.2	6.3	5.3	5.8	4.8	3.8	2.9	1.7	1.5
Hispanic	—	—	7.2	7.5	8.9	11.2	12.4	12.1	11.4	13.3	16.3	16.7	14.0	9.9	7.8	7.4	6.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

Cont. 

**TABLE D-27 (cont.)**  
**Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months													2007– 2008 change					
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	3.1	3.3	3.6	4.0	4.9	5.5	5.7	6.2	5.0	4.8	5.0	4.8	5.3	5.1	5.7	5.2	4.4	-0.8	
Gender:																			
Male	3.7	4.0	4.5	4.8	6.0	6.6	6.8	7.3	5.8	5.4	5.9	5.9	6.5	5.8	6.0	5.9	5.2	-0.7	
Female	2.4	2.3	2.8	3.1	3.5	4.2	4.5	5.0	3.9	4.1	4.0	3.7	4.1	4.2	5.2	4.4	3.5	-0.9	
College Plans:																			
None or under 4 years	5.1	4.5	5.3	5.6	7.5	8.1	9.7	9.1	7.1	8.2	8.6	6.0	8.3	7.5	8.1	8.8	7.4	-1.4	
Complete 4 years	2.4	2.8	3.0	3.4	4.0	4.4	4.5	5.4	4.2	3.7	3.9	4.2	4.3	4.4	5.1	4.4	3.6	-0.8	
Region:																			
Northeast	2.8	3.1	3.1	3.8	5.5	6.6	5.9	4.3	4.1	4.8	5.0	5.2	5.0	4.7	6.7	6.0	4.5	-1.6	
Midwest	2.5	2.4	3.7	3.4	3.8	4.7	5.8	6.2	4.8	5.7	5.2	3.9	4.2	5.0	4.2	5.0	3.2	-1.7	
South	3.2	3.1	3.4	3.6	4.6	4.8	5.8	6.9	4.7	3.9	5.0	4.7	5.4	5.3	6.4	5.2	4.8	-0.4	
West	4.3	4.9	4.5	5.8	6.1	6.8	5.4	6.9	6.3	5.0	4.6	5.8	7.0	5.0	5.5	4.8	4.9	+0.1	
Population Density:																			
Large MSA	3.6	2.7	3.3	4.4	4.8	4.7	5.4	5.0	4.1	4.3	4.1	3.8	4.7	5.2	7.4	5.0	4.4	-0.6	
Other MSA	3.3	3.9	4.1	3.9	4.9	5.6	5.8	6.6	4.9	5.0	5.4	5.7	5.8	5.2	4.8	5.4	4.3	-1.1	
Non-MSA	2.4	2.7	3.2	3.9	4.9	6.0	6.0	6.9	6.1	5.2	5.3	4.6	5.0	4.7	4.9	5.3	4.5	-0.7	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	3.9	3.5	4.1	4.8	5.3	6.5	6.9	9.0	6.2	5.7	6.6	4.8	7.3	4.3	6.1	6.2	4.7	-1.5	
2.5–3.0	3.3	3.0	4.0	3.9	5.0	5.5	6.3	6.0	4.6	6.0	5.3	4.1	5.2	6.6	6.3	5.9	4.0	-1.9 s	
3.5–4.0	3.0	3.8	3.8	4.2	5.0	5.6	6.0	6.8	5.0	4.8	5.3	5.2	5.3	5.2	5.7	5.5	4.9	-0.6	
4.5–5.0	2.9	3.0	3.1	3.7	4.8	5.2	5.0	5.4	5.3	4.4	4.2	4.7	5.2	4.3	5.1	4.9	4.0	-0.9	
5.5–6.0 (High)	2.6	2.4	3.3	3.4	4.3	4.4	4.4	5.2	3.9	2.6	4.3	4.4	4.3	4.1	5.7	4.0	4.1	+0.1	
Race (2-year average): <sup>b</sup>																			
White	3.3	3.1	3.5	4.0	4.5	5.5	6.3	6.7	6.2	5.5	5.7	5.6	5.6	5.6	5.8	6.1	5.6	-0.5	
African American	1.2	0.8	0.9	1.0	0.8	0.9	0.9	0.9	1.0	1.0	0.9	1.1	1.2	1.2	1.6	1.3	0.8	-0.5	
Hispanic	5.2	5.8	5.4	5.5	7.3	7.6	6.7	7.5	7.6	6.1	5.5	4.9	5.5	6.2	6.5	6.0	4.7	-1.2	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-28**  
**Crack: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007- 2008					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
Total	0.7	0.9	1.0	1.3	1.6	1.8	1.7	2.1	1.8	1.8	1.7	1.6	1.6	1.3	1.4	1.3	1.3	1.1	-0.2
Gender:																			
Male	0.8	0.9	1.1	1.3	1.5	1.7	1.8	2.1	1.8	1.7	1.6	1.6	1.3	1.1	1.3	1.2	1.2	1.0	-0.2
Female	0.5	0.9	0.9	1.2	1.6	1.9	1.5	2.1	1.8	1.8	1.8	1.6	1.7	1.5	1.5	1.3	1.5	1.2	-0.2
College Plans:																			
None or under 4 years	2.0	2.9	3.4	4.6	4.2	4.9	4.7	7.5	5.3	5.2	4.4	5.7	5.8	4.9	3.3	4.4	4.1	4.3	+0.2
Complete 4 years	0.4	0.6	0.6	0.8	1.3	1.3	1.3	1.5	1.4	1.4	1.4	1.2	1.1	1.0	1.2	1.0	1.1	0.8	-0.2
Region:																			
Northeast	0.5	0.4	0.4	1.4	1.4	1.7	1.6	1.2	1.5	1.2	1.2	1.2	1.3	1.2	0.9	0.9	0.8	0.8	0.0
Midwest	0.6	1.0	0.8	0.9	1.4	1.9	1.6	1.9	1.9	1.9	1.7	1.5	1.3	1.2	1.4	0.7	1.1	1.2	+0.1
South	0.7	1.0	1.2	1.6	1.4	1.7	1.4	2.5	1.9	1.4	2.0	1.7	1.8	1.3	1.5	1.8	1.5	1.2	-0.3
West	0.8	1.3	1.4	1.3	2.3	2.1	2.3	2.6	1.8	2.9	1.7	2.0	1.8	1.8	1.6	1.3	1.8	1.2	-0.6 s
Population Density:																			
Large MSA	0.5	0.8	0.7	1.3	1.5	1.8	1.5	1.6	1.2	1.6	1.4	1.5	1.2	1.5	1.5	1.3	1.1	1.4	+0.2
Other MSA	0.7	1.1	1.2	1.5	1.7	2.0	1.8	2.2	2.0	1.8	1.8	1.6	1.7	1.3	1.3	1.1	1.6	1.0	-0.5 s
Non-MSA	0.8	0.8	0.9	1.0	1.4	1.7	1.7	2.6	2.1	2.0	1.8	1.8	1.7	1.2	1.4	1.6	1.2	1.0	-0.3
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	1.7	2.2	1.8	2.8	3.0	2.7	3.0	5.0	3.6	3.7	3.2	3.1	3.3	2.2	3.1	3.0	2.9	2.8	-0.1
2.5-3.0	0.7	0.8	1.0	1.4	1.2	2.1	2.0	2.2	2.0	2.1	1.8	2.1	1.7	1.7	1.8	1.5	1.4	1.6	+0.2
3.5-4.0	0.4	0.7	1.2	0.9	1.7	2.0	1.4	2.1	2.0	1.8	1.3	1.4	1.6	1.3	1.6	1.2	1.3	0.8	-0.5
4.5-5.0	0.4	0.6	0.5	1.1	1.3	1.5	1.5	1.6	1.0	1.0	1.5	1.2	1.0	1.1	0.9	0.9	0.9	0.7	-0.2
5.5-6.0 (High)	0.8	1.0	0.6	1.4	1.6	1.5	1.5	1.6	1.9	1.8	1.3	1.3	1.3	1.0	0.6	1.0	1.0	0.9	-0.1
Race (2-year average): <sup>b</sup>																			
White	—	0.7	0.8	1.0	1.4	1.7	1.7	1.7	1.8	1.7	1.7	1.5	1.5	1.3	1.2	1.1	1.0	1.0	-0.1
African American	—	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.6	0.6	0.5	0.0
Hispanic	—	1.9	2.0	2.1	2.7	3.0	2.8	3.6	3.9	2.9	2.6	2.7	2.8	2.6	2.5	2.6	2.7	2.5	-0.2

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-29**  
**Crack: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007-2008		
	Percentage who used in last 12 months																			
	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	0.9	0.9	1.1	1.4	1.8	2.1	2.2	2.5	2.4	2.2	1.8	2.3	1.6	1.7	1.7	1.3	1.3	1.3	-0.1	
Gender:																				
Male	0.9	0.9	1.3	1.6	1.9	2.1	2.3	2.7	2.5	2.3	1.9	2.5	1.6	1.8	1.6	1.3	1.5	1.3	-0.2	
Female	0.8	0.9	0.7	1.0	1.6	2.1	2.2	2.2	2.3	2.1	1.7	2.2	1.6	1.5	1.7	1.2	1.1	1.2	+0.1	
College Plans:																				
None or under 4 years	2.4	2.1	2.7	3.4	3.7	5.0	4.9	6.0	5.5	5.2	4.7	5.6	4.5	4.6	4.8	3.7	3.8	3.9	+0.1	
Complete 4 years	0.6	0.6	0.7	0.9	1.5	1.5	1.8	1.9	1.8	1.7	1.4	1.8	1.1	1.2	1.3	1.0	1.0	0.9	0.0	
Region:																				
Northeast	0.5	0.4	1.1	1.4	1.1	1.4	1.5	2.6	2.5	1.7	1.0	1.4	1.3	1.4	1.8	0.9	1.1	1.0	-0.1	
Midwest	0.9	0.9	0.8	1.0	1.5	2.2	2.1	2.1	2.1	1.8	1.8	2.2	1.4	1.5	1.4	1.3	1.1	1.1	0.0	
South	1.0	0.8	0.9	1.3	1.9	2.0	2.0	1.9	2.0	1.9	1.7	1.7	1.7	1.4	1.3	1.2	1.4	1.1	-0.3	
West	1.1	1.4	1.7	1.9	2.8	2.8	3.8	3.9	3.2	3.8	3.3	4.4	2.0	2.6	2.5	1.7	1.6	1.8	+0.2	
Population Density:																				
Large MSA	0.9	0.8	0.7	0.9	1.9	1.7	2.3	2.2	2.2	2.4	1.9	2.2	1.2	1.5	1.8	1.3	1.3	1.1	-0.2	
Other MSA	0.9	0.9	1.1	1.5	1.6	2.4	1.7	2.4	2.3	2.0	1.8	2.5	1.7	1.8	1.5	1.1	1.3	1.4	+0.1	
Non-MSA	0.9	0.9	1.2	1.6	2.3	1.9	3.3	3.1	2.8	2.5	1.8	2.2	2.1	1.7	1.9	1.6	1.3	1.2	-0.2	
Parental Education: <sup>a</sup>																				
1.0-2.0 (Low)	1.3	1.7	1.8	1.9	3.0	3.9	3.4	4.5	3.4	4.8	3.0	3.9	2.9	3.5	2.6	3.9	3.8	3.3	-0.5	
2.5-3.0	1.0	0.8	1.0	1.1	2.4	2.5	2.4	3.1	2.9	2.9	2.5	2.6	1.8	1.9	2.5	1.6	1.6	1.3	-0.2	
3.5-4.0	0.9	1.0	1.4	1.5	1.7	1.9	2.6	2.0	2.5	2.2	1.4	2.2	1.6	1.6	1.4	1.0	0.9	1.1	+0.1	
4.5-5.0	0.7	0.6	0.7	1.0	1.3	1.4	1.8	2.0	1.9	1.1	1.6	1.4	1.3	1.4	1.3	0.8	0.9	1.0	+0.1	
5.5-6.0 (High)	0.7	0.9	0.5	1.1	1.1	1.8	1.2	1.8	1.8	1.4	1.2	2.2	0.8	0.8	1.0	1.0	0.7	0.7	0.0	
Race (2-year average): <sup>b</sup>																				
White	—	0.9	0.9	1.1	1.5	1.9	2.2	2.3	2.4	2.2	1.8	2.0	2.0	1.6	1.5	1.4	1.2	1.1	-0.1	
African American	—	0.3	0.4	0.8	0.6	0.4	0.4	0.5	0.5	0.5	0.7	0.8	0.6	0.4	0.6	0.6	0.5	0.5	+0.1	
Hispanic	—	1.5	1.7	1.9	2.5	3.7	3.7	4.1	4.4	4.0	3.7	3.6	3.5	3.1	3.6	3.1	2.3	2.4	+0.1	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-30**  
**Crack: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =												15,200	16,300	16,300	16,700	15,200	15,000
Total	—	—	—	—	—	—	—	—	—	—	—	4.1	3.9	3.1	3.1	1.9	1.5
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	4.2	4.6	4.0	4.3	2.3	1.8
Female	—	—	—	—	—	—	—	—	—	—	—	3.6	3.0	2.0	1.8	1.4	1.0
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	5.2	5.1	4.1	3.8	3.5	2.3
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	2.8	2.7	2.3	2.7	1.2	1.1
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	6.0	4.0	2.3	3.3	2.0	1.3
Midwest	—	—	—	—	—	—	—	—	—	—	—	3.1	3.5	2.4	2.2	1.6	1.5
South	—	—	—	—	—	—	—	—	—	—	—	1.6	2.8	2.6	3.3	1.8	1.2
West	—	—	—	—	—	—	—	—	—	—	—	7.5	6.1	5.6	3.8	2.7	1.8
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	5.9	4.7	3.9	3.4	1.6	1.2
Other MSA	—	—	—	—	—	—	—	—	—	—	—	3.5	3.5	3.2	3.3	2.0	1.7
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	3.5	3.7	2.0	2.2	2.0	1.2
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	1.2	3.6	3.3	3.1	2.2	1.6
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	5.3	4.2	2.6	3.1	2.2	1.5
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	4.0	4.0	3.4	2.8	1.8	1.7
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	2.9	3.4	3.1	2.6	1.1	0.9
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	3.7	2.4	2.1	3.7	1.8	1.1
Race (2-year average): <sup>b</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	—	3.8	3.4	3.1	2.1
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	1.9	2.5	2.0	1.3
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	5.5	3.7	3.2	4.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1986; N is one fifth of N indicated in Table D-109. Data based on two forms in 1987–1989; N is two fifths of N indicated in 1987–1988 and two sixths of N indicated in 1989 in Table D-109. Data based on six forms beginning in 1990.

(Table continued on next page.)

**TABLE D-30 (cont.)**  
**Crack: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

		Percentage who used in last 12 months														2007- 2008 change		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
		<i>N</i> = 15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
Total		1.5	1.5	1.9	2.1	2.1	2.4	2.5	2.7	2.2	2.1	2.3	2.2	2.3	1.9	2.1	1.9	1.6
Gender:																		
Male		1.7	1.9	2.4	2.5	2.6	3.0	3.1	2.9	2.5	2.4	2.6	2.3	2.5	2.2	2.1	2.1	1.7
Female		1.0	1.1	1.3	1.5	1.6	1.8	2.0	2.2	1.7	1.8	1.8	1.9	1.9	1.6	1.9	1.7	1.3
College Plans:																		
None or under 4 years		2.6	2.7	3.3	3.0	4.0	4.3	4.6	5.0	3.5	4.4	4.5	2.7	3.9	3.4	3.5	3.7	3.3
Complete 4 years		1.0	1.2	1.4	1.7	1.6	1.7	1.9	1.9	1.7	1.5	1.7	1.8	1.7	1.6	1.7	1.5	1.1
Region:																		
Northeast		1.3	1.2	1.5	1.6	2.1	2.6	3.0	2.4	1.8	2.0	2.0	2.0	1.7	1.5	2.5	2.1	1.8
Midwest		1.4	1.3	2.2	2.0	2.3	2.2	2.6	2.8	2.0	2.6	2.6	1.9	2.1	2.3	1.5	1.7	1.3
South		1.2	1.5	1.6	1.7	1.7	1.8	2.0	2.3	1.8	1.2	1.9	2.0	2.2	1.8	2.1	2.2	1.6
West		2.1	2.1	2.3	3.5	2.6	3.4	3.2	3.4	3.2	3.0	2.8	3.0	3.3	2.3	2.2	1.6	1.7
Population Density:																		
Large MSA		1.3	1.3	1.5	2.0	2.1	2.2	2.5	2.0	1.8	1.5	1.6	1.8	2.0	1.7	2.6	1.9	1.3
Other MSA		1.6	1.8	2.1	2.1	1.9	2.3	2.4	2.5	2.1	2.2	2.4	2.3	2.2	1.8	1.7	1.9	1.6
Non-MSA		1.3	1.4	1.9	2.1	2.5	2.8	2.9	3.6	2.8	2.8	2.8	2.4	2.8	2.5	2.0	2.0	1.6
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)		1.9	2.6	2.7	3.4	3.4	3.6	3.9	3.2	2.8	3.8	4.8	2.5	3.3	2.3	3.6	3.6	2.1
2.5-3.0		1.9	1.6	2.2	2.3	2.4	2.5	2.8	2.8	2.1	2.6	2.2	1.6	2.9	2.4	2.4	2.2	1.4
3.5-4.0		1.3	1.5	1.8	1.7	2.2	2.0	2.4	3.0	2.2	1.8	2.3	2.3	1.9	2.0	2.0	1.9	1.6
4.5-5.0		1.0	1.4	1.1	1.9	1.6	2.5	2.1	2.2	1.8	1.9	1.7	2.2	1.8	1.5	1.8	1.7	1.4
5.5-6.0 (High)		0.8	1.0	1.8	1.5	1.6	1.8	2.1	1.6	2.2	1.2	1.5	1.9	1.7	1.5	1.2	1.0	1.3
Race (2-year average): <sup>b</sup>																		
White		1.3	1.3	1.6	1.9	2.0	2.2	2.6	2.8	2.5	2.2	2.3	2.2	2.2	2.1	1.9	2.0	1.8
African American		0.6	0.6	0.9	1.0	0.7	0.5	0.3	0.4	0.5	0.5	0.7	1.2	1.3	0.9	1.0	1.0	0.9
Hispanic		2.7	2.5	2.4	3.1	4.1	4.2	3.9	3.5	3.4	3.1	3.1	2.9	3.0	3.1	3.1	2.7	2.0

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-31**  
**Other Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months														2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>																				
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,700	15,700		
Total	1.0	1.2	1.3	1.7	2.1	2.5	2.2	2.4	2.3	1.9	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.4	-0.1	
Gender:																				
Male	1.1	1.2	1.5	1.7	2.0	2.2	2.5	2.3	2.3	1.9	1.8	1.7	1.5	1.3	1.5	1.4	1.3	1.4	+0.1	
Female	0.8	1.2	1.2	1.8	2.2	2.6	1.9	2.4	2.2	1.8	2.0	1.9	1.6	1.8	1.7	1.7	1.6	1.4	-0.2	
College Plans:																				
None or under 4 years	2.7	4.2	4.1	5.6	5.9	6.6	6.0	7.7	7.1	6.1	5.3	6.4	5.0	5.4	4.5	5.7	5.7	5.5	-0.2	
Complete 4 years	0.6	0.7	0.9	1.2	1.6	1.8	1.7	1.8	1.7	1.4	1.5	1.3	1.2	1.1	1.4	1.2	1.1	1.1	0.0	
Region:																				
Northeast	1.2	0.7	0.9	1.9	1.8	2.1	1.6	1.4	1.7	1.1	1.6	1.2	1.0	1.6	1.5	1.0	1.0	0.9	-0.2	
Midwest	0.6	1.0	0.7	0.9	2.0	2.4	2.0	1.9	2.2	2.3	1.6	1.8	1.7	1.1	1.3	1.1	1.3	1.5	+0.2	
South	1.0	1.5	1.6	2.0	2.0	2.3	2.1	3.1	2.6	1.7	2.4	2.1	1.9	1.7	1.9	2.3	1.8	1.8	0.0	
West	1.3	1.5	2.1	2.0	2.7	3.1	2.9	2.5	2.2	2.5	1.7	1.9	1.6	1.8	1.8	1.5	1.5	1.3	-0.3	
Population Density:																				
Large MSA	0.9	1.1	1.0	1.6	2.0	2.5	1.7	1.8	1.8	1.6	1.6	1.4	1.2	1.7	1.6	1.5	1.5	1.5	0.0	
Other MSA	0.9	1.4	1.8	2.1	2.1	2.6	2.2	2.5	2.3	1.8	2.2	1.8	1.6	1.6	1.7	1.6	1.5	1.4	-0.2	
Non-MSA	1.1	0.9	0.7	1.2	2.2	2.2	2.5	2.8	2.8	2.5	1.6	2.3	2.2	1.3	1.7	1.7	1.5	1.4	0.0	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	2.1	2.7	2.2	3.1	4.3	3.2	3.5	4.7	5.1	4.2	3.7	2.8	2.9	3.1	2.9	3.6	3.1	3.0	-0.2	
2.5–3.0	1.2	1.1	1.5	2.0	2.0	2.6	2.4	2.5	2.8	2.1	1.9	2.3	1.8	1.9	2.2	1.7	1.6	1.8	+0.2	
3.5–4.0	0.6	1.0	1.5	1.9	2.2	2.8	2.1	2.4	2.3	1.9	1.8	1.9	1.6	1.5	2.0	1.7	1.4	1.7	+0.2	
4.5–5.0	0.6	0.8	0.8	1.1	1.6	2.4	1.9	1.8	1.3	1.4	1.6	1.6	1.1	1.3	1.2	1.2	1.0	0.8	-0.2	
5.5–6.0 (High)	1.0	1.2	0.8	1.2	2.0	1.9	1.7	1.8	1.8	1.3	1.1	0.8	1.5	0.9	0.9	0.9	0.9	1.1	+0.2	
Race (2-year average): <sup>b</sup>																				
White	—	0.9	1.0	1.2	1.8	2.4	2.5	2.2	2.1	1.9	1.8	1.8	1.8	1.5	1.4	1.5	1.3	1.2	-0.1	
African American	—	0.6	0.5	0.6	0.5	0.4	0.3	0.5	0.7	0.6	0.5	0.5	0.6	0.8	0.9	0.7	0.6	0.6	0.0	
Hispanic	—	2.6	3.3	4.0	4.3	4.1	3.3	4.0	4.9	3.9	3.2	3.1	2.7	2.8	2.9	2.8	3.1	2.8	-0.3	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-32**  
**Other Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	2.1	1.7	1.8	2.4	3.0	3.5	4.1	4.0	4.4	3.8	3.0	3.4	2.8	3.3	3.0	2.9	3.1	2.6	-0.5	
Gender:																				
Male	2.0	1.9	2.2	2.7	3.1	3.7	4.1	4.1	4.6	4.2	3.3	3.6	2.9	3.6	3.3	3.0	3.2	2.7	-0.5	
Female	2.1	1.5	1.4	2.1	2.9	3.3	4.0	3.8	4.1	3.4	2.6	3.3	2.7	3.0	2.7	2.8	2.9	2.4	-0.5	
College Plans:																				
None or under 4 years	4.4	3.3	4.5	5.9	6.3	8.4	9.0	9.3	10.5	8.3	8.2	8.7	7.3	8.3	8.1	8.3	7.5	7.8	+0.3	
Complete 4 years	1.6	1.3	1.3	1.7	2.5	2.7	3.2	3.0	3.4	3.0	2.1	2.6	2.1	2.6	2.3	2.2	2.5	1.8	-0.6	s
Region:																				
Northeast	1.3	1.0	1.8	2.0	2.2	2.2	2.5	4.3	4.1	2.5	2.0	1.8	2.7	3.2	3.0	2.5	2.5	1.7	-0.8	
Midwest	1.6	1.3	1.3	1.8	2.5	3.4	3.4	3.1	3.9	4.0	3.0	3.2	2.3	3.0	3.0	2.8	3.3	2.2	-1.1	
South	1.9	1.6	1.7	2.2	2.9	3.5	4.8	3.7	4.7	3.9	3.2	3.3	3.1	3.2	2.6	2.9	3.3	3.2	-0.1	
West	3.4	3.1	3.2	4.3	4.8	5.2	5.3	5.2	4.6	4.6	3.9	5.5	3.2	4.1	3.6	3.5	3.0	2.7	-0.3	
Population Density:																				
Large MSA	1.6	1.5	1.4	1.9	2.8	3.3	3.9	3.8	3.7	3.7	2.5	3.1	2.2	2.9	2.7	2.6	3.1	2.4	-0.7	
Other MSA	2.6	2.0	2.0	2.7	3.1	3.9	3.8	4.0	4.5	3.7	3.2	3.7	2.8	3.4	3.1	3.0	2.9	2.9	0.0	
Non-MSA	1.4	1.4	1.9	2.5	3.1	3.2	4.9	4.2	4.8	4.0	3.2	3.3	4.1	3.6	3.3	3.4	3.3	2.0	-1.3	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	3.1	2.7	2.7	3.1	5.0	6.1	5.5	6.7	7.6	6.3	4.8	7.1	6.4	5.7	4.5	5.6	5.1	5.9	+0.8	
2.5–3.0	2.2	1.6	2.0	2.6	3.6	3.6	4.3	4.5	5.1	4.4	4.5	3.9	3.5	3.7	4.0	3.7	3.3	3.1	-0.3	
3.5–4.0	2.2	2.0	2.2	2.7	3.3	3.8	4.6	4.0	4.2	4.0	2.5	3.2	2.9	3.7	3.0	2.8	3.2	2.4	-0.8	
4.5–5.0	1.6	1.3	1.4	1.8	2.2	3.0	3.3	3.0	3.5	3.0	2.2	2.0	1.8	2.8	2.4	1.8	2.4	1.9	-0.5	
5.5–6.0 (High)	1.8	1.3	0.9	1.6	1.7	2.8	2.9	2.5	3.5	2.7	1.4	2.7	1.2	1.6	2.1	2.8	2.4	1.3	-1.1	
Race (2-year average): <sup>b</sup>																				
White	—	1.9	1.8	1.9	2.6	3.2	3.7	4.1	4.3	4.1	3.4	3.3	3.4	3.4	3.3	3.2	3.2	2.8	-0.3	
African American	—	0.5	0.5	0.9	0.8	0.6	0.6	0.9	0.8	0.5	0.5	0.7	0.7	0.7	0.8	0.9	0.6	0.7	0.0	
Hispanic	—	3.4	3.4	4.6	5.2	6.1	7.5	7.0	6.8	7.1	5.6	5.0	5.2	5.1	5.4	5.0	4.5	4.6	+0.1	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-33**  
**Other Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =													16,300	16,300	16,700	15,200	15,000
Total	—	—	—	—	—	—	—	—	—	—	—	—	9.8	7.4	5.2	4.6	3.2
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	—	10.1	8.0	6.5	5.8	3.7
Female	—	—	—	—	—	—	—	—	—	—	—	—	9.1	6.2	4.0	3.2	2.4
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	—	9.8	6.0	7.3	6.3	4.0
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	—	8.3	6.7	4.2	3.7	2.8
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	—	12.9	7.0	4.9	5.6	3.4
Midwest	—	—	—	—	—	—	—	—	—	—	—	—	8.2	5.6	4.8	3.7	2.9
South	—	—	—	—	—	—	—	—	—	—	—	—	5.8	5.8	4.6	4.1	2.8
West	—	—	—	—	—	—	—	—	—	—	—	—	15.3	13.4	7.5	6.1	3.9
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	—	13.3	9.8	5.6	5.0	3.7
Other MSA	—	—	—	—	—	—	—	—	—	—	—	—	8.9	7.8	5.4	4.7	3.3
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	—	8.0	4.5	4.4	4.1	2.5
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	—	5.3	4.9	3.3	3.4	3.5
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	—	10.5	6.5	4.6	5.0	3.5
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	—	10.5	7.2	5.1	4.7	3.2
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	—	9.0	7.7	6.1	4.1	2.7
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	—	9.7	9.0	6.5	5.4	2.4
Race (2-year average): <sup>b</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	—	9.3	7.0	5.3	4.2
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8	1.4	0.7	1.0
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	6.3	5.1	5.1	5.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one form in 1987–1989; N is one fifth of N indicated in 1987–1988 and one sixth of N indicated in 1989 in Table D-109. Data based on four of six forms beginning in 1990; N is four sixths of N indicated in Table D-109.

(Table continued on next page.)



**TABLE D-33 (cont.)**  
**Other Cocaine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months													2007–					
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
	Approximate wtd. N =																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	2.6	2.9	3.0	3.4	4.2	5.0	4.9	5.8	4.5	4.4	4.4	4.2	4.7	4.5	5.2	4.5	4.0	-0.5	
Gender:																			
Male	3.1	3.7	3.7	4.0	4.9	5.7	5.6	7.1	5.5	4.9	5.0	5.4	5.8	5.4	5.7	4.8	4.8	0.0	
Female	2.0	2.0	2.3	2.5	3.2	4.0	3.9	4.2	3.4	3.7	3.7	2.9	3.5	3.6	4.4	3.9	3.1	-0.8	
College Plans:																			
None or under 4 years	4.0	3.9	4.3	4.5	5.7	7.0	8.9	7.6	6.7	7.4	7.1	4.8	6.8	6.7	6.9	7.7	6.8	-1.0	
Complete 4 years	2.0	2.5	2.5	2.9	3.5	4.1	3.5	5.2	3.7	3.4	3.4	3.8	3.9	3.9	4.7	3.6	3.1	-0.4	
Region:																			
Northeast	2.8	2.3	2.8	4.2	5.2	5.9	4.7	4.1	3.7	4.4	4.3	5.3	4.4	4.3	6.2	5.3	4.4	-0.9	
Midwest	2.2	2.3	3.5	2.7	3.2	4.1	5.3	5.7	4.5	5.6	4.8	3.2	3.9	4.2	3.6	4.4	3.4	-1.1	
South	2.5	2.6	2.6	3.1	4.2	4.6	4.9	6.6	4.0	3.9	4.4	4.1	4.9	4.7	5.8	4.5	4.2	-0.3	
West	3.1	4.6	3.5	4.0	4.5	6.2	4.4	6.1	5.9	3.5	3.9	4.7	5.8	4.7	5.1	3.8	4.1	+0.3	
Population Density:																			
Large MSA	3.1	2.6	2.6	3.7	3.9	4.2	4.8	4.8	3.7	4.1	3.5	3.0	3.9	4.6	7.2	4.3	4.1	-0.2	
Other MSA	2.5	3.6	3.5	3.3	4.4	5.2	4.9	6.0	4.5	4.3	4.7	5.3	5.4	4.7	4.4	4.6	3.9	-0.7	
Non-MSA	2.3	2.0	2.6	3.1	4.2	5.6	4.9	6.7	5.4	5.0	4.9	3.9	4.2	4.0	3.8	4.6	4.2	-0.4	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	3.7	3.9	2.7	2.9	5.2	6.4	5.5	7.4	5.4	3.7	5.1	4.1	6.3	4.1	4.6	5.2	3.0	-2.3	
2.5–3.0	2.3	2.3	3.2	3.4	3.8	4.9	5.3	5.0	3.8	5.6	4.7	3.4	3.6	5.5	5.5	5.0	3.8	-1.1	
3.5–4.0	2.6	3.3	3.4	3.6	4.6	4.9	5.3	6.9	4.7	4.7	4.9	4.6	5.1	4.7	5.2	4.5	4.6	+0.1	
4.5–5.0	2.3	2.9	2.6	3.2	3.9	4.4	4.2	5.5	4.5	3.9	3.4	4.3	5.1	4.2	4.6	4.3	3.5	-0.8	
5.5–6.0 (High)	2.0	1.7	3.1	2.7	3.8	4.8	3.5	3.6	4.2	2.2	3.9	3.8	3.7	3.7	5.9	3.7	4.2	+0.5	
Race (2-year average): <sup>b</sup>																			
White	2.9	2.6	2.9	3.3	3.9	5.0	5.6	6.0	5.7	5.0	5.1	4.9	4.8	4.9	5.2	5.5	5.2	-0.3	
African American	1.0	0.7	0.8	0.8	0.7	0.7	0.6	0.8	1.0	0.9	0.8	1.0	1.1	1.2	1.4	1.2	0.7	-0.5	
Hispanic	4.3	5.1	5.1	4.0	5.6	6.9	6.0	5.8	6.6	5.8	4.7	3.9	4.8	5.8	5.7	4.8	3.7	-1.1	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-34**  
**Heroin: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months																2007- 2008	2008 change	
	1991	1992	1993	1994	1995 <sup>a</sup>	1996 <sup>a</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
	Approximate wtd. N =																		
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	0.7	0.7	0.7	1.2	1.4	1.6	1.3	1.3	1.4	1.1	1.0	0.9	0.9	1.0	0.8	0.8	0.8	0.9	0.0
Gender:																			
Male	0.9	0.8	0.8	1.3	1.6	1.5	1.4	1.5	1.4	1.0	1.0	0.8	0.8	0.9	0.8	0.6	0.8	0.9	+0.2
Female	0.5	0.7	0.5	0.9	1.2	1.5	1.1	1.1	1.3	1.2	1.0	1.0	0.9	1.0	0.8	0.9	0.9	0.7	-0.1
College Plans:																			
None or under 4 years	2.1	2.7	2.0	3.9	4.4	4.1	3.4	5.0	3.7	3.5	3.1	2.9	3.1	4.2	2.3	3.0	3.7	3.5	-0.1
Complete 4 years	0.4	0.4	0.5	0.7	1.0	1.1	1.1	0.9	1.1	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.6	+0.1
Region:																			
Northeast	0.5	0.6	0.7	1.3	1.4	1.8	1.1	1.1	1.3	1.1	1.1	0.8	0.7	1.1	0.7	0.4	0.5	0.7	+0.2
Midwest	0.4	0.8	0.5	1.1	1.4	1.6	1.4	1.3	1.6	1.4	1.0	1.0	1.0	0.8	0.5	0.7	0.8	1.0	+0.2
South	0.8	0.7	0.7	1.1	1.5	1.4	1.2	1.4	1.4	0.7	1.2	1.0	1.0	0.9	1.0	0.9	0.8	0.8	0.0
West	1.0	0.7	1.1	1.1	1.2	1.6	1.4	1.3	1.2	1.4	0.7	1.0	0.9	1.2	0.8	0.9	1.0	0.9	-0.1
Population Density:																			
Large MSA	0.5	0.7	0.7	1.2	1.2	1.4	1.0	1.0	1.3	1.0	0.9	0.7	0.8	1.2	0.6	0.7	0.5	1.2	+0.6 ss
Other MSA	0.7	0.8	0.9	1.2	1.5	1.7	1.3	1.3	1.4	1.1	1.0	1.0	0.9	1.0	0.8	0.9	0.9	0.8	-0.1
Non-MSA	0.8	0.7	0.4	1.0	1.5	1.5	1.5	1.6	1.5	1.0	1.1	1.1	1.2	0.6	1.0	0.8	1.0	0.6	-0.4
Parental Education: <sup>b</sup>																			
1.0-2.0 (Low)	1.5	1.4	0.8	2.0	2.6	2.0	2.3	3.5	2.8	1.7	2.6	1.2	2.1	1.9	0.5	1.8	1.9	2.3	+0.4
2.5-3.0	0.9	0.7	0.6	1.1	1.0	1.7	1.4	1.2	1.4	1.5	1.1	1.3	1.0	1.1	1.3	0.8	0.8	1.0	+0.1
3.5-4.0	0.6	0.6	0.7	1.3	1.6	1.7	1.0	1.1	1.2	0.7	1.0	0.9	0.8	1.0	1.0	0.8	0.6	0.7	+0.1
4.5-5.0	0.4	0.5	0.8	0.8	1.2	1.4	1.1	1.1	1.1	0.8	0.6	0.8	0.6	0.7	0.5	0.6	0.9	0.4	-0.5 s
5.5-6.0 (High)	0.5	0.8	0.6	1.3	1.6	1.0	1.5	1.4	1.8	1.0	0.8	0.6	0.7	0.6	0.4	0.4	0.4	1.2	+0.7 s
Race (2-year average): <sup>c</sup>																			
White	—	0.6	0.6	0.8	1.2	1.6	1.6	1.3	1.2	1.2	1.0	1.0	0.9	0.9	0.8	0.7	0.7	0.8	0.0
African American	—	0.4	0.3	0.6	0.7	0.5	0.4	0.5	0.7	0.5	0.6	0.6	0.5	0.7	0.5	0.4	0.4	0.4	0.0
Hispanic	—	1.4	1.4	1.5	1.8	2.1	1.7	1.7	2.2	2.0	1.4	1.2	1.4	1.7	1.5	1.1	1.2	1.3	+0.1

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 1995, the heroin question was changed in half of the forms. Separate questions were asked for use with and without injection. In 1996, the remaining forms were changed. Data presented here represent the combined data from all forms.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-35**  
**Heroin: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008				
	1991	1992	1993	1994	1995 <sup>a</sup>	1996 <sup>a</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	0.5	0.6	0.7	0.9	1.1	1.2	1.4	1.4	1.4	1.4	0.9	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.0	
Gender:																				
Male	0.7	0.8	0.9	1.0	1.3	1.5	1.6	1.7	1.7	1.5	1.0	1.3	0.8	1.0	1.1	0.9	0.9	1.0	+0.2	
Female	0.4	0.4	0.4	0.8	0.8	0.9	1.3	1.1	1.2	1.2	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.6	-0.2	
College Plans:																				
None or under 4 years	1.4	1.4	1.9	2.0	2.2	2.4	2.9	2.7	3.4	3.8	2.5	2.7	2.0	2.8	3.2	2.7	2.0	2.5	+0.5	
Complete 4 years	0.3	0.4	0.4	0.7	0.9	1.0	1.2	1.2	1.1	1.0	0.7	0.8	0.5	0.6	0.6	0.6	0.7	0.6	-0.1	
Region:																				
Northeast	0.4	0.6	0.6	0.6	0.9	0.9	1.3	1.8	1.9	1.5	1.0	0.9	0.6	1.1	1.3	0.9	1.1	0.7	-0.3	
Midwest	0.6	0.6	0.8	0.9	1.0	1.5	1.5	1.4	1.3	1.6	1.1	1.2	0.7	0.7	1.0	0.9	0.7	1.0	+0.2	
South	0.6	0.5	0.6	1.0	1.3	1.4	1.5	1.3	1.4	1.5	0.9	0.8	0.9	1.0	0.8	0.9	0.8	0.9	+0.1	
West	0.4	0.8	0.5	1.2	1.0	1.0	1.3	1.1	1.1	0.7	0.7	1.4	0.7	0.8	0.8	0.7	0.9	0.7	-0.2	
Population Density:																				
Large MSA	0.6	0.6	0.7	0.8	1.0	1.1	1.6	1.2	1.2	1.8	0.9	0.9	0.6	0.9	0.8	0.7	0.9	0.6	-0.3	
Other MSA	0.5	0.6	0.6	0.9	1.0	1.3	1.3	1.5	1.4	1.2	1.0	1.0	0.8	0.9	1.0	0.9	0.8	0.8	0.0	
Non-MSA	0.4	0.6	0.7	1.0	1.3	1.2	1.6	1.5	1.6	1.2	0.9	1.4	0.9	0.7	0.9	1.0	0.7	1.1	+0.4	
Parental Education: <sup>b</sup>																				
1.0–2.0 (Low)	0.4	0.5	1.2	1.3	1.8	1.0	1.3	1.7	2.4	1.3	1.1	2.0	1.1	1.5	1.7	1.4	1.8	1.9	+0.1	
2.5–3.0	0.8	0.7	0.7	0.8	1.0	1.2	1.3	1.2	1.5	1.7	1.3	0.8	0.8	1.0	1.2	0.9	0.8	0.5	-0.3	
3.5–4.0	0.5	0.6	0.8	0.9	1.2	1.3	1.6	1.6	1.2	1.5	0.6	1.1	0.7	0.8	0.8	0.6	0.8	1.1	+0.3	
4.5–5.0	0.4	0.5	0.3	0.9	0.9	1.1	1.5	1.3	1.4	1.3	0.8	0.7	0.6	0.7	0.8	0.7	0.7	0.6	-0.1	
5.5–6.0 (High)	0.4	0.5	0.8	0.9	0.9	1.5	1.1	1.3	1.2	1.1	0.9	1.6	0.3	0.5	0.6	1.2	0.5	0.6	+0.1	
Race (2-year average): <sup>c</sup>																				
White	—	0.6	0.7	0.8	1.0	1.2	1.4	1.4	1.5	1.5	1.2	1.0	0.9	0.8	0.9	1.0	0.8	0.7	-0.1	
African American	—	0.3	0.4	0.6	0.6	0.2	0.2	0.4	0.5	0.5	0.5	0.3	0.3	0.4	0.6	0.6	0.4	0.5	+0.1	
Hispanic	—	0.7	0.7	0.7	1.0	1.0	1.3	1.6	1.7	1.4	1.4	1.1	1.1	1.2	1.2	1.2	1.0	1.0	0.0	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 1995, the heroin question was changed in half of the forms. Separate questions were asked for use with and without injection. In 1996, the remaining forms were changed. Data presented here represent the combined data from all forms.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-36**  
**Heroin: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

		Percentage who used in last 12 months																
		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =		9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total		1.0	0.8	0.8	0.8	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.4
Gender:																		
Male		1.2	1.0	1.2	1.1	0.6	0.6	0.6	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.9	0.6	0.6
Female		0.8	0.5	0.4	0.6	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3
College Plans:																		
None or under 4 years		—	0.9	1.1	1.0	0.7	0.6	0.5	0.7	0.9	0.6	0.7	0.8	0.5	0.8	0.9	0.6	0.5
Complete 4 years		—	0.6	0.5	0.6	0.3	0.3	0.5	0.4	0.3	0.4	0.5	0.4	0.4	0.3	0.5	0.4	0.4
Region:																		
Northeast		1.1	0.7	0.7	0.6	0.6	0.5	0.5	0.9	0.6	0.6	0.8	0.7	0.6	0.5	0.9	0.8	0.2
Midwest		1.3	1.0	1.0	0.8	0.5	0.7	0.6	0.5	0.4	0.6	0.6	0.4	0.6	0.3	0.6	0.3	0.8
South		0.9	0.7	0.9	1.1	0.6	0.3	0.5	0.5	0.7	0.5	0.6	0.5	0.4	0.5	0.6	0.5	0.4
West		0.7	0.6	0.5	0.8	0.2	0.4	0.5	0.3	0.5	0.4	0.3	0.5	0.5	0.7	0.7	0.3	0.3
Population Density:																		
Large MSA		1.3	1.0	0.5	0.7	0.4	0.3	0.3	0.7	0.6	0.6	0.7	0.7	0.3	0.4	0.5	0.4	0.4
Other MSA		0.9	1.0	0.8	0.8	0.6	0.5	0.5	0.4	0.4	0.4	0.7	0.4	0.6	0.5	0.7	0.5	0.4
Non-MSA		1.0	0.4	1.1	1.0	0.5	0.6	0.7	0.6	0.7	0.7	0.4	0.5	0.5	0.5	0.8	0.5	0.6
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)		1.2	0.8	0.8	0.8	0.6	0.6	0.4	0.4	0.5	0.6	0.8	0.9	0.5	0.5	0.9	0.8	0.5
2.5–3.0		0.8	0.9	0.8	0.9	0.5	0.6	0.6	0.7	0.6	0.5	0.5	0.4	0.4	0.7	0.7	0.4	0.4
3.5–4.0		0.6	0.8	0.9	0.7	0.4	0.4	0.5	0.3	0.5	0.5	0.5	0.5	0.6	0.4	0.6	0.4	0.4
4.5–5.0		1.2	1.4	0.6	0.9	0.6	0.4	0.3	0.6	0.4	0.4	0.7	0.3	0.3	0.3	0.6	0.4	0.6
5.5–6.0 (High)		1.2	0.6	1.1	1.0	0.8	0.4	0.7	1.1	0.8	0.5	0.6	0.5	0.7	0.4	0.4	0.5	0.5
Race (2-year average): <sup>b</sup>																		
White		—	—	—	0.8	0.8	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.6	0.5
African American		—	—	—	0.6	0.6	0.5	0.6	0.7	0.6	0.4	0.5	0.5	0.5	0.7	0.6	0.3	0.2
Hispanic		—	—	—	1.2	2.0	1.7	0.4	0.3	0.4	0.6	1.1	1.0	0.9	0.5	0.5	0.6	0.6

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

↑  
Cont.

**TABLE D-36 (cont.)**  
**Heroin: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																2007–		
	1992	1993	1994	1995 <sup>c</sup>	1996 <sup>c</sup>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wttd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	0.6	0.5	0.6	1.1	1.0	1.2	1.0	1.1	1.5	0.9	1.0	0.8	0.9	0.8	0.8	0.9	0.7	-0.2	
Gender:																			
Male	0.8	0.7	0.8	1.4	1.3	1.5	1.4	1.4	1.7	1.3	1.1	0.8	1.2	1.2	1.0	1.2	1.0	-0.2	
Female	0.3	0.3	0.4	0.8	0.7	0.9	0.7	0.8	1.2	0.6	0.8	0.5	0.4	0.5	0.4	0.6	0.4	-0.2	
College Plans:																			
None or under 4 years	0.9	1.0	1.1	1.5	1.8	1.8	1.7	1.3	2.2	1.3	2.3	0.9	1.6	1.8	1.3	2.2	1.4	-0.7	
Complete 4 years	0.5	0.4	0.5	0.9	0.8	1.0	0.8	1.0	1.1	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.5	-0.2	
Region:																			
Northeast	0.5	0.9	0.7	1.0	1.6	1.7	1.3	1.2	1.0	1.2	1.2	0.8	0.9	1.0	1.1	1.1	0.7	-0.5	
Midwest	0.6	0.5	0.9	0.7	0.7	0.9	1.0	0.9	1.4	1.3	1.0	0.6	0.6	0.8	0.4	0.8	0.6	-0.3	
South	0.6	0.4	0.6	1.4	1.0	1.1	1.1	1.3	1.6	0.6	1.2	1.0	1.0	0.9	0.8	0.9	0.7	-0.2	
West	0.8	0.5	0.4	1.0	0.9	1.2	0.6	0.9	1.8	0.8	0.5	0.5	0.9	0.7	0.7	0.9	1.0	+0.1	
Population Density:																			
Large MSA	0.4	0.6	0.4	1.4	1.1	1.1	0.9	0.8	1.9	1.1	1.0	0.7	0.8	0.8	1.0	0.9	0.9	0.0	
Other MSA	0.7	0.5	0.8	0.9	1.1	1.3	1.3	1.3	1.3	0.8	1.0	0.8	1.0	0.9	0.6	0.9	0.8	-0.1	
Non-MSA	0.7	0.5	0.5	1.0	0.9	1.0	0.6	1.0	1.3	0.9	1.1	0.9	0.6	0.8	0.6	1.0	0.5	-0.5 s	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	0.7	0.3	0.9	1.8	1.1	2.1	1.2	2.3	2.3	1.3	2.1	1.1	1.4	1.0	1.2	1.7	1.3	-0.4	
2.5–3.0	0.6	0.4	0.8	1.1	0.9	1.0	1.0	0.9	1.6	0.5	1.0	0.7	0.9	1.2	0.9	1.0	0.5	-0.5 s	
3.5–4.0	0.6	0.6	0.4	0.9	1.1	1.2	1.2	1.0	1.3	1.0	0.9	0.8	0.7	0.8	0.7	0.8	0.9	+0.1	
4.5–5.0	0.7	0.7	0.3	1.1	1.0	1.1	1.0	1.1	1.5	1.0	0.7	0.6	0.9	0.5	0.5	0.9	0.5	-0.4	
5.5–6.0 (High)	0.3	0.4	0.9	1.0	0.8	1.1	0.7	1.1	1.1	0.8	1.0	0.6	0.6	0.8	0.7	0.5	0.7	+0.2	
Race (2-year average): <sup>b</sup>																			
White	0.5	0.5	0.5	0.8	1.0	1.2	1.2	1.1	1.3	1.3	1.0	0.8	0.7	0.7	0.7	0.9	0.9	0.0	
African American	0.5	0.4	0.3	0.4	0.5	0.5	0.4	0.3	0.5	0.4	0.5	0.7	0.7	0.8	0.7	0.5	0.4	-0.1	
Hispanic	0.9	0.7	0.5	1.2	1.5	1.1	0.8	1.0	2.0	1.6	0.8	0.8	1.0	1.3	1.2	1.1	0.9	-0.2	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>c</sup>In 1995, the heroin question was changed in half of the forms. Separate questions were asked for use with and without injection. Data presented here represent the combined data from all forms.

**TABLE D-37**  
**Heroin with a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	—	—	—	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	—	—	—	—	0.9	1.0	0.8	0.8	0.9	0.6	0.7	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.0
Gender:																			
Male	—	—	—	—	1.2	1.0	0.8	1.0	1.0	0.7	0.7	0.6	0.7	0.7	0.6	0.4	0.5	0.6	+0.1
Female	—	—	—	—	0.5	1.0	0.7	0.7	0.8	0.6	0.7	0.6	0.5	0.7	0.6	0.6	0.5	0.4	-0.1
College Plans:																			
None or under 4 years	—	—	—	—	3.2	3.1	2.0	3.1	2.2	2.1	2.2	1.9	2.0	3.1	1.5	2.1	2.7	2.1	-0.6
Complete 4 years	—	—	—	—	0.6	0.7	0.6	0.6	0.7	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.4	+0.1
Region:																			
Northeast	—	—	—	—	0.8	1.3	0.5	0.6	1.0	0.8	0.9	0.6	0.4	0.7	0.4	0.3	0.4	0.5	+0.1
Midwest	—	—	—	—	0.9	1.1	0.7	0.9	1.2	0.9	0.7	0.8	0.6	0.6	0.3	0.4	0.6	0.5	0.0
South	—	—	—	—	0.8	0.9	0.8	1.0	0.9	0.3	0.9	0.6	0.7	0.6	0.8	0.6	0.6	0.5	-0.1
West	—	—	—	—	1.0	1.0	1.0	0.8	0.7	0.8	0.3	0.6	0.7	0.9	0.6	0.7	0.6	0.6	0.0
Population Density:																			
Large MSA	—	—	—	—	0.9	0.7	0.6	0.8	0.8	0.7	0.7	0.4	0.5	1.0	0.3	0.5	0.3	0.7	+0.3 s
Other MSA	—	—	—	—	0.9	1.2	0.8	0.8	0.9	0.6	0.6	0.7	0.6	0.7	0.7	0.6	0.6	0.5	-0.1
Non-MSA	—	—	—	—	0.9	1.1	0.9	1.1	1.1	0.7	1.0	0.8	0.9	0.5	0.7	0.4	0.7	0.3	-0.3
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	1.3	0.9	1.5	2.3	2.0	1.2	2.0	1.1	1.6	1.6	0.3	1.4	1.3	1.6	+0.3
2.5–3.0	—	—	—	—	0.5	1.2	0.8	0.8	0.9	0.5	0.7	0.9	0.6	0.8	1.0	0.5	0.6	0.5	-0.1
3.5–4.0	—	—	—	—	0.8	1.2	0.6	0.6	0.9	0.4	0.6	0.6	0.4	0.7	0.7	0.4	0.3	0.4	+0.1
4.5–5.0	—	—	—	—	1.0	0.8	0.7	0.7	0.5	0.4	0.5	0.5	0.5	0.6	0.3	0.4	0.6	0.3	-0.2
5.5–6.0 (High)	—	—	—	—	1.0	0.6	0.9	0.9	1.2	0.9	0.7	0.4	0.5	0.5	0.3	0.2	0.3	0.7	+0.4
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	1.1	1.0	0.7	0.8	0.7	0.6	0.7	0.6	0.6	0.5	0.4	0.5	0.5	0.0
African American	—	—	—	—	—	0.3	0.2	0.3	0.4	0.3	0.5	0.5	0.4	0.5	0.4	0.3	0.2	0.2	0.0
Hispanic	—	—	—	—	—	1.1	1.0	1.1	1.5	1.2	0.8	0.7	0.9	1.3	1.1	0.9	0.9	1.0	0.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1995; N is one half of N indicated in Table D-107.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-38**  
**Heroin with a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	—	—	—	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	—	—	—	—	0.6	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Gender:																			
Male	—	—	—	—	0.8	0.8	0.9	1.0	0.8	0.6	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.6	+0.1
Female	—	—	—	—	0.4	0.4	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.4	-0.1
College Plans:																			
None or under 4 years	—	—	—	—	1.6	1.4	1.5	1.6	1.7	1.7	1.4	1.5	1.4	1.6	1.6	1.3	1.3	1.7	+0.4
Complete 4 years	—	—	—	—	0.4	0.5	0.6	0.6	0.5	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	-0.1
Region:																			
Northeast	—	—	—	—	0.5	0.3	0.6	0.8	0.7	0.5	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.4	-0.2
Midwest	—	—	—	—	0.6	1.0	0.8	0.9	0.7	0.5	0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.5	+0.1
South	—	—	—	—	0.6	0.7	0.8	0.8	0.6	0.6	0.3	0.5	0.5	0.5	0.4	0.6	0.4	0.6	+0.2
West	—	—	—	—	0.5	0.5	0.6	0.6	0.6	0.4	0.5	0.8	0.5	0.5	0.6	0.3	0.6	0.5	-0.2
Population Density:																			
Large MSA	—	—	—	—	0.5	0.5	0.6	0.7	0.6	0.6	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.4	-0.1
Other MSA	—	—	—	—	0.5	0.7	0.6	0.7	0.5	0.4	0.5	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.0
Non-MSA	—	—	—	—	0.8	0.8	1.1	1.0	1.0	0.6	0.4	1.0	0.6	0.3	0.5	0.7	0.4	0.7	+0.2
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	1.6	0.6	0.7	1.3	1.2	1.0	0.5	1.2	0.8	1.0	1.4	1.0	1.3	1.7	+0.4
2.5–3.0	—	—	—	—	0.5	0.8	0.6	0.6	0.7	0.8	0.7	0.3	0.4	0.5	0.6	0.5	0.5	0.2	-0.3
3.5–4.0	—	—	—	—	0.7	0.7	0.9	0.9	0.6	0.5	0.2	0.6	0.5	0.4	0.4	0.4	0.4	0.5	+0.1
4.5–5.0	—	—	—	—	0.4	0.5	0.7	0.6	0.6	0.3	0.3	0.3	0.5	0.3	0.4	0.3	0.5	0.3	-0.2
5.5–6.0 (High)	—	—	—	—	0.3	0.6	0.7	0.8	0.6	0.3	0.5	1.1	0.2	0.3	0.3	1.0	0.2	0.3	+0.1
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	0.6	0.7	0.7	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.4	0.4	-0.1
African American	—	—	—	—	—	0.1	0.1	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.5	0.4	0.2	0.4	+0.1
Hispanic	—	—	—	—	—	0.6	0.6	0.8	1.0	0.9	0.9	0.7	0.7	0.8	0.8	0.8	0.6	0.7	+0.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1995; N is one half of N indicated in Table D-108.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-39**  
**Heroin with a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–				
	1975–	1980–	1990–	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Approximate wtd. N =	—	—	—	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	14,000	
Total	—	—	—	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.0	
Gender:																			
Male	—	—	—	0.7	0.9	0.9	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.5	0.6	+0.1	
Female	—	—	—	0.3	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.3	0.1	0.3	0.3	0.1	0.1	0.0	
College Plans:																			
None or under 4 years	—	—	—	0.9	1.2	0.9	0.8	0.5	1.0	0.7	0.9	0.4	1.0	0.9	1.0	1.0	1.0	0.0	
Complete 4 years	—	—	—	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.3	0.4	0.2	0.4	0.3	0.2	0.2	0.0	
Region:																			
Northeast	—	—	—	0.4	0.6	0.6	0.7	0.3	0.2	0.7	0.6	0.6	0.6	0.6	0.8	0.7	0.3	-0.4	
Midwest	—	—	—	0.5	0.4	0.8	0.4	0.5	0.4	0.2	0.6	0.3	0.2	0.7	0.1	0.1	0.3	+0.3	
South	—	—	—	0.4	0.6	0.3	0.5	0.4	0.8	0.1	0.3	0.6	0.4	0.4	0.6	0.4	0.3	-0.1	
West	—	—	—	0.8	0.5	0.5	0.1	0.3	0.1	0.4	0.2	0.2	0.5	0.3	0.3	0.2	0.5	+0.2	
Population Density:																			
Large MSA	—	—	—	0.6	0.7	0.3	0.3	0.4	0.8	0.4	0.5	0.5	0.6	0.4	0.7	0.6	0.2	-0.3	
Other MSA	—	—	—	0.4	0.5	0.6	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.6	0.4	0.2	0.5	+0.3 s	
Non-MSA	—	—	—	0.6	0.3	0.7	0.5	0.6	0.3	0.2	0.5	0.4	0.2	0.5	0.4	0.4	0.2	-0.2	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	0.7	0.9	1.8	0.8	1.5	1.2	0.7	0.8	0.5	0.2	0.8	1.0	1.0	0.9	-0.1	
2.5–3.0	—	—	—	0.6	0.5	0.4	0.5	0.1	0.4	0.3	0.4	0.7	0.6	0.5	0.5	0.4	0.3	-0.1	
3.5–4.0	—	—	—	0.2	0.3	0.3	0.4	0.5	0.2	0.1	0.5	0.3	0.3	0.4	0.5	0.2	0.4	+0.2	
4.5–5.0	—	—	—	0.5	0.7	0.6	0.4	0.3	0.4	0.4	0.2	0.4	0.4	0.3	0.2	0.2	0.3	0.0	
5.5–6.0 (High)	—	—	—	0.6	0.5	0.5	0.2	0.4	0.2	0.3	0.2	0.3	0.4	0.4	0.6	0.3	0.2	-0.1	
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	0.4	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.0	
African American	—	—	—	—	—	—	0.2	0.5	0.4	0.2	0.5	0.4	0.5	0.6	0.7	0.4	0.3	-0.1	
Hispanic	—	—	—	—	—	—	1.0	0.7	0.5	0.6	1.0	0.6	0.7	0.8	0.9	0.7	0.4	-0.3	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on three of six forms; N is three sixths of N indicated in Table D-109.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-40**  
**Heroin without a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate <i>wt</i> d. <i>N</i> =	—	—	—	—	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	—	—	—	—	0.8	1.0	0.8	0.8	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	+0.1
Gender:																			
Male	—	—	—	—	1.0	0.9	0.9	0.9	0.8	0.5	0.6	0.6	0.6	0.4	0.4	0.5	0.4	0.6	+0.1
Female	—	—	—	—	0.6	0.9	0.7	0.8	0.8	0.6	0.6	0.7	0.6	0.7	0.5	0.6	0.5	0.6	+0.1
College Plans:																			
None or under 4 years	—	—	—	—	3.2	2.1	2.2	3.4	2.7	2.4	1.9	1.7	2.3	2.5	1.6	2.3	1.9	2.6	+0.7
Complete 4 years	—	—	—	—	0.5	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	+0.1
Region:																			
Northeast	—	—	—	—	0.9	1.1	0.8	0.7	0.7	0.6	0.7	0.3	0.5	0.6	0.5	0.2	0.2	0.4	+0.2
Midwest	—	—	—	—	1.0	1.0	0.9	0.9	1.0	0.8	0.6	0.7	0.8	0.4	0.3	0.7	0.5	0.8	+0.3
South	—	—	—	—	0.8	0.8	0.7	0.9	0.9	0.5	0.6	0.7	0.7	0.6	0.6	0.6	0.4	0.7	+0.3
West	—	—	—	—	0.7	1.1	1.1	0.9	0.9	0.8	0.5	0.7	0.5	0.7	0.4	0.5	0.7	0.5	-0.2
Population Density:																			
Large MSA	—	—	—	—	0.9	1.0	0.6	0.5	0.8	0.7	0.5	0.6	0.6	0.7	0.4	0.4	0.3	0.8	+0.5 ss
Other MSA	—	—	—	—	0.8	1.0	0.9	1.0	0.8	0.8	0.8	0.5	0.6	0.6	0.5	0.5	0.5	0.5	+0.1
Non-MSA	—	—	—	—	0.9	0.9	1.0	1.0	1.1	0.5	0.4	0.8	0.7	0.3	0.6	0.7	0.7	0.4	-0.3
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	1.9	1.5	1.3	2.4	1.7	1.1	1.3	0.5	1.4	1.5	0.2	1.4	1.0	1.6	+0.6
2.5–3.0	—	—	—	—	0.7	0.9	1.1	0.7	1.0	1.3	0.6	0.8	0.6	0.6	0.9	0.6	0.4	0.8	+0.4
3.5–4.0	—	—	—	—	0.5	1.2	0.5	0.8	0.6	0.5	0.6	0.6	0.7	0.6	0.5	0.6	0.3	0.4	+0.1
4.5–5.0	—	—	—	—	0.8	0.8	0.8	0.6	0.8	0.5	0.5	0.6	0.4	0.4	0.3	0.4	0.7	0.3	-0.3
5.5–6.0 (High)	—	—	—	—	0.7	0.8	1.0	1.1	1.1	0.3	0.4	0.4	0.5	0.3	0.1	0.3	0.3	0.8	+0.5 s
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: *s* = .05, *ss* = .01, *sss* = .001. “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1995; *N* is one half of *N* indicated in Table D-107.

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-41**  
**Heroin without a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months													2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wd. N =	—	—	—	—	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	—	—	—	—	0.8	0.9	1.1	1.0	1.1	1.1	0.7	0.8	0.5	0.7	0.6	0.6	0.6	0.6	0.0
Gender:																			
Male	—	—	—	—	0.9	1.1	1.2	1.2	1.3	1.1	0.8	0.9	0.6	0.8	0.7	0.6	0.6	0.8	+0.2
Female	—	—	—	—	0.7	0.7	1.0	0.8	1.0	1.0	0.6	0.6	0.4	0.5	0.6	0.6	0.5	0.4	-0.1
College Plans:																			
None or under 4 years	—	—	—	—	1.7	1.8	2.1	1.8	2.5	2.7	1.7	2.2	1.4	2.2	2.3	2.0	1.1	1.6	+0.5
Complete 4 years	—	—	—	—	0.6	0.7	1.0	0.9	0.8	0.8	0.5	0.6	0.4	0.5	0.4	0.4	0.5	0.4	0.0
Region:																			
Northeast	—	—	—	—	0.5	0.7	1.0	1.4	1.6	1.2	0.8	0.7	0.4	0.9	0.9	0.8	0.7	0.6	-0.2
Midwest	—	—	—	—	0.5	0.8	1.2	0.7	1.0	1.2	0.8	0.9	0.5	0.5	0.8	0.6	0.5	0.8	+0.3
South	—	—	—	—	1.1	1.1	1.2	1.0	1.0	1.3	0.7	0.5	0.7	0.7	0.6	0.6	0.6	0.6	0.0
West	—	—	—	—	0.9	0.9	1.0	0.8	0.8	0.5	0.5	1.2	0.4	0.5	0.5	0.5	0.5	0.4	-0.1
Population Density:																			
Large MSA	—	—	—	—	0.9	0.9	1.3	0.8	0.9	1.5	0.8	0.6	0.4	0.6	0.7	0.5	0.7	0.5	-0.2
Other MSA	—	—	—	—	0.7	1.0	1.0	1.1	1.2	1.0	0.7	0.8	0.6	0.8	0.7	0.6	0.5	0.6	+0.1
Non-MSA	—	—	—	—	0.9	0.7	1.1	1.0	1.2	0.9	0.7	1.0	0.6	0.5	0.6	0.8	0.6	0.8	+0.2
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	1.7	0.8	0.9	1.2	1.8	1.1	0.9	1.5	0.9	1.0	1.1	1.2	0.9	1.1	+0.2
2.5–3.0	—	—	—	—	0.6	0.7	1.0	1.0	1.1	1.1	0.9	0.7	0.7	0.7	0.9	0.6	0.6	0.4	-0.2
3.5–4.0	—	—	—	—	0.9	1.0	1.3	1.2	0.9	1.3	0.5	0.8	0.4	0.7	0.6	0.5	0.6	0.8	+0.2
4.5–5.0	—	—	—	—	0.5	0.8	1.1	1.0	1.0	1.0	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.0
5.5–6.0 (High)	—	—	—	—	0.9	1.1	1.0	0.7	1.1	1.1	0.6	1.1	0.1	0.4	0.5	0.4	0.3	0.4	+0.1
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1995; N is one half of N indicated in Table D-108.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-42**  
**Heroin without a Needle: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–	2008		
	1975–	1980–	1990–	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	—	—	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	—	—	1.0	1.0	1.2	0.8	1.0	1.6	0.8	0.8	0.8	0.7	0.8	0.6	1.0	0.5	-0.5 ss
Gender:																		
Male	—	—	—	1.4	1.3	1.4	1.0	1.3	1.8	1.3	0.9	0.9	0.9	1.1	0.8	1.2	0.7	-0.6 s
Female	—	—	—	0.7	0.7	0.9	0.7	0.8	1.5	0.4	0.7	0.7	0.4	0.5	0.3	0.6	0.3	-0.3
College Plans:																		
None or under 4 years	—	—	—	1.4	1.7	1.6	1.3	1.5	2.7	1.3	2.2	0.8	1.5	1.7	1.2	2.6	1.0	-1.5 s
Complete 4 years	—	—	—	0.9	0.8	1.0	0.6	1.0	1.3	0.7	0.4	0.7	0.4	0.6	0.4	0.7	0.3	-0.3 s
Region:																		
Northeast	—	—	—	0.9	1.9	1.9	1.1	1.3	0.9	1.3	1.1	0.6	1.1	1.1	1.0	1.1	0.7	-0.4
Midwest	—	—	—	0.7	0.5	1.0	0.6	0.7	1.6	1.1	0.9	0.7	0.4	0.7	0.2	0.9	0.3	-0.6
South	—	—	—	1.4	0.9	1.1	1.1	1.2	1.8	0.3	0.9	1.2	0.5	0.7	0.7	1.0	0.3	-0.6 s
West	—	—	—	0.8	0.7	0.6	0.3	1.0	2.0	0.9	0.4	0.3	1.0	0.7	0.6	0.9	0.8	-0.1
Population Density:																		
Large MSA	—	—	—	1.3	1.1	1.2	0.9	0.9	2.5	1.0	0.6	0.8	0.8	0.7	0.8	0.9	0.5	-0.4
Other MSA	—	—	—	0.8	1.2	1.1	0.9	1.2	1.2	0.8	1.1	0.7	0.9	0.7	0.4	0.9	0.6	-0.3
Non-MSA	—	—	—	1.0	0.4	1.2	0.4	0.8	1.4	0.7	0.6	1.0	0.2	1.0	0.5	1.2	0.3	-0.9 s
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	—	—	—	1.0	0.8	1.7	0.5	2.0	2.7	1.5	1.8	1.0	1.1	1.1	1.2	2.2	0.7	-1.5
2.5–3.0	—	—	—	1.1	0.6	0.8	1.1	1.1	1.8	0.5	0.9	0.9	0.8	1.0	0.5	0.9	0.5	-0.4
3.5–4.0	—	—	—	0.9	1.1	1.3	0.9	0.8	1.7	0.8	1.0	0.7	0.6	0.9	0.5	0.8	0.3	-0.5 s
4.5–5.0	—	—	—	1.2	1.2	1.2	0.8	1.1	1.6	1.1	0.2	0.8	0.7	0.5	0.4	0.8	0.6	-0.3
5.5–6.0 (High)	—	—	—	0.6	1.0	1.0	0.5	1.0	0.6	0.8	0.8	0.7	0.3	0.5	0.7	0.7	0.6	-0.1
Race (2-year average): <sup>b</sup>																		
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on three of six forms; N is three sixths of N indicated in Table D-109.

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-43**  
**Narcotics other than Heroin:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Percentage who used in last 12 months																
	↑ Cont.																
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	5.7	5.7	6.4	6.0	6.2	6.3	5.9	5.3	5.1	5.2	5.9	5.2	5.3	4.6	4.4	4.5	3.5
Gender:																	
Male	6.6	6.8	7.3	6.9	7.3	7.1	6.5	6.0	6.0	6.2	6.8	5.9	5.6	5.1	4.9	5.0	3.9
Female	4.8	4.7	5.4	5.1	5.1	5.4	5.3	4.6	4.2	4.2	5.1	4.6	4.9	4.1	3.8	3.9	3.1
College Plans:																	
None or under 4 years	—	6.8	8.0	6.8	7.3	7.4	7.2	6.1	6.1	6.1	6.6	6.7	6.1	4.8	5.3	5.7	3.8
Complete 4 years	—	4.6	4.7	4.9	5.0	5.1	4.8	4.6	4.3	4.3	5.4	4.3	4.8	4.6	3.9	4.0	3.5
Region:																	
Northeast	6.1	6.5	6.6	6.8	7.0	5.7	7.2	5.6	5.6	6.7	7.3	5.7	6.0	3.7	4.7	4.1	3.2
Midwest	6.2	6.2	7.5	6.7	6.1	7.6	6.2	5.5	5.3	4.8	6.3	5.8	5.2	4.4	5.7	4.6	4.2
South	4.9	5.0	5.2	4.5	5.2	5.0	4.1	4.5	4.4	4.5	3.8	4.2	4.3	4.7	3.2	4.1	2.7
West	5.4	5.0	6.0	6.7	7.1	6.8	7.2	6.2	5.2	5.3	7.1	5.4	6.1	5.7	4.9	5.3	4.4
Population Density:																	
Large MSA	7.3	6.7	6.7	6.9	7.3	6.9	6.9	5.2	6.0	5.2	6.0	4.8	5.2	4.0	4.1	3.8	3.3
Other MSA	5.5	6.1	6.3	5.9	6.3	7.0	6.3	5.7	5.3	5.1	6.4	5.6	5.3	5.2	4.9	4.6	3.9
Non-MSA	4.8	4.6	6.2	5.4	5.3	4.8	4.8	4.9	4.1	5.2	5.2	5.0	5.2	4.4	3.8	4.8	3.1
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	5.4	5.0	5.1	5.0	5.2	5.2	4.8	4.8	4.8	4.7	4.5	4.7	4.1	3.9	3.6	3.8	3.8
2.5–3.0	5.1	5.9	6.4	6.2	5.9	5.8	5.6	4.9	5.0	5.2	5.5	5.0	4.4	4.3	4.0	4.1	3.2
3.5–4.0	4.2	6.3	6.7	6.0	6.3	6.9	6.6	5.2	4.5	5.1	6.5	6.0	5.6	4.3	4.6	4.6	3.7
4.5–5.0	6.4	6.3	6.6	6.4	6.7	7.0	6.3	6.4	6.0	5.6	6.4	4.8	5.4	5.4	4.2	4.7	3.6
5.5–6.0 (High)	6.5	6.5	7.9	6.1	7.8	6.8	6.8	7.1	5.3	4.9	6.8	5.4	7.8	5.6	6.4	5.7	4.1
Race (2-year average): <sup>c</sup>																	
White	—	—	—	6.6	6.7	6.8	6.7	6.2	5.8	5.7	6.3	6.3	6.0	5.8	5.3	5.2	4.7
African American	—	—	—	2.2	2.0	1.8	1.7	1.9	1.8	1.6	1.6	1.7	1.6	1.5	1.5	1.4	1.1
Hispanic	—	—	—	3.8	3.5	3.5	3.7	4.3	4.1	4.0	4.2	3.6	2.4	2.2	2.5	2.4	2.3

Source: The Monitoring the Future study, the University of Michigan.

Notes: "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-43 (cont.)**  
**Narcotics other than Heroin:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–	2008			
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 <sup>d</sup>	2003 <sup>d</sup>	2004	2005	2006	2007 <sup>e</sup>	2008	change	
<i>Approximate wtd. N =</i>	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	3.3	3.6	3.8	4.7	5.4	6.2	6.3	6.7	7.0	6.7†	9.4	9.3	9.5	9.0	9.0	9.2	9.1	0.0	
Gender:																			
Male	3.3	3.6	4.3	5.6	6.4	7.1	7.4	8.2	8.0	8.0†	11.6	10.7	10.9	10.7	10.3	10.9	10.6	-0.2	
Female	3.3	3.3	3.4	3.8	4.4	5.4	5.1	5.2	5.9	5.6†	7.4	7.8	8.1	7.4	7.8	7.6	7.9	+0.3	
College Plans:																			
None or under 4 years	4.3	4.2	4.9	5.6	7.0	8.2	8.4	7.0	7.8	7.5†	12.4	12.3	12.4	12.2	12.4	12.9	13.1	+0.2	
Complete 4 years	3.0	3.3	3.5	4.4	4.9	5.7	5.5	6.6	6.6	6.4†	8.8	8.4	8.7	8.3	8.1	8.3	8.3	0.0	
Region:																			
Northeast	3.7	4.6	3.5	4.3	6.1	7.8	6.5	6.2	6.7	7.2†	10.6	9.3	9.9	8.3	10.1	9.3	9.7	+0.4	
Midwest	3.6	3.2	4.7	5.2	6.0	6.1	6.5	7.5	7.2	7.8†	8.8	9.1	8.7	10.7	9.9	10.5	10.0	-0.5	
South	2.7	3.2	3.8	4.5	5.1	6.1	6.5	7.5	6.6	5.7†	9.3	8.0	9.1	8.6	7.9	8.3	8.3	0.0	
West	3.5	4.0	3.1	4.7	4.1	4.7	5.2	4.7	7.5	6.5†	9.5	11.4	11.1	8.3	8.9	9.2	9.0	-0.3	
Population Density:																			
Large MSA	3.5	3.1	4.1	4.8	4.6	4.6	5.2	5.4	7.0	8.4†	8.9	7.4	8.1	8.4	8.1	7.9	7.9	0.0	
Other MSA	3.1	3.7	3.7	4.7	5.4	7.2	6.8	7.4	7.2	5.6†	10.3	10.3	10.7	9.3	9.0	9.3	9.0	-0.3	
Non-MSA	3.6	3.7	3.6	4.7	6.0	6.0	6.5	6.8	6.6	6.9†	8.5	9.7	8.9	9.1	10.4	10.7	10.7	0.0	
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	3.5	3.8	3.0	4.0	4.5	4.7	4.7	4.6	4.6	5.1†	6.2	7.9	6.8	5.2	6.1	7.1	7.1	0.0	
2.5–3.0	3.5	2.9	3.8	4.2	5.6	5.3	5.9	5.9	6.4	6.4†	8.9	9.3	8.8	9.5	9.5	8.8	9.2	+0.4	
3.5–4.0	3.2	3.7	3.4	4.4	5.5	6.5	6.8	7.2	7.3	7.1†	10.4	9.8	10.8	10.5	10.3	9.5	9.9	+0.4	
4.5–5.0	3.4	3.7	4.3	5.5	5.4	6.8	6.2	7.4	7.9	7.0†	10.3	9.5	10.5	9.3	9.1	9.9	9.0	-0.9	
5.5–6.0 (High)	3.2	4.5	4.8	5.5	5.6	7.6	6.6	7.4	7.5	7.0†	8.7	8.8	8.8	7.6	8.0	9.5	9.7	+0.2	
Race (2-year average): <sup>c</sup>																			
White	4.1	4.1	4.3	5.0	5.9	7.1	7.6	7.7	8.3	8.5	10.3†	10.2 <sup>c</sup>	11.2	11.2	11.2	11.5	11.7	+0.2	
African American	0.9	1.0	1.5	1.4	1.2	1.8	2.4	2.0	1.7	1.8	1.9†	2.1 <sup>c</sup>	2.7	2.5	2.4	2.6	2.7	+0.2	
Hispanic	2.1	2.3	2.2	2.5	3.7	3.1	2.8	3.6	4.6	4.5	4.3†	5.2 <sup>c</sup>	5.5	5.3	5.0	4.5	4.2	-0.4	

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. The 2003 data comprise half of the 2002 sample data double-weighted and all of the 2003 sample data. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>In 2002 the question text was changed in half of the questionnaire forms. In the list of examples of narcotics other than heroin, Talwin, laudanum, and paregoric were replaced with Vicodin, OxyContin, and Percocet. The 2002 data presented here are based on the changed forms only; *N* is one half of *N* indicated. In 2003 the remaining forms were changed to the new wording. Beginning in 2003, the data are based on all forms.

<sup>e</sup>In 2007, for the list of narcotics other than heroin, Dilaudid was replaced with Ultram.

**TABLE D-44**  
**OxyContin: Trends in Annual Prevalence of Use by Subgroups in Grades 8 and 10**

	Percentage who used in last 12 months																				
	8th Graders							10th Graders													
	1991– 1999	2000– 2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008	2008	2009	2010	2011	2012						
Approximate wtd. N =	15,100	16,500	17,000	16,800	16,500	16,100	15,700	14,300	15,800	16,400	16,200	16,200	16,100	15,100							
Total	—	—	1.3	1.7	1.7	1.8	2.6	1.8	2.1	+0.3	—	—	3.0	3.6	3.5	3.2	3.8	3.9	3.6	-0.3	
Gender:																					
Male	—	—	1.9	1.6	1.8	1.9	2.8	1.7	2.3	+0.6	—	—	3.6	4.3	3.8	3.4	3.7	4.2	3.8	-0.4	
Female	—	—	0.9	1.7	1.6	1.7	2.2	2.0	1.8	-0.2	—	—	2.4	2.9	3.1	3.0	4.0	3.5	3.5	0.0	
College Plans:																					
None or under 4 years	—	—	4.3	7.5	6.9	6.8	8.8	5.1	6.1	+1.0	—	—	6.5	10.8	7.2	8.0	11.0	8.8	10.2	+1.5	
Complete 4 years	—	—	1.0	1.1	1.2	1.2	1.9	1.5	1.8	+0.3	—	—	2.5	2.5	3.0	2.6	2.9	3.2	2.9	-0.3	
Region:																					
Northeast	—	—	1.0	1.2	1.1	1.7	1.6	1.1	0.8	-0.3	—	—	3.6	3.7	4.6	3.8	3.1	2.8	3.2	+0.4	
Midwest	—	—	1.7	1.7	1.3	2.4	3.2	2.0	1.4	-0.6	—	—	2.1	2.9	2.5	3.5	4.1	4.3	3.9	-0.4	
South	—	—	1.5	2.1	2.2	2.0	2.4	2.0	2.9	+0.9	—	—	3.7	4.2	4.8	3.6	4.4	4.7	4.1	-0.5	
West	—	—	0.9	1.3	1.8	1.0	3.1	1.6	2.3	+0.7	—	—	2.6	3.5	1.9	1.6	3.3	3.3	3.0	-0.3	
Population Density:																					
Large MSA	—	—	1.2	1.1	0.9	1.1	1.3	0.9	1.7	+0.7	—	—	2.0	2.3	2.1	2.8	3.4	3.5	2.5	-1.0	
Other MSA	—	—	1.4	1.7	2.6	2.3	3.1	2.2	2.2	0.0	—	—	3.3	3.6	3.7	2.7	3.3	3.5	4.1	+0.6	
Non-MSA	—	—	1.5	2.5	1.1	1.8	3.2	2.3	2.6	+0.3	—	—	3.7	5.7	5.1	4.9	5.8	5.4	4.1	-1.3	
Parental Education: <sup>a</sup>																					
1.0–2.0 (Low)	—	—	2.9	4.0	3.5	3.7	3.6	2.0	4.0	+2.0	—	—	6.5	5.9	3.7	3.3	6.9	3.9	3.1	-0.8	
2.5–3.0	—	—	2.0	2.3	2.1	2.9	3.4	2.2	2.3	0.0	—	—	3.8	3.9	4.0	4.8	5.3	5.9	5.1	-0.8	
3.5–4.0	—	—	1.0	1.9	2.2	2.5	2.4	2.2	2.3	+0.1	—	—	2.0	4.1	4.1	3.0	4.3	3.5	3.6	+0.1	
4.5–5.0	—	—	0.9	0.7	1.3	0.7	2.0	1.6	1.7	+0.1	—	—	1.7	2.9	2.6	2.6	2.3	3.4	3.2	-0.2	
5.5–6.0 (High)	—	—	1.3	1.6	0.7	0.8	2.2	0.8	1.7	+0.9	—	—	4.4	2.8	2.8	2.6	2.4	2.8	3.5	+0.7	
Race (2-year average): <sup>b</sup>																					
White	—	—	—	1.6	1.7	1.7	2.3	2.5	2.3	-0.2	—	—	—	3.6	4.1	4.1	4.1	4.6	4.7	+0.1	
African American	—	—	—	0.9	0.6	1.0	1.4	1.2	1.4	+0.2	—	—	—	2.3	2.0	1.1	1.5	1.8	1.5	-0.3	
Hispanic	—	—	—	1.3	2.8	2.6	2.4	2.3	1.5	-0.7	—	—	—	2.5	2.9	2.3	1.8	1.9	1.8	-0.1	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Tables D-107 and D-108 for the number of subgroup cases.

See appendix B for definition of variables in table. Data based on one of four forms;  $N$  is one third of  $N$  indicated in Tables D-107 and D-108.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-45**  
**OxyContin: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months												2007–
	1975–	1980–	1990–	2000–	2001	2002	2003	2004	2005	2006	2007	2008	2008
	1979	1989	1999	2001	12,900	14,600	14,600	14,600	14,700	14,200	14,500	14,000	change
Approximate wtd. N =	—	—	—	—	12,900	14,600	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	—	—	—	4.0	4.5	5.0	5.5	5.5	4.3	5.2	4.7	-0.5
Gender:													
Male	—	—	—	—	5.6	6.2	6.1	7.4	7.4	5.3	6.3	5.3	-1.0
Female	—	—	—	—	2.6	2.8	3.4	3.5	2.9	4.0	4.0	4.0	0.0
College Plans:													
None or under 4 years	—	—	—	—	7.0	8.8	8.2	9.9	7.4	7.4	7.8	7.6	-0.2
Complete 4 years	—	—	—	—	3.2	3.1	3.8	4.3	3.3	3.3	4.5	4.1	-0.5
Region:													
Northeast	—	—	—	—	5.0	5.5	4.6	6.0	5.5	5.5	5.5	4.6	-0.9
Midwest	—	—	—	—	5.0	4.5	4.2	6.0	4.3	4.3	5.1	4.4	-0.6
South	—	—	—	—	3.6	4.0	5.9	6.3	4.0	4.0	5.2	4.9	-0.2
West	—	—	—	—	2.6	4.4	4.7	3.0	3.6	3.6	5.1	4.9	-0.2
Population Density:													
Large MSA	—	—	—	—	3.7	2.8	4.6	4.8	4.4	4.4	4.2	3.9	-0.3
Other MSA	—	—	—	—	3.8	5.3	5.2	5.1	3.6	5.4	5.0	5.0	-0.4
Non-MSA	—	—	—	—	4.7	5.2	4.9	7.1	5.4	6.2	6.2	5.1	-1.1
Parental Education: <sup>a</sup>													
1.0–2.0 (Low)	—	—	—	—	6.3	6.9	3.7	5.5	4.2	4.2	4.4	3.8	-0.6
2.5–3.0	—	—	—	—	5.3	6.8	4.8	6.3	4.4	4.4	5.6	4.5	-1.1
3.5–4.0	—	—	—	—	3.9	3.4	6.5	6.3	5.1	5.0	6.0	6.0	+1.0
4.5–5.0	—	—	—	—	2.2	3.6	3.1	4.2	3.4	3.4	5.3	4.3	-1.0
5.5–6.0 (High)	—	—	—	—	4.0	2.5	4.3	4.8	3.5	4.3	3.8	3.8	-0.5
Race (2-year average): <sup>b</sup>													
White	—	—	—	—	—	4.7	5.1	5.8	5.4	5.4	5.5	6.0	+0.5
African American	—	—	—	—	—	2.5	2.4	2.0	2.2	2.2	2.4	2.1	-0.3
Hispanic	—	—	—	—	—	2.5	2.2	3.0	3.7	3.2	3.2	2.1	-1.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on two of six forms in 2002–2005; N is two sixths of N indicated in Table D-109. Data based on three of six forms beginning in 2006; N is three sixths of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-46**  
**Vicodin: Trends in Annual Prevalence of Use by Subgroups in Grades 8 and 10**

	Percentage who used in last 12 months															
	8th Graders				10th Graders				2007–2008		1991–2000		2007–2008			
	2002	2003	2004	2005	2006	2007	2008	change	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>	15,100	16,500	17,000	16,800	16,500	16,100	15,700		14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	2.5	2.8	2.5	2.6	3.0	2.7	2.9	+0.2	6.9	7.2	6.2	5.9	7.0	7.2	6.7	-0.5
Gender:																
Male	2.7	2.8	2.4	2.9	2.6	2.1	2.9	+0.8	7.4	8.4	6.2	5.5	7.0	7.5	7.1	-0.4
Female	2.4	2.8	2.6	2.2	3.4	3.2	2.7	-0.5	6.1	6.1	6.0	6.2	6.9	6.8	6.4	-0.5
College Plans:																
None or under 4 years	5.9	6.3	7.1	7.3	9.5	8.1	7.0	-1.1	13.4	15.8	11.6	13.2	17.2	15.2	16.5	+1.3
Complete 4 years	2.1	2.4	2.0	1.9	2.4	2.1	2.5	+0.4	5.7	5.8	5.4	4.8	5.6	6.1	5.6	-0.4
Region:																
Northeast	1.5	1.1	1.0	1.5	1.9	1.4	1.0	-0.4	6.2	5.6	6.4	5.7	4.9	6.5	5.3	-1.2
Midwest	3.3	3.9	3.2	3.3	3.9	3.6	3.1	-0.5	7.2	9.4	6.4	7.1	8.7	8.8	8.4	-0.4
South	2.5	2.1	2.1	2.3	2.2	2.1	2.9	+0.8	5.3	5.0	5.0	5.0	4.2	4.5	5.2	+0.7
West	2.6	4.2	3.6	3.1	4.4	3.5	3.7	+0.2	10.0	9.1	7.1	5.8	11.1	9.4	7.9	-1.5
Population Density:																
Large MSA	2.6	2.4	1.8	2.5	2.4	1.6	2.7	+1.1	5.7	7.1	4.8	6.5	6.1	6.8	6.2	-0.6
Other MSA	3.0	3.1	3.0	2.6	3.3	3.4	3.0	-0.4	7.9	6.4	6.9	5.3	7.6	7.2	6.7	-0.6
Non-MSA	1.6	2.5	2.4	2.6	3.3	2.8	2.8	0.0	6.2	9.2	6.4	6.3	6.9	7.8	7.6	-0.2
Parental Education: <sup>a</sup>																
1.0–2.0 (Low)	3.3	3.3	4.9	3.9	4.8	3.1	3.4	+0.3	6.1	6.4	6.4	4.9	7.6	6.5	6.3	-0.2
2.5–3.0	3.9	3.4	4.1	3.8	4.0	3.0	3.3	+0.3	8.0	8.3	8.2	7.7	8.0	8.6	7.5	-1.1
3.5–4.0	3.4	2.9	3.2	2.9	2.7	3.1	2.8	-0.3	7.5	8.5	6.2	6.8	8.1	8.2	7.9	-0.2
4.5–5.0	1.4	2.1	1.1	1.9	2.6	2.4	3.2	+0.8	5.7	6.3	5.1	5.0	5.6	7.0	6.0	-1.0
5.5–6.0 (High)	1.3	2.1	0.9	1.6	2.2	1.8	2.3	+0.6	6.6	5.6	5.0	4.6	6.3	4.7	5.7	+0.9
Race (2-year average): <sup>b</sup>																
White	—	—	3.0	2.7	2.4	2.9	3.2	0.0	—	8.0	7.6	7.1	7.4	8.3	8.5	+0.2
African American	—	—	1.4	1.4	1.6	1.6	1.6	0.0	—	3.1	3.0	1.6	2.2	2.4	2.2	-0.3
Hispanic	—	—	2.1	3.3	3.6	2.8	2.1	-0.4	—	6.5	6.0	4.8	4.4	4.2	4.1	-0.1

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Tables D-107 and D-108 for the number of subgroup cases.

See appendix B for definition of variables in table. Data based on one of four forms;  $N$  is one third of  $N$  indicated in Tables D-107 and D-108.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-47**  
**Vicodin: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months												2007–
	1975–	1980–	1990–	2000–	2001	2002	2003	2004	2005	2006	2007	2008	2008
	1979	1989	1999	2001	2002	2003	2004	2005	2006	2007	2008	2008	change
<i>Approximate wtd. N =</i>					12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	—	—	—	—	9.6	10.5	9.3	9.5	9.7	9.6	9.7	9.7	+0.1
Gender:													
Male	—	—	—	—	12.0	13.0	10.7	11.9	10.9	10.9	10.6	10.6	-0.2
Female	—	—	—	—	7.5	8.1	7.6	7.2	8.7	8.1	8.9	8.9	+0.8
College Plans:													
None or under 4 years	—	—	—	—	13.0	14.7	11.6	14.3	11.8	13.2	15.0	15.0	+1.8
Complete 4 years	—	—	—	—	8.4	9.1	8.3	8.4	9.1	8.5	8.5	8.5	0.0
Region:													
Northeast	—	—	—	—	8.1	9.4	9.1	8.8	10.8	9.3	9.9	9.9	+0.6
Midwest	—	—	—	—	11.6	13.2	8.4	12.4	12.0	14.1	11.7	11.7	-2.4
South	—	—	—	—	8.1	6.1	7.0	7.8	6.9	6.3	7.3	7.3	+1.0
West	—	—	—	—	10.9	16.3	15.4	9.3	11.2	10.9	11.1	11.1	+0.2
Population Density:													
Large MSA	—	—	—	—	9.7	7.3	8.3	8.9	10.4	9.1	8.4	8.4	-0.8
Other MSA	—	—	—	—	10.6	12.2	10.9	9.3	9.4	9.3	10.0	10.0	+0.7
Non-MSA	—	—	—	—	7.8	11.4	7.2	10.6	9.5	10.7	10.5	10.5	-0.2
Parental Education: <sup>a</sup>													
1.0–2.0 (Low)	—	—	—	—	12.1	9.4	7.8	7.8	7.9	6.3	7.8	7.8	+1.5
2.5–3.0	—	—	—	—	9.6	10.8	8.8	10.5	9.3	10.2	10.5	10.5	+0.4
3.5–4.0	—	—	—	—	9.5	12.0	10.1	10.0	11.6	9.9	11.2	11.2	+1.3
4.5–5.0	—	—	—	—	9.9	9.7	8.4	9.0	8.6	10.5	8.8	8.8	-1.7
5.5–6.0 (High)	—	—	—	—	8.6	8.8	10.1	8.9	10.4	7.9	8.8	8.8	+0.8
Race (2-year average): <sup>b</sup>													
White	—	—	—	—	—	11.7	11.2	10.5	11.3	11.5	11.6	11.6	+0.1
African American	—	—	—	—	—	3.3	3.1	3.3	3.7	3.3	3.6	3.6	+0.3
Hispanic	—	—	—	—	—	7.1	7.2	7.7	6.5	5.7	4.9	4.9	-0.8

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes;  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on two of six forms in 2002–2005;  $N$  is two sixths of  $N$  indicated in Table D-109. Data based on three of six forms beginning in 2006;  $N$  is three sixths of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-48**  
**Amphetamines:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months																2007–	2008	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	6.2	6.5	7.2	7.9	8.7	9.1	8.1	7.2	6.9	6.5	6.7	5.5	5.5	4.9	4.9	4.7	4.2	4.5	+0.3
Gender:																			
Male	5.5	5.2	5.6	6.5	7.0	6.7	6.6	5.6	5.6	5.1	5.7	4.8	4.4	3.7	3.5	3.5	3.3	3.5	+0.1
Female	6.9	7.9	8.8	9.3	10.3	11.3	9.6	8.7	8.2	7.7	7.5	6.2	6.5	6.1	6.2	5.7	4.9	5.5	+0.6
College Plans:																			
None or under 4 years	11.6	12.9	14.6	14.5	17.1	15.5	14.1	15.4	14.0	14.2	12.0	12.2	12.4	8.9	11.2	10.7	10.0	12.4	+2.4
Complete 4 years	5.4	5.7	6.3	7.0	7.6	8.3	7.5	6.3	6.2	5.7	6.1	4.8	4.8	4.5	4.3	4.1	3.6	3.8	+0.2
Region:																			
Northeast	5.1	4.3	5.9	6.9	7.3	7.6	6.5	5.5	5.6	5.0	5.5	3.4	4.1	2.8	3.5	2.2	2.6	2.6	+0.1
Midwest	7.1	8.0	7.3	7.8	10.6	10.8	9.3	7.2	8.3	7.8	7.1	5.9	5.9	5.1	5.0	5.3	4.8	5.1	+0.3
South	6.1	6.6	7.3	8.3	8.6	8.7	8.1	8.4	7.5	7.0	8.1	6.7	6.4	5.7	5.8	5.6	4.6	5.5	+0.8
West	6.0	6.6	8.6	8.4	7.9	9.1	8.3	6.7	5.4	5.4	4.6	4.7	4.6	4.9	4.6	4.3	3.7	3.8	+0.1
Population Density:																			
Large MSA	5.8	4.8	5.6	6.6	7.2	7.9	6.4	5.4	5.2	5.2	5.0	4.2	3.9	4.0	3.6	3.9	3.4	4.1	+0.8
Other MSA	6.2	7.5	8.2	8.8	8.9	10.0	8.1	7.4	6.8	6.4	7.6	5.9	5.5	5.4	5.8	4.8	4.6	4.8	+0.2
Non-MSA	6.7	7.0	7.5	7.5	10.1	8.9	9.9	8.8	9.3	8.5	6.9	6.3	7.5	5.0	5.2	5.4	4.4	4.4	0.0
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	8.3	8.4	10.2	11.2	11.8	10.1	9.6	11.2	8.9	9.7	7.4	6.3	8.4	9.7	8.3	6.5	7.3	7.9	+0.5
2.5–3.0	6.6	7.3	8.2	9.0	10.6	9.9	9.2	8.1	7.8	8.1	8.2	7.3	7.4	5.2	6.6	6.0	4.9	6.0	+1.2
3.5–4.0	6.7	7.4	7.8	8.5	10.1	10.3	8.9	7.7	8.2	6.8	7.8	5.7	5.9	5.6	5.6	5.0	4.5	5.4	+0.9
4.5–5.0	5.3	5.5	6.4	6.6	6.8	8.6	7.5	6.2	5.6	5.2	5.9	4.9	4.3	4.2	3.7	4.2	2.9	3.2	+0.4
5.5–6.0 (High)	5.7	5.4	5.3	5.7	6.4	8.7	7.3	6.4	5.8	5.2	4.5	4.3	3.9	3.5	3.1	3.6	3.5	3.4	-0.1
Race (2-year average): <sup>c</sup>																			
White	—	6.8	7.4	8.1	9.3	10.2	9.9	9.0	8.4	8.0	7.8	7.2	6.4	5.9	5.4	5.3	4.9	4.9	0.0
African American	—	3.3	3.4	3.9	3.9	3.4	3.0	2.8	2.7	2.4	2.3	2.7	2.5	2.1	2.2	2.0	1.7	1.8	+0.1
Hispanic	—	7.2	7.7	8.6	8.7	8.6	8.1	7.2	7.0	6.8	6.6	5.9	5.0	5.4	5.3	4.5	3.9	4.0	+0.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-49**  
**Amphetamines:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N = 14,800 14,800 15,300 15,800 17,000 15,600 15,500 15,000 13,600 14,300 14,000 14,300 15,800 16,400 16,200 16,200 16,100 15,100</i>																			
Total	8.2	8.2	9.6	10.2	11.9	12.4	12.1	10.7	10.4	11.1	11.7	10.7	9.0	8.5	7.8	7.9	8.0	6.4	-1.6 ss
Gender:																			
Male	7.0	7.0	8.2	8.6	9.6	10.5	10.3	9.0	9.2	10.3	10.6	9.6	7.8	7.3	6.6	6.7	7.4	5.8	-1.5 s
Female	9.3	9.3	10.9	11.7	14.1	14.2	13.9	12.3	11.5	11.8	12.7	11.8	10.1	9.6	9.0	8.9	8.7	6.9	-1.8 s
College Plans:																			
None or under 4 years	13.4	14.4	15.5	16.6	19.9	20.3	19.3	17.9	16.3	18.2	20.4	17.5	15.7	14.8	13.7	14.8	15.4	12.5	-2.9 s
Complete 4 years	7.1	6.9	8.4	8.9	10.6	11.1	10.9	9.5	9.5	10.0	10.3	9.7	7.9	7.6	7.0	7.0	7.1	5.6	-1.5 ss
Region:																			
Northeast	6.1	5.4	7.8	8.7	9.8	11.5	10.7	11.0	12.1	9.8	10.5	9.3	7.4	8.5	7.4	6.7	7.3	4.2	-3.1 ss
Midwest	10.3	9.4	9.5	10.5	13.3	14.0	11.0	9.8	10.3	11.1	10.7	10.4	9.7	8.2	8.5	8.7	8.7	7.3	-1.4
South	8.1	8.7	10.9	11.2	12.8	12.6	14.2	12.6	10.8	12.0	14.0	12.2	10.2	9.6	8.6	8.5	8.1	6.8	-1.3
West	7.7	8.4	9.5	9.4	10.6	10.6	11.1	8.5	8.2	10.9	9.9	9.6	8.1	7.3	5.8	7.1	7.7	6.6	-1.1
Population Density:																			
Large MSA	7.5	6.7	7.6	8.0	9.2	10.5	9.9	8.9	9.3	10.7	9.8	9.8	6.2	6.2	6.5	6.8	7.5	5.4	-2.0 s
Other MSA	7.9	8.0	9.5	10.8	12.8	12.8	11.5	10.3	10.6	9.9	11.1	11.0	9.5	9.6	8.0	8.3	8.0	6.6	-1.3
Non-MSA	9.3	10.0	11.6	11.2	13.3	13.7	15.5	13.8	11.5	13.6	15.1	11.2	12.2	9.2	9.0	8.7	9.0	7.2	-1.7
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	10.0	11.9	12.3	10.8	14.3	15.1	12.2	12.6	10.7	13.3	12.3	13.1	10.9	9.2	8.9	9.3	7.9	7.8	-0.1
2.5–3.0	9.7	8.9	10.5	11.6	14.2	13.0	14.1	12.8	11.3	12.9	13.6	12.8	11.2	9.9	8.9	9.0	10.2	7.6	-2.6 ss
3.5–4.0	7.9	8.4	10.5	11.1	12.4	14.1	13.5	11.1	11.2	12.2	12.6	11.1	9.9	10.1	8.1	9.1	8.9	7.7	-1.2
4.5–5.0	7.4	6.6	7.5	8.9	10.7	10.7	10.6	9.0	9.8	9.7	10.5	9.5	7.6	7.2	7.4	6.6	6.9	5.4	-1.5 s
5.5–6.0 (High)	6.9	6.9	8.3	7.3	8.8	10.1	9.2	9.4	9.8	8.8	9.2	8.1	6.4	6.3	6.6	6.8	6.0	4.3	-1.7
Race (2-year average): <sup>c</sup>																			
White	—	9.4	10.1	11.0	12.4	13.9	14.2	13.6	12.6	12.7	13.4	13.4	12.2	10.6	9.5	9.2	9.4	8.7	-0.7
African American	—	2.8	3.0	4.0	4.0	3.4	3.1	2.9	2.8	2.5	2.9	3.5	2.8	2.7	3.0	2.8	2.3	2.3	0.0
Hispanic	—	6.2	7.0	7.7	8.9	10.3	9.8	8.9	8.8	9.1	8.3	7.9	7.7	7.3	7.3	6.3	5.8	6.0	+0.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-50**  
**Amphetamines:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	16.2	15.8	16.3	17.1	18.3	20.8	26.0	20.3	17.9	17.7	15.8	13.4	12.2	10.9	10.8	9.1	8.2
Gender:																	
Male	15.6	15.8	16.0	16.9	18.4	19.7	24.8	19.6	17.2	16.8	14.9	12.7	11.8	10.8	11.1	9.4	8.3
Female	16.5	15.4	16.4	17.1	17.8	21.8	26.9	20.3	17.9	18.2	16.4	13.8	12.4	10.9	10.5	8.6	7.9
College Plans:																	
None or under 4 years	—	19.3	20.5	20.0	21.8	25.8	30.9	23.7	20.9	22.2	19.7	17.7	16.0	13.9	15.1	12.6	11.0
Complete 4 years	—	11.9	11.5	13.7	14.5	16.5	22.3	16.8	14.5	14.2	13.3	10.9	10.2	9.5	9.1	7.4	7.0
Region:																	
Northeast	16.5	14.7	16.8	19.6	22.0	22.0	28.8	21.5	17.9	19.0	16.8	12.6	10.4	8.4	9.0	6.3	6.5
Midwest	18.7	17.8	19.0	18.2	18.3	22.2	30.1	24.1	20.4	20.3	17.3	15.2	13.5	12.2	13.3	10.7	10.1
South	12.6	13.7	13.2	14.0	14.0	17.7	19.6	16.4	15.4	15.1	12.8	11.5	11.5	10.8	9.9	8.9	7.9
West	18.5	17.2	16.0	17.8	20.7	22.1	26.6	18.7	18.2	16.9	17.3	15.0	13.4	11.8	11.1	10.2	7.8
Population Density:																	
Large MSA	19.6	15.4	15.3	17.7	19.5	21.9	28.0	21.6	18.1	17.7	15.0	11.2	10.9	8.8	7.1	6.5	6.2
Other MSA	15.5	16.3	17.1	17.5	18.9	20.8	25.5	20.7	19.6	17.1	15.7	14.2	11.9	11.9	11.4	9.6	8.4
Non-MSA	14.8	15.4	15.9	16.0	16.6	19.9	25.1	18.8	15.6	18.5	16.6	14.1	14.0	11.3	13.3	10.6	9.5
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	15.7	13.4	14.5	14.9	16.0	19.1	22.3	18.7	15.7	17.1	14.5	11.9	11.9	9.8	10.4	7.6	9.5
2.5–3.0	16.7	16.9	17.4	17.3	18.4	22.2	26.7	21.9	19.6	19.2	17.0	15.2	13.3	11.1	11.7	9.7	9.1
3.5–4.0	14.9	16.6	16.1	18.2	19.6	21.5	26.9	21.7	19.4	18.5	17.2	14.3	12.6	11.8	12.3	10.6	8.9
4.5–5.0	14.5	16.8	15.9	16.9	17.1	20.0	26.2	19.1	18.9	15.9	15.1	12.0	11.7	10.3	9.4	8.1	6.5
5.5–6.0 (High)	12.0	14.6	16.0	17.2	20.4	17.9	26.8	20.5	16.1	14.0	10.9	10.1	10.4	10.0	9.1	7.3	5.7
Race (2-year average): <sup>c</sup>																	
White	—	—	17.3	18.2	19.2	21.3	26.4	23.6	22.3	20.5	18.9	16.4	14.3	13.0	12.4	11.4	9.8
African American	—	—	5.3	4.7	4.2	5.3	5.8	6.0	5.7	4.7	4.3	4.0	3.8	3.9	3.6	3.1	2.7
Hispanic	—	—	12.3	12.2	12.8	14.5	17.5	12.3	11.5	13.2	14.6	10.8	8.7	9.6	9.0	7.0	6.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-50 (cont.)**  
**Amphetamines:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–			
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N = 15,800 16,300 15,400 15,400 14,300 15,400 15,200 13,600 12,800 12,800 12,900 14,600 14,600 14,700 14,200 14,500 14,000</i>																		
Total	7.1	8.4	9.4	9.3	9.5	10.2	10.1	10.2	10.5	10.9	11.1	9.9	10.0	8.6	8.1	7.5	6.8	-0.7
Gender:																		
Male	7.2	8.2	9.2	9.5	9.6	10.1	10.3	10.6	10.4	10.9	11.3	9.8	9.9	9.1	7.4	7.4	6.5	-0.9
Female	6.9	8.5	9.4	8.9	8.8	10.2	9.8	9.6	10.5	10.6	10.7	9.5	9.9	7.9	8.5	7.3	6.8	-0.4
College Plans:																		
None or under 4 years	9.7	11.0	13.4	12.3	12.8	14.1	13.6	12.7	13.9	14.4	14.8	14.4	13.3	11.5	10.6	10.3	10.7	+0.4
Complete 4 years	6.1	7.6	8.0	8.3	8.4	8.9	9.0	9.5	9.6	9.8	10.1	8.4	8.9	7.8	7.5	6.7	5.7	-1.0
Region:																		
Northeast	6.2	8.1	7.4	9.6	10.4	11.1	9.0	9.9	10.6	12.0	11.5	9.7	9.5	7.4	8.5	7.5	6.5	-0.9
Midwest	8.4	8.9	12.0	9.5	10.0	10.8	11.0	10.5	10.4	12.7	11.3	10.3	10.2	10.3	7.6	8.2	6.9	-1.3
South	6.7	8.3	9.0	9.2	9.1	9.8	10.4	10.8	10.2	9.5	11.7	9.7	10.3	9.4	8.8	7.9	7.1	-0.9
West	6.9	8.3	8.4	8.9	8.3	9.1	9.6	8.8	10.9	9.7	9.6	9.7	9.5	6.1	7.0	5.8	6.3	+0.6
Population Density:																		
Large MSA	6.0	6.5	7.8	9.1	7.9	8.9	9.0	7.0	8.3	10.6	10.7	7.5	8.0	7.8	8.7	6.7	6.2	-0.6
Other MSA	6.7	8.5	9.4	8.5	8.9	9.5	9.9	10.8	10.9	10.8	11.0	10.5	10.6	8.9	7.6	7.4	6.7	-0.7
Non-MSA	9.0	9.8	10.9	10.8	11.9	13.0	12.2	12.4	12.4	11.4	12.1	11.7	11.1	8.9	8.2	8.6	7.5	-1.1
Parental Education: <sup>b</sup>																		
1.0–2.0 (Low)	7.0	9.0	10.4	9.9	8.1	9.8	9.7	9.9	11.0	8.9	8.1	10.6	7.5	6.1	8.2	7.5	7.3	-0.2
2.5–3.0	7.7	8.6	10.3	9.9	10.5	10.3	10.6	11.3	11.0	12.2	11.4	9.9	11.0	9.2	8.2	7.6	7.3	-0.3
3.5–4.0	7.7	9.1	9.4	9.1	9.3	10.8	11.4	10.8	10.6	11.6	12.3	10.7	12.3	9.5	8.9	7.6	6.5	-1.1
4.5–5.0	6.3	8.0	9.5	9.2	8.9	9.4	9.4	9.7	10.3	10.7	11.1	9.4	8.2	8.5	7.8	7.4	6.2	-1.2
5.5–6.0 (High)	5.8	7.6	7.1	8.1	9.1	10.2	8.7	8.4	10.2	8.7	10.2	7.7	8.4	7.4	7.0	7.1	7.1	0.0
Race (2-year average): <sup>c</sup>																		
White	8.8	9.0	10.4	10.7	10.5	11.4	12.1	11.9	11.9	12.6	13.2	12.4	11.6	11.0	9.9	9.3	8.7	-0.7
African American	2.2	2.3	3.4	3.4	2.9	2.8	2.8	2.5	2.6	3.0	2.9	2.8	2.4	2.4	2.6	2.5	2.2	-0.3
Hispanic	6.0	6.2	6.4	7.1	7.8	7.3	7.0	7.6	9.2	9.2	7.9	6.8	7.0	6.7	6.4	5.8	4.7	-1.1

<sup>a</sup>Beginning in 1982, the question about amphetamine use was revised to get respondents to exclude the inappropriate reporting of nonprescription amphetamines. The prevalence rate dropped slightly as a result of this methodological change. (In 1982 and 1983, the data are based on three of the five questionnaire forms.) Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-51**  
**Ritalin: Trends in Annual Prevalence of Use by Subgroups in Grades 8 and 10**

	Percentage who used in last 12 months																				
	8th Graders							10th Graders													
	1991- 2000	2001	2002	2003	2004	2005	2006	2007	2008	change	1991- 2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700			14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100			
Total	—	2.9	2.8	2.6	2.5	2.4	2.6	2.1	1.6	-0.4	—	4.8	4.8	4.1	3.4	3.4	3.6	2.8	2.9	+0.2	
Gender:																					
Male	—	3.2	3.2	2.9	2.6	2.4	2.7	1.9	1.5	-0.4	—	5.2	4.9	4.2	3.6	3.2	3.7	2.6	3.0	+0.4	
Female	—	2.6	2.5	2.3	2.4	2.4	2.5	2.3	1.5	-0.8	—	4.3	4.6	3.8	3.0	3.5	3.7	2.9	2.9	0.0	
College Plans:																					
None or under 4 years	—	8.1	7.7	6.8	8.8	7.5	9.0	4.2	5.7	+1.5	—	7.2	10.2	11.0	5.5	6.7	9.1	6.0	8.6	+2.5	
Complete 4 years	—	2.4	2.2	2.1	1.8	1.8	1.9	1.8	1.2	-0.5	—	4.3	3.8	2.9	3.0	2.9	2.8	2.3	2.3	-0.1	
Region:																					
Northeast	—	1.5	2.8	1.7	1.6	2.0	2.0	0.9	0.4	-0.5	—	5.5	3.6	3.8	4.5	4.1	3.0	2.8	3.3	+0.5	
Midwest	—	3.0	3.0	2.9	2.4	1.9	3.2	2.4	2.0	-0.3	—	4.6	4.8	4.2	2.7	4.8	4.0	3.6	3.1	-0.5	
South	—	3.5	2.8	2.9	3.0	3.0	2.5	2.5	2.2	-0.4	—	5.3	5.2	4.2	3.8	3.0	3.4	3.0	3.0	0.0	
West	—	2.9	2.5	2.2	2.5	2.1	2.7	1.6	1.2	-0.4	—	3.1	5.1	3.9	2.4	1.4	4.2	1.6	2.4	+0.8	
Population Density:																					
Large MSA	—	2.2	2.3	2.3	1.7	1.5	2.3	1.2	1.1	0.0	—	4.3	3.6	4.0	2.6	4.0	2.8	2.9	2.0	-0.9	
Other MSA	—	2.9	3.1	2.8	3.0	3.4	3.0	2.7	1.8	-0.8	—	4.6	5.8	3.7	3.6	3.3	4.1	2.5	3.3	+0.8	
Non-MSA	—	3.5	2.8	2.4	2.4	1.7	2.3	2.0	1.9	-0.2	—	5.8	4.3	5.1	3.7	2.8	3.7	3.0	3.5	+0.4	
Parental Education: <sup>a</sup>																					
1.0–2.0 (Low)	—	4.8	5.3	2.5	4.2	5.2	6.5	1.9	4.4	+2.4	—	5.0	7.7	4.2	4.8	3.3	3.9	3.9	2.8	-1.0	
2.5–3.0	—	3.3	4.0	2.8	2.9	2.7	3.1	2.3	2.2	-0.2	—	5.4	5.9	5.0	3.4	4.4	3.8	3.2	2.9	-0.3	
3.5–4.0	—	3.5	3.3	3.3	2.7	2.7	2.6	2.4	1.7	-0.7	—	5.0	4.2	4.1	3.0	2.6	3.6	2.7	2.9	+0.2	
4.5–5.0	—	2.4	1.5	1.8	2.1	1.5	2.0	1.8	1.0	-0.8	—	4.2	3.6	3.7	2.9	4.0	3.4	2.6	3.4	+0.7	
5.5–6.0 (High)	—	2.1	1.7	2.1	1.9	1.6	1.2	1.8	0.7	-1.0	—	4.6	4.7	3.3	3.7	2.8	4.0	2.2	2.8	+0.6	
Race (2-year average): <sup>b</sup>																					
White	—	—	3.0	2.8	2.7	2.5	2.6	2.4	1.9	-0.5	—	—	5.5	4.8	4.1	3.9	3.9	3.7	3.5	-0.1	
African American	—	—	1.0	1.3	1.5	1.6	1.8	1.8	1.8	0.0	—	—	1.8	2.5	1.9	1.0	1.5	1.7	1.4	-0.3	
Hispanic	—	—	3.8	2.7	2.5	3.3	3.1	2.8	2.1	-0.8	—	—	3.1	4.4	3.6	2.2	2.1	1.9	1.6	-0.3	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Tables D-107 and D-108 for the number of subgroup cases.

See appendix B for definition of variables in table. Data based on one of four forms; N is one third of N indicated in Tables D-107 and D-108.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-52**  
**Ritalin: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months											2007–		
	1975–	1980–	1990–	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	—	—	—	—	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	—	—	—	—	5.1	4.0	4.0	5.1	4.4	4.4	3.8	3.4	-0.4
Gender:														
Male	—	—	—	—	—	6.0	5.1	5.5	6.0	5.4	4.5	3.6	3.7	0.0
Female	—	—	—	—	—	4.1	2.8	2.6	4.0	3.3	3.8	3.5	2.9	-0.6
College Plans:														
None or under 4 years	—	—	—	—	—	6.4	7.7	4.4	6.8	5.3	5.3	5.6	4.2	-1.3
Complete 4 years	—	—	—	—	—	4.7	3.0	3.7	4.4	4.1	4.0	3.3	3.2	-0.1
Region:														
Northeast	—	—	—	—	—	4.7	4.5	4.6	4.1	4.7	6.1	4.1	4.2	+0.1
Midwest	—	—	—	—	—	7.4	5.4	3.8	6.0	5.3	3.8	5.2	3.4	-1.8
South	—	—	—	—	—	4.1	3.4	3.5	4.7	4.6	4.3	3.0	3.4	+0.4
West	—	—	—	—	—	3.8	2.6	4.4	5.5	2.7	3.8	3.5	2.8	-0.7
Population Density:														
Large MSA	—	—	—	—	—	7.2	3.9	3.2	4.2	4.1	5.4	4.0	4.1	+0.1
Other MSA	—	—	—	—	—	3.7	4.0	5.1	5.6	5.1	3.9	3.4	3.5	0.0
Non-MSA	—	—	—	—	—	5.4	4.0	2.9	4.9	3.4	3.8	4.2	2.4	-1.8
Parental Education: <sup>a</sup>														
1.0–2.0 (Low)	—	—	—	—	—	5.6	5.3	3.1	5.2	5.5	5.2	2.1	2.0	0.0
2.5–3.0	—	—	—	—	—	4.5	4.2	3.7	4.2	4.2	3.6	4.1	3.4	-0.8
3.5–4.0	—	—	—	—	—	5.0	3.9	4.8	6.3	4.1	4.6	3.5	3.6	+0.1
4.5–5.0	—	—	—	—	—	4.7	3.5	3.5	4.6	3.9	4.7	4.7	3.1	-1.6
5.5–6.0 (High)	—	—	—	—	—	6.6	3.9	4.0	4.5	6.0	4.6	2.7	4.5	+1.7
Race (2-year average): <sup>b</sup>														
White	—	—	—	—	—	—	5.4	4.6	5.2	5.3	4.9	4.9	4.3	-0.6
African American	—	—	—	—	—	—	0.8	1.2	1.2	2.0	2.3	1.8	1.5	-0.3
Hispanic	—	—	—	—	—	—	3.1	3.3	3.6	3.6	3.9	2.7	1.5	-1.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on two of six forms;  $N$  is two sixths of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-53**  
**Methamphetamine: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months																2007–	2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>									16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	—	—	—	—	—	—	—	—	3.2	2.5	2.8	2.2	2.5	1.5	1.8	1.8	1.1	1.2	+0.1	
Gender:																				
Male	—	—	—	—	—	—	—	—	3.1	2.2	2.5	2.0	2.0	1.1	1.7	1.4	0.7	0.9	+0.2	
Female	—	—	—	—	—	—	—	—	3.2	2.8	3.0	2.4	3.0	1.7	1.9	2.3	1.5	1.5	0.0	
College Plans:																				
None or under 4 years	—	—	—	—	—	—	—	—	7.4	6.8	6.6	6.6	7.9	6.6	6.8	6.3	3.2	3.8	+0.6	
Complete 4 years	—	—	—	—	—	—	—	—	2.7	2.0	2.3	1.7	2.0	1.0	1.2	1.3	0.9	1.0	0.0	
Region:																				
Northeast	—	—	—	—	—	—	—	—	1.6	2.0	1.2	0.8	1.7	1.0	0.6	0.7	0.5	0.8	+0.2	
Midwest	—	—	—	—	—	—	—	—	4.4	3.0	3.2	2.5	3.5	2.1	2.0	1.7	1.5	1.6	+0.1	
South	—	—	—	—	—	—	—	—	3.4	2.4	3.4	2.8	2.4	1.4	2.0	1.6	1.1	1.4	+0.3	
West	—	—	—	—	—	—	—	—	2.8	2.5	2.4	2.0	2.4	1.6	2.1	3.1	1.2	1.0	-0.2	
Population Density:																				
Large MSA	—	—	—	—	—	—	—	—	2.2	2.1	1.6	1.3	2.0	1.5	1.3	1.5	0.4	0.7	+0.3	
Other MSA	—	—	—	—	—	—	—	—	3.6	2.6	3.4	2.5	2.4	1.7	2.0	2.1	1.4	1.5	+0.1	
Non-MSA	—	—	—	—	—	—	—	—	3.5	3.0	2.8	2.7	3.4	1.2	2.1	1.8	1.6	1.4	-0.2	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	6.3	5.0	4.4	4.3	4.2	4.4	4.1	3.9	1.9	2.1	+0.2	
2.5–3.0	—	—	—	—	—	—	—	—	4.3	3.1	4.0	3.0	3.4	1.3	1.5	1.8	1.4	1.7	+0.3	
3.5–4.0	—	—	—	—	—	—	—	—	3.3	2.4	3.0	2.0	2.5	1.8	2.9	2.2	1.2	1.3	+0.1	
4.5–5.0	—	—	—	—	—	—	—	—	1.9	1.3	1.6	1.9	1.6	1.0	0.9	1.2	0.9	0.9	0.0	
5.5–6.0 (High)	—	—	—	—	—	—	—	—	3.2	2.2	1.2	1.1	2.3	0.9	0.7	1.7	0.8	1.1	+0.3	
Race (2-year average): <sup>b</sup>																				
White	—	—	—	—	—	—	—	—	—	3.2	3.1	2.8	2.7	2.2	1.6	1.6	1.4	1.1	-0.3	
African American	—	—	—	—	—	—	—	—	—	1.1	0.8	0.6	0.8	0.6	0.5	0.8	0.6	0.5	0.0	
Hispanic	—	—	—	—	—	—	—	—	—	4.0	3.3	3.2	3.2	3.0	2.8	2.8	2.3	1.7	-0.6	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-107 for the number of subgroup cases.

See appendix B for definition of variables in table. Data based on one of four forms;  $N$  is one third of  $N$  indicated in Table D-107.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-54**  
**Methamphetamine: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months													2007–	2008					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	—	—	—	—	—	—	—	—	14,000	13,600	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	—	—	—	—	—	—	—	—	4.6	4.0	3.7	3.9	3.3	3.0	2.9	1.8	1.6	1.5	-0.1	
Gender:																				
Male	—	—	—	—	—	—	—	—	4.5	4.5	3.8	3.9	3.0	2.7	2.6	1.7	1.4	1.4	0.0	
Female	—	—	—	—	—	—	—	—	4.7	3.6	3.5	3.6	3.7	3.3	3.0	2.0	1.8	1.6	-0.2	
College Plans:																				
None or under 4 years	—	—	—	—	—	—	—	—	9.1	8.8	7.0	9.1	9.4	6.0	7.3	5.8	3.9	3.6	-0.4	
Complete 4 years	—	—	—	—	—	—	—	—	3.9	3.3	3.1	3.0	2.3	2.6	2.2	1.3	1.2	1.2	0.0	
Region:																				
Northeast	—	—	—	—	—	—	—	—	5.1	4.1	2.3	1.5	2.1	2.5	3.0	1.5	1.4	0.5	-0.9	
Midwest	—	—	—	—	—	—	—	—	4.6	4.0	3.8	3.0	3.4	2.2	3.4	1.7	0.9	1.4	+0.5	
South	—	—	—	—	—	—	—	—	4.0	3.8	4.0	4.6	3.8	2.9	2.2	2.3	1.9	1.9	0.0	
West	—	—	—	—	—	—	—	—	5.1	4.4	4.6	5.8	3.8	4.7	3.0	1.7	2.3	1.8	-0.4	
Population Density:																				
Large MSA	—	—	—	—	—	—	—	—	3.8	4.4	4.0	3.1	2.3	2.7	2.9	2.2	1.7	1.2	-0.5	
Other MSA	—	—	—	—	—	—	—	—	4.8	3.4	3.6	4.4	3.8	3.4	3.0	1.5	1.5	1.8	+0.3	
Non-MSA	—	—	—	—	—	—	—	—	5.2	4.8	3.6	3.7	3.7	2.5	2.5	2.1	1.8	1.3	-0.5	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	7.2	7.0	5.6	6.2	7.3	4.5	4.2	3.8	3.8	2.6	-1.2	
2.5–3.0	—	—	—	—	—	—	—	—	4.2	4.3	4.6	4.9	4.1	3.7	3.8	2.7	1.6	2.3	+0.7	
3.5–4.0	—	—	—	—	—	—	—	—	4.8	4.3	3.2	3.7	3.2	3.3	2.0	1.4	1.7	1.0	-0.8	
4.5–5.0	—	—	—	—	—	—	—	—	4.8	3.5	3.6	2.4	2.2	2.3	3.2	1.4	1.0	1.6	+0.5	
5.5–6.0 (High)	—	—	—	—	—	—	—	—	3.3	3.5	2.5	4.0	2.1	1.7	1.3	1.3	1.0	0.6	-0.5	
Race (2-year average): <sup>b</sup>																				
White	—	—	—	—	—	—	—	—	—	4.7	4.1	4.1	4.2	3.4	2.9	2.4	1.8	1.6	-0.3	
African American	—	—	—	—	—	—	—	—	—	0.4	1.0	1.1	0.6	0.8	1.1	1.0	0.8	0.5	-0.3	
Hispanic	—	—	—	—	—	—	—	—	—	3.9	3.0	4.4	4.6	4.6	5.0	3.3	1.9	2.3	+0.4	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-108 for the number of subgroup cases.

See appendix B for definition of variables in table. Data based on one of four forms; N is one third of N indicated in Table D-108.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-55**  
**Methamphetamine: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months												2007– 2008 change	
	1975– 1979	1980– 1989	1990– 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		2008
Approximate wtd. N =	—	—	—	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	—	—	4.7	4.3	3.9	3.6	3.2	3.4	2.5	2.5	1.7	1.2	-0.5
Gender:														
Male	—	—	—	5.0	4.4	4.3	4.3	3.6	3.7	2.7	2.0	1.8	1.8	0.0
Female	—	—	—	4.5	4.2	3.4	3.0	2.9	3.1	2.3	3.0	1.6	0.7	-0.9 s
College Plans:														
None or under 4 years	—	—	—	6.8	6.2	6.9	6.5	5.8	6.7	4.9	3.7	3.9	1.9	-2.0 s
Complete 4 years	—	—	—	4.0	3.8	3.2	2.7	2.4	2.4	2.0	2.1	1.2	1.0	-0.2
Region:														
Northeast	—	—	—	3.1	4.5	3.4	1.6	1.8	1.3	0.6	1.4	1.4	1.1	-0.3
Midwest	—	—	—	5.1	4.1	4.7	4.5	4.2	3.3	4.4	1.2	1.2	0.8	-0.4
South	—	—	—	3.9	3.7	3.4	3.0	2.8	4.0	2.2	3.1	2.1	1.2	-1.0 s
West	—	—	—	7.1	5.4	4.4	5.4	4.0	4.9	2.7	3.8	1.5	1.9	+0.4
Population Density:														
Large MSA	—	—	—	4.2	3.6	2.7	2.1	1.8	2.8	1.5	3.4	1.3	1.3	0.0
Other MSA	—	—	—	4.0	4.9	4.0	4.4	3.0	2.6	2.4	2.0	1.7	1.2	-0.6
Non-MSA	—	—	—	6.4	4.3	5.3	4.1	5.3	5.5	4.1	2.0	2.2	1.3	-0.9
Parental Education: <sup>a</sup>														
1.0–2.0 (Low)	—	—	—	6.0	7.7	5.0	3.5	4.3	5.5	4.0	2.7	3.1	1.6	-1.5
2.5–3.0	—	—	—	4.8	3.5	4.8	4.9	3.6	4.1	3.0	2.4	2.2	0.6	-1.5 s
3.5–4.0	—	—	—	5.2	3.9	3.8	3.8	3.6	3.1	3.0	2.9	1.4	1.3	-0.1
4.5–5.0	—	—	—	3.7	4.2	3.1	2.9	2.9	2.8	2.1	2.2	1.7	0.8	-0.9
5.5–6.0 (High)	—	—	—	4.2	5.5	3.2	3.1	1.0	3.0	1.2	1.2	0.8	1.6	+0.8
Race (2-year average): <sup>b</sup>														
White	—	—	—	—	4.9	4.6	4.2	3.5	3.5	3.3	2.6	2.1	1.5	-0.6
African American	—	—	—	—	1.1	1.0	0.5	1.4	1.8	0.7	0.4	0.7	1.1	+0.4
Hispanic	—	—	—	—	4.9	4.6	3.9	3.4	3.4	3.4	3.7	2.7	1.1	-1.7

Source. The Monitoring the Future study, the University of Michigan.

Notes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on two of six forms; N is two sixths of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-56**  
**Crystal Methamphetamine (Ice): Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																	2007–					
	1975–	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	—	15,200	15,000	15,800	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	—	1.3	1.4	1.3	1.7	1.8	2.4	2.8	2.8	2.3	3.0	1.9	2.2	2.5	3.1	2.0	2.1	2.3	1.9	1.6	1.1	-0.6 s	
Gender:																							
Male	—	1.5	1.9	1.5	1.9	2.2	2.2	2.6	3.9	2.6	3.9	2.2	2.5	2.7	3.5	2.5	2.6	2.5	1.5	1.8	1.4	-0.4	
Female	—	1.0	0.9	1.0	1.2	1.3	2.1	1.7	1.7	2.1	2.1	1.6	1.9	2.1	2.5	1.5	1.6	2.0	2.2	1.4	0.7	-0.7 s	
College Plans:																							
None or under 4 years	—	1.4	1.9	2.2	2.6	2.4	4.3	5.1	3.8	5.0	2.3	3.8	4.2	4.2	4.8	2.6	4.4	4.2	3.5	3.7	1.7	-2.0 s	
Complete 4 years	—	1.2	1.2	1.0	1.4	1.5	1.8	2.1	1.9	2.4	1.8	1.7	2.0	2.0	2.6	1.9	1.5	1.8	1.3	1.2	0.8	-0.4	
Region:																							
Northeast	—	1.6	1.1	0.9	1.1	0.9	1.4	3.2	2.8	2.6	1.0	1.0	1.9	1.9	2.6	1.3	0.9	1.2	1.0	1.1	1.4	+0.4	
Midwest	—	1.1	1.4	1.1	1.5	2.3	2.2	2.1	1.9	2.7	1.7	2.8	2.1	2.0	2.0	1.0	1.8	2.2	1.0	1.5	0.5	-0.9 s	
South	—	0.5	1.0	1.0	1.2	1.2	1.8	2.0	1.6	3.1	2.3	2.0	1.7	3.5	2.3	2.3	2.3	2.7	2.9	1.7	0.9	-0.9 s	
West	—	2.5	2.2	2.6	3.2	3.2	2.8	4.7	4.9	3.7	3.4	2.5	2.9	4.7	4.0	3.4	3.5	3.1	1.9	2.1	1.7	-0.4	
Population Density:																							
Large MSA	—	1.2	1.3	1.5	2.2	2.0	3.0	4.6	2.9	2.5	1.6	2.3	2.7	2.2	2.2	1.9	2.3	2.1	2.2	1.3	0.6	-0.7	
Other MSA	—	1.3	1.7	1.3	1.7	1.8	2.0	2.0	2.0	3.3	2.1	1.7	2.3	3.6	2.0	1.4	2.3	1.5	1.7	1.2	0.5	-0.5	
Non-MSA	—	1.2	0.8	1.2	1.2	1.6	2.3	2.6	2.1	2.8	2.0	3.0	2.5	3.2	2.1	3.2	2.7	2.1	1.9	1.9	1.3	-0.6	
Parental Education: <sup>a</sup>																							
1.0–2.0 (Low)	—	1.1	1.0	0.9	1.6	1.0	3.2	3.4	2.2	2.8	3.6	3.2	5.9	3.7	3.7	3.7	4.0	2.6	4.2	3.2	1.4	-1.8	
2.5–3.0	—	1.4	1.1	1.1	1.2	3.0	2.6	3.0	2.5	3.2	1.3	1.7	2.4	3.6	1.7	2.7	2.7	2.6	2.6	2.1	0.6	-1.5 s	
3.5–4.0	—	1.4	1.2	1.5	2.3	1.6	1.9	2.6	2.2	3.6	2.5	1.9	2.8	2.4	2.2	2.4	2.4	3.1	1.4	1.4	1.0	-0.4	
4.5–5.0	—	1.2	1.8	1.4	1.8	1.3	2.5	2.9	2.9	2.6	1.3	2.8	1.5	2.8	1.5	1.0	1.0	1.4	1.0	1.5	0.7	-0.8	
5.5–6.0 (High)	—	1.1	1.0	1.4	1.3	1.0	2.2	2.5	1.4	1.9	2.1	1.3	2.0	2.8	1.8	0.9	1.1	1.4	0.8	1.2	0.8	+0.4	
Race (2-year average): <sup>b</sup>																							
White	—	—	1.3	1.3	1.5	1.7	2.0	2.5	2.6	2.9	2.8	2.3	2.4	2.6	2.3	2.0	2.0	2.0	1.9	1.7	1.3	-0.4	
African American	—	—	0.8	1.0	0.8	0.5	0.5	0.3	0.5	1.0	0.7	0.7	1.1	1.6	1.4	0.7	1.0	1.0	1.0	0.6	0.6	0.0	
Hispanic	—	—	1.3	1.8	2.3	2.1	2.7	4.0	2.8	1.7	1.7	2.4	3.4	3.6	2.5	2.6	3.4	3.3	2.9	2.9	1.8	-1.1	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on two of six forms; N is two sixths of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-57**  
**Sedatives (Barbiturates):<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	10.7	9.6	9.3	8.1	7.5	6.8	6.6	5.5	5.2	4.9	4.6	4.2	3.6	3.2	3.3	3.4	3.4
Gender:																	
Male	12.3	9.9	10.2	8.4	7.6	7.3	7.2	5.9	5.9	5.5	5.2	4.7	4.0	3.4	3.5	3.8	3.4
Female	9.9	9.2	8.4	7.7	7.0	6.0	5.8	5.0	4.2	4.0	3.9	3.8	3.2	3.0	3.0	3.0	3.2
College Plans:																	
None or under 4 years	—	11.6	11.4	9.1	9.3	9.0	8.1	7.4	6.7	6.2	6.2	6.1	4.7	4.1	4.8	4.7	4.3
Complete 4 years	—	7.3	6.8	6.8	5.2	4.8	5.1	3.8	3.8	3.7	3.6	3.0	3.0	2.7	2.5	2.8	2.9
Region:																	
Northeast	11.5	10.4	9.2	9.6	9.6	6.9	6.8	5.6	4.7	5.1	5.3	5.2	4.2	2.5	3.2	2.9	2.8
Midwest	12.8	10.4	10.7	7.9	6.9	7.3	7.5	5.4	6.1	4.9	4.9	4.2	3.3	2.5	3.2	3.5	3.5
South	9.9	9.7	9.3	7.8	7.3	7.0	5.5	6.3	5.2	5.2	4.2	4.1	3.7	4.1	3.7	4.0	3.6
West	10.0	6.7	6.6	6.6	5.7	5.2	6.5	3.9	4.0	4.2	4.1	3.3	3.2	3.2	2.7	2.9	3.3
Population Density:																	
Large MSA	11.1	10.2	8.1	8.1	8.3	6.6	6.9	5.3	5.2	4.4	4.4	3.7	3.3	2.8	2.6	2.6	2.4
Other MSA	11.3	9.8	9.9	8.2	7.3	6.5	6.4	5.7	5.3	4.9	4.2	4.4	3.6	3.4	3.1	3.6	3.9
Non-MSA	9.8	9.0	9.5	8.1	7.0	7.2	6.6	5.5	5.0	5.5	5.4	4.5	3.9	3.2	4.4	3.9	3.3
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	10.3	9.1	8.0	7.5	7.8	8.0	6.5	5.8	6.1	4.7	5.0	4.8	3.8	4.3	4.1	3.1	3.6
2.5–3.0	10.3	10.2	10.3	8.2	7.3	7.2	6.5	5.7	5.7	5.2	5.3	4.6	3.6	3.1	3.4	3.7	3.7
3.5–4.0	9.5	9.6	9.0	8.3	7.4	6.3	6.5	5.1	4.6	5.0	4.4	4.4	3.2	2.9	3.2	3.9	3.0
4.5–5.0	10.7	10.1	9.1	7.8	6.6	5.9	6.4	5.0	4.4	4.3	4.1	3.3	3.9	3.3	2.8	3.1	3.3
5.5–6.0 (High)	9.0	10.3	8.3	8.0	7.2	5.4	6.8	5.8	3.7	4.0	3.1	3.4	3.6	3.1	3.4	2.9	3.6
Race (2-year average): <sup>c</sup>																	
White	—	—	10.2	9.3	8.2	7.5	7.2	6.5	5.8	5.5	5.1	4.7	4.2	3.7	3.5	3.7	3.8
African American	—	—	3.3	3.2	2.6	2.5	2.4	2.0	1.7	1.6	1.6	1.6	1.7	1.5	1.1	1.1	1.2
Hispanic	—	—	7.4	5.8	5.8	5.8	5.7	5.1	4.1	4.4	4.6	3.6	2.8	2.8	3.2	2.8	2.4

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)



**TABLE D-57 (cont.)**  
**Sedatives (Barbiturates):<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months														2007–	2008			
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>																			
	15,800	16,300	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000			
Total	2.8	3.4	4.1	4.7	4.9	5.1	5.5	5.8	6.2	5.7	6.7	6.0	6.5	7.2	6.6	6.2	5.8	-0.4	
Gender:																			
Male	2.9	3.4	4.3	5.1	5.2	5.3	6.3	6.3	6.9	6.3	7.4	6.7	7.0	7.7	6.4	6.3	5.9	-0.4	
Female	2.6	3.3	3.8	4.2	4.4	4.8	4.8	5.3	5.4	5.1	5.9	5.4	6.0	6.6	6.7	6.2	5.7	-0.5	
College Plans:																			
None or under 4 years	3.9	3.8	5.4	5.9	6.7	6.6	6.9	7.0	7.0	7.1	9.8	9.6	9.3	10.7	10.0	8.2	8.9	+0.7	
Complete 4 years	2.3	3.2	3.7	4.4	4.3	4.6	5.1	5.5	6.0	5.4	6.0	5.1	5.6	6.3	5.7	5.7	5.2	-0.6	
Region:																			
Northeast	2.7	3.5	4.0	4.1	5.6	5.7	5.5	4.7	5.6	5.3	5.9	4.8	5.4	5.7	5.7	5.5	5.1	-0.4	
Midwest	2.7	3.5	4.1	4.5	4.9	4.4	4.8	6.0	5.2	5.6	6.4	5.1	5.9	7.5	6.2	5.9	5.7	-0.3	
South	3.0	3.6	4.8	5.3	5.4	5.8	6.8	6.8	7.5	6.1	8.4	7.1	7.8	8.5	7.5	7.2	6.8	-0.4	
West	2.5	2.7	2.8	4.3	3.3	4.2	4.2	4.9	5.7	5.6	5.1	6.5	6.3	5.9	6.2	5.4	5.0	-0.4	
Population Density:																			
Large MSA	2.4	2.6	3.6	4.1	3.6	4.2	4.6	3.7	5.1	5.9	6.5	4.2	5.5	6.1	6.6	5.7	4.3	-1.4	
Other MSA	2.6	3.1	4.3	4.9	5.4	5.0	5.6	6.2	6.6	6.1	6.7	6.6	7.1	7.5	6.6	6.3	6.2	-0.1	
Non-MSA	3.4	4.3	4.1	5.0	5.4	6.4	6.8	7.4	6.8	4.9	7.0	7.4	6.6	7.8	6.6	6.9	6.7	-0.2	
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	3.9	3.8	4.5	4.9	4.8	4.3	6.4	7.5	5.2	6.3	5.1	6.7	6.6	6.2	7.3	6.3	6.0	-0.2	
2.5–3.0	2.4	3.6	4.5	5.2	4.9	4.9	6.3	6.2	7.1	5.3	7.1	6.5	7.0	8.1	6.5	5.7	6.3	+0.6	
3.5–4.0	2.8	2.8	4.0	4.6	4.9	6.0	5.6	6.4	5.8	6.1	7.7	7.2	8.0	7.7	7.3	6.5	6.2	-0.3	
4.5–5.0	2.9	3.4	4.0	4.4	5.0	5.1	5.0	5.0	6.7	5.9	6.3	4.7	5.1	7.0	6.2	7.0	5.0	-2.0 SS	
5.5–6.0 (High)	2.4	3.8	3.6	4.1	4.6	4.6	5.0	5.1	5.5	5.8	6.6	4.3	5.5	6.3	6.0	5.3	5.4	+0.1	
Race (2-year average): <sup>c</sup>																			
White	3.5	3.6	4.3	4.9	5.4	5.9	6.5	6.7	6.9	7.0	7.5	7.6	7.4	7.9	7.9	7.5	7.3	-0.2	
African American	1.1	1.0	1.5	1.6	1.1	1.0	1.4	1.4	1.3	1.5	1.4	1.7	2.4	2.6	2.5	2.5	2.2	-0.3	
Hispanic	2.2	1.9	2.6	3.5	4.0	3.7	3.3	4.0	5.1	4.7	4.5	4.1	4.7	5.8	5.8	5.2	4.3	-0.9	

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-58**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months													2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	1.8	2.0	2.1	2.4	2.7	3.3	2.9	2.6	2.5	2.6†	2.8	2.6	2.7	2.5	2.8	2.6	2.4	2.4	0.0
Gender:																			
Male	1.5	1.6	1.8	1.9	2.0	2.3	2.6	2.3	2.1	2.1†	2.5	2.2	2.2	1.9	2.1	2.2	1.6	1.7	+0.1
Female	2.1	2.3	2.4	2.8	3.3	4.0	3.2	3.0	2.9	3.1†	2.9	2.8	3.0	3.2	3.4	2.9	3.1	3.2	0.0
College Plans:																			
None or under 4 years	3.9	4.9	3.6	5.1	5.9	6.4	5.8	6.4	5.8	6.8†	5.8	6.5	6.3	6.2	6.9	6.0	6.8	5.9	-0.9
Complete 4 years	1.5	1.5	1.9	2.0	2.3	2.8	2.6	2.2	2.0	2.2†	2.5	2.1	2.3	2.1	2.4	2.3	2.0	2.2	+0.2
Region:																			
Northeast	1.0	1.6	1.7	2.5	2.3	2.7	2.5	2.0	2.3	2.2†	2.0	1.8	1.9	1.7	1.6	1.3	1.4	1.6	+0.2
Midwest	1.4	1.9	1.3	1.7	2.6	3.5	2.4	2.6	2.6	2.2†	2.2	2.4	2.2	2.1	2.8	2.4	2.8	2.5	-0.3
South	2.6	2.5	2.4	2.6	3.0	3.7	3.3	3.2	2.8	3.2†	3.4	3.4	3.5	3.4	3.7	3.6	2.9	3.3	+0.3
West	1.8	1.6	3.0	2.7	2.4	2.9	3.0	2.3	1.9	2.5†	3.2	1.9	2.6	2.2	2.2	2.1	1.9	1.8	-0.1
Population Density:																			
Large MSA	1.8	2.1	1.7	2.5	1.8	3.2	2.1	1.9	1.8	2.5†	2.8	2.0	1.8	1.8	2.0	1.9	1.9	1.8	-0.1
Other MSA	1.7	1.8	2.5	2.6	3.2	3.4	3.2	2.6	2.4	2.7†	3.1	2.7	2.9	3.1	3.1	2.6	2.8	2.8	0.0
Non-MSA	2.2	2.2	1.6	1.9	2.6	3.1	3.2	3.6	3.4	2.7†	2.3	2.9	3.4	2.4	3.4	3.5	2.4	2.6	+0.2
Parental Education: <sup>c</sup>																			
1.0–2.0 (Low)	3.6	3.8	2.5	3.2	3.9	4.9	4.3	5.5	5.0	5.6†	3.7	5.0	3.9	4.7	5.0	5.1	5.2	4.7	-0.5
2.5–3.0	1.6	2.1	2.5	2.6	2.7	3.5	3.1	2.8	3.3	3.6†	3.7	3.6	3.5	2.8	4.3	3.2	3.3	3.0	-0.3
3.5–4.0	2.0	2.2	2.1	2.6	3.2	3.9	3.2	2.7	2.1	2.6†	2.7	2.2	2.8	3.0	3.3	3.1	2.9	2.5	-0.4
4.5–5.0	1.4	0.9	1.8	2.0	2.2	2.8	2.4	2.4	1.7	1.4†	2.7	2.0	2.1	2.0	1.3	1.7	1.3	2.1	+0.8 s
5.5–6.0 (High)	1.8	1.9	1.7	2.1	1.6	2.7	2.7	2.1	1.9	2.2†	2.1	1.6	1.6	1.7	2.0	1.8	1.0	1.7	+0.7
Race (2-year average): <sup>d</sup>																			
White	—	2.0	2.0	2.2	2.7	3.2	3.4	3.1	2.9	3.0	3.0†	3.0 <sup>e</sup>	2.8	2.8	2.9	3.0	2.7	2.6	-0.1
African American	—	0.9	1.1	1.2	1.2	1.3	1.2	0.9	0.7	0.5	0.5†	0.6 <sup>e</sup>	1.0	1.2	1.0	0.8	0.9	0.9	+0.1
Hispanic	—	2.7	3.1	3.4	3.3	3.5	3.5	3.4	3.5	3.5	3.6†	3.8 <sup>e</sup>	3.4	3.4	3.5	3.0	2.9	2.9	0.0

(Table continued on next page.)

**TABLE D-58 (cont.)**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 8**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "+" indicates some change in the question. See relevant footnote. See relevant footnote to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>In 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data are based on the changed forms only.  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-59**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months														2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	3.2	3.5	3.3	3.3	4.0	4.6	4.9	5.1	5.4	5.6†	7.3	6.3	5.3	5.1	4.8	5.2	5.3	4.6	-0.7	
Gender:																				
Male	2.5	2.7	3.2	3.0	4.0	4.3	4.7	4.7	5.2	5.8†	7.9	5.7	4.7	4.7	4.3	5.0	4.6	4.1	-0.5	
Female	3.8	4.3	3.2	3.6	4.0	4.9	5.2	5.4	5.4	5.5†	6.8	6.9	5.8	5.5	5.3	5.3	6.0	5.0	-1.0	s
College Plans:																				
None or under 4 years	5.0	6.0	5.8	6.0	7.4	9.4	8.6	8.3	8.6	10.0†	13.5	11.6	9.2	9.6	9.6	10.2	9.9	9.6	-0.3	
Complete 4 years	2.8	3.1	2.7	2.8	3.4	3.8	4.3	4.5	4.8	4.9†	6.4	5.5	4.7	4.5	4.2	4.5	4.7	3.9	-0.7	s
Region:																				
Northeast	2.7	2.8	3.4	2.8	2.6	3.9	3.6	5.7	5.5	3.9†	6.2	4.6	4.3	5.0	5.0	3.8	4.1	2.8	-1.2	
Midwest	2.4	3.0	2.5	2.6	3.2	4.4	3.7	3.4	4.6	5.4†	5.6	5.5	4.5	3.5	3.3	4.2	5.3	4.7	-0.6	
South	4.2	4.5	3.9	4.2	5.1	5.7	7.3	6.6	6.0	6.9†	9.6	8.1	7.5	7.3	6.6	6.9	6.5	6.2	-0.3	
West	2.9	3.2	3.2	3.6	4.3	3.6	3.7	4.1	4.9	5.4†	6.7	5.8	4.1	4.1	3.8	5.3	4.7	3.7	-0.9	
Population Density:																				
Large MSA	3.2	3.3	2.7	2.6	3.2	4.2	3.9	4.1	5.0	5.5†	5.8	5.1	3.9	3.2	3.5	4.4	4.1	3.3	-0.8	
Other MSA	3.0	3.8	3.3	3.9	4.1	4.6	4.4	5.2	5.5	5.4†	7.0	6.8	5.8	5.7	5.4	5.3	5.8	5.2	-0.5	
Non-MSA	3.5	3.3	3.6	3.0	4.7	5.2	7.0	6.0	5.6	6.1†	9.9	6.7	6.4	6.4	5.3	6.3	6.0	5.1	-1.0	
Parental Education: <sup>c</sup>																				
1.0–2.0 (Low)	3.3	5.3	4.8	4.2	5.0	5.9	4.7	6.5	5.0	8.2†	7.6	7.1	7.5	5.8	5.2	6.6	5.5	5.4	-0.1	
2.5–3.0	3.6	3.5	3.1	3.3	4.5	5.2	5.3	6.3	5.9	6.2†	7.9	7.5	7.3	5.6	5.7	6.2	6.4	5.9	-0.5	
3.5–4.0	3.2	3.4	3.5	3.4	4.3	5.0	5.5	4.9	5.2	5.6†	8.1	6.7	5.7	5.7	5.4	5.6	5.7	5.2	-0.6	
4.5–5.0	2.5	3.9	2.9	2.9	3.5	4.1	4.2	4.5	5.7	5.2†	6.7	5.8	4.1	4.6	4.0	4.3	4.9	3.5	-1.4	s
5.5–6.0 (High)	3.5	2.3	3.1	3.4	3.2	3.6	4.4	4.0	5.3	4.7†	6.9	4.6	3.4	4.1	4.0	4.3	3.9	3.6	-0.3	
Race (2-year average): <sup>d</sup>																				
White	—	4.0	3.8	3.6	4.1	4.9	5.6	6.0	6.1	6.4	7.0†	7.6 <sup>e</sup>	7.4	6.5	6.0	6.0	6.2	6.1	-0.2	
African American	—	0.9	0.9	0.9	0.8	0.7	0.9	1.0	1.2	1.1	1.5†	1.5 <sup>e</sup>	1.3	1.3	1.3	1.6	1.3	1.0	-0.3	
Hispanic	—	2.9	3.3	3.1	3.1	3.4	3.5	3.5	3.7	4.0	4.0†	4.3 <sup>e</sup>	4.4	4.5	4.3	3.8	3.3	3.5	+0.2	

(Table continued on next page.)

**TABLE D-59 (cont.)**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 10**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "+" indicates some change in the question. See relevant footnote. See relevant footnote to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>In 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data are based on the changed forms only,  $N$  is one half of  $N$  indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>c</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>d</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>e</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-60**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	10.6	10.3	10.8	9.9	9.6	8.7	8.0	7.0	6.9	6.1	6.1	5.8	5.5	4.8	3.8	3.5	3.6
Gender:																	
Male	10.0	9.4	10.2	9.7	9.9	9.0	8.0	6.9	7.0	6.3	6.4	5.9	5.2	4.7	4.0	3.5	3.5
Female	11.1	11.0	11.4	10.1	9.3	8.5	7.7	7.1	6.7	5.8	5.7	5.8	5.8	4.8	3.5	3.5	3.6
College Plans:																	
None or under 4 years	—	11.5	12.3	11.1	11.0	10.7	9.4	8.0	8.0	7.4	6.8	7.2	6.7	5.1	4.8	4.3	4.2
Complete 4 years	—	8.9	9.0	8.6	8.1	7.2	6.9	6.3	5.8	5.2	5.5	5.1	4.9	4.6	3.3	3.2	3.4
Region:																	
Northeast	9.2	9.7	10.4	10.9	11.5	8.6	8.3	7.8	6.8	6.8	7.1	6.4	6.9	4.5	3.7	2.9	3.0
Midwest	10.6	10.1	11.0	8.8	7.5	8.2	7.8	6.2	6.8	5.6	6.0	5.5	4.5	3.7	3.1	2.9	3.0
South	11.3	11.7	11.4	10.5	10.4	9.5	7.8	7.4	7.4	6.9	5.9	6.3	5.7	6.0	4.4	4.3	4.0
West	11.7	8.5	9.6	8.9	9.4	8.6	8.0	6.4	6.2	4.9	5.3	4.8	5.2	4.4	3.4	3.9	4.4
Population Density:																	
Large MSA	11.2	9.6	9.6	10.3	9.9	8.7	8.3	7.0	7.0	5.4	5.8	5.3	5.8	4.7	3.1	3.6	2.5
Other MSA	11.0	11.3	11.4	10.1	10.2	9.3	8.1	7.2	7.2	6.1	6.0	5.7	5.6	5.0	3.5	3.7	4.1
Non-MSA	9.9	9.5	11.0	9.2	8.7	8.0	7.5	6.8	6.5	6.8	6.5	6.4	5.2	4.5	4.9	3.3	3.7
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	11.2	10.1	9.4	9.4	9.1	7.8	7.1	6.1	6.0	6.5	5.3	6.7	5.7	3.9	3.6	4.0
2.5–3.0	—	9.8	10.3	11.5	10.1	8.8	9.1	8.0	7.3	7.2	6.5	6.2	5.8	5.4	4.6	3.9	3.6
3.5–4.0	—	9.8	11.2	11.1	9.5	10.4	8.9	8.3	6.7	6.9	5.8	6.4	6.5	5.3	4.5	3.4	3.1
4.5–5.0	—	11.3	11.7	11.4	10.5	10.0	8.1	7.4	7.6	6.6	5.8	6.3	4.7	5.9	5.5	3.8	3.9
5.5–6.0 (High)	—	9.3	12.0	10.1	11.0	11.4	10.3	9.1	7.6	7.1	6.3	5.5	5.4	5.4	5.6	4.9	4.0
Race (2-year average): <sup>c</sup>																	
White	—	—	11.4	11.1	10.5	9.9	9.1	8.3	7.8	7.3	6.8	6.6	6.3	5.9	5.0	4.2	4.1
African American	—	—	4.3	4.2	3.6	3.1	3.0	2.5	2.3	2.1	1.7	1.7	2.0	2.0	1.2	0.7	0.9
Hispanic	—	—	8.4	8.2	7.4	6.4	5.7	5.8	5.1	5.3	5.0	4.4	3.7	2.5	1.6	1.9	2.7

Source. The Monitoring the Future study, the University of Michigan.

Notes. "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-60 (cont.)**  
**Tranquilizers:<sup>a</sup> Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																2007- 2008	2008 change	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 <sup>d</sup>	2002 <sup>d</sup>	2003	2004	2005	2006	2007 <sup>e</sup>	2008		
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	14,000	
Total	2.8	3.5	3.7	4.4	4.6	4.7	5.5	5.8	5.7 <sup>†</sup>	6.9	7.7	6.7	7.3	6.8	6.6	6.2	6.2	0.0	
Gender:																			
Male	2.7	3.5	4.0	4.7	5.0	5.4	6.3	6.9	6.4 <sup>†</sup>	7.9	8.4	6.9	8.0	7.2	7.1	6.9	6.8	-0.1	
Female	3.0	3.3	3.5	4.1	4.0	3.9	4.7	4.8	4.9 <sup>†</sup>	5.8	6.9	6.3	6.5	6.2	6.1	5.4	5.7	+0.3	
College Plans:																			
None or under 4 years	3.9	3.9	4.5	5.6	5.6	6.2	6.8	6.4	6.7 <sup>†</sup>	7.6	9.9	9.6	9.1	10.3	8.5	9.1	9.3	+0.2	
Complete 4 years	2.5	3.3	3.5	4.1	4.2	4.0	5.1	5.6	5.2 <sup>†</sup>	6.7	7.1	6.0	6.8	5.9	6.0	5.5	5.5	0.0	
Region:																			
Northeast	3.0	3.7	3.5	3.9	4.8	5.3	4.9	5.6	5.2 <sup>†</sup>	5.7	6.8	5.4	6.5	5.7	7.2	5.9	5.3	-0.6	
Midwest	2.3	2.8	3.1	4.0	4.4	3.5	3.7	5.1	4.7 <sup>†</sup>	8.1	6.5	5.5	6.2	7.0	5.8	6.4	5.2	-1.2	
South	3.5	4.2	4.8	5.0	5.3	5.4	7.5	7.6	6.7 <sup>†</sup>	7.4	10.4	8.5	9.0	8.3	7.6	7.0	7.8	+0.8	
West	2.3	3.0	2.8	4.3	3.0	4.3	4.4	3.9	5.6 <sup>†</sup>	5.5	5.8	6.6	7.0	4.9	5.3	4.7	5.5	+0.9	
Population Density:																			
Large MSA	2.9	2.9	3.9	4.0	3.7	4.2	4.8	4.0	4.7 <sup>†</sup>	7.9	7.8	4.7	5.5	5.5	6.5	5.9	5.2	-0.7	
Other MSA	2.7	3.6	3.7	4.5	4.9	4.8	5.7	6.6	6.2 <sup>†</sup>	6.4	8.2	7.8	8.5	7.4	6.6	6.4	6.6	+0.3	
Non-MSA	3.1	3.7	3.5	4.8	4.7	5.1	5.9	6.5	6.0 <sup>†</sup>	6.7	6.8	7.4	7.3	7.1	6.9	6.2	6.5	+0.2	
Parental Education: <sup>b</sup>																			
1.0-2.0 (Low)	3.9	3.3	4.2	3.9	4.2	3.9	6.4	5.2	6.4 <sup>†</sup>	5.4	5.2	7.1	5.0	4.3	5.7	6.0	5.9	-0.1	
2.5-3.0	2.8	3.3	3.5	4.7	4.0	4.3	5.2	6.2	5.3 <sup>†</sup>	6.7	7.9	6.5	7.9	7.7	6.9	6.5	5.5	-1.0	
3.5-4.0	2.7	3.5	3.6	4.3	4.7	4.6	6.0	6.4	5.6 <sup>†</sup>	7.7	8.4	7.6	9.0	7.3	6.9	6.4	7.4	+0.9	
4.5-5.0	3.0	3.4	3.7	4.5	4.6	5.4	4.9	5.4	5.9 <sup>†</sup>	7.4	7.9	5.9	7.1	6.8	6.6	6.3	5.7	-0.7	
5.5-6.0 (High)	2.2	4.2	4.2	4.1	5.3	5.1	5.5	5.6	5.8 <sup>†</sup>	6.0	7.9	6.2	5.4	5.9	6.4	5.5	6.0	+0.5	
Race (2-year average): <sup>c</sup>																			
White	3.7	3.7	4.2	4.6	5.1	5.5	6.2	6.8	6.9	7.7 <sup>†</sup>	9.2 <sup>†</sup>	8.7	8.4	8.6	8.2	7.9	7.9	0.0	
African American	1.3	1.0	1.1	1.2	0.9	0.8	1.0	1.0	0.7	0.6 <sup>†</sup>	1.1 <sup>†</sup>	1.3	1.7	1.9	1.6	1.3	1.0	-0.2	
Hispanic	2.4	2.0	2.4	3.5	4.3	3.8	3.3	3.5	4.3	3.9 <sup>†</sup>	4.1 <sup>†</sup>	4.5	4.5	4.3	4.3	4.5	4.2	-0.2	

<sup>a</sup>Only drug use not under a doctor's orders is included here.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>d</sup>In 2001, for the tranquilizer list of examples, Miltown was replaced with Xanax. The 2001 data are based on the changed forms only; N is one half of N indicated. In 2002 the remaining forms were changed. Beginning in 2002, the data are based on all forms. Data for any illicit drug other than marijuana and hallucinogens are also affected by these changes and have been treated in a parallel manner.

<sup>e</sup>In 2007, for the list of tranquilizers, Equanil and meprobamate were replaced with Soma while Atarax, Tranxene, and Vistaril were replaced with Ativan and Klonopin.

<sup>f</sup>Due to changes in the question wording in half of the questionnaire forms in 2001, the 2002 entry comprises half of the 2001 sample data double-weighted (the half with the new version of the question) and all of the 2002 sample data.

**TABLE D-61**  
**Over-the-Counter Cough/Cold Medicines: Trends in Annual Prevalence of Use**  
**by Subgroups in Grades 8, 10, and 12**

	Percentage who used in last 12 months														
	8th Graders			10th Graders			12th Graders			1911-2008					
	1991-2005	2006	2007	2006	2007	2008	2006	2007	2008	1991-2005	2006	2007	2008		
Approximate wtd. N =	—	5,500	5,400	5,200	—	5,400	5,400	5,000	—	4,700	4,800	4,700	—		
Total	—	4.2	4.0	3.6	-0.5	—	5.3	5.4	5.3	-0.1	—	6.9	5.8	5.5	-0.3
Gender:															
Male	—	3.4	3.1	2.7	-0.4	—	5.1	4.6	4.9	+0.3	—	7.6	5.9	6.3	+0.4
Female	—	4.7	5.0	4.3	-0.6	—	5.5	6.3	5.7	-0.6	—	5.9	5.1	4.7	-0.3
College Plans:															
None or under 4 years	—	11.9	8.0	7.1	-0.8	—	9.9	9.7	11.3	+1.5	—	8.9	8.3	7.6	-0.7
Complete 4 years	—	3.4	3.6	3.3	-0.3	—	4.6	4.8	4.6	-0.2	—	6.2	5.2	4.9	-0.3
Region:															
Northeast	—	3.4	2.4	2.5	+0.1	—	4.1	5.8	3.5	-2.3 s	—	5.9	7.8	4.4	-3.3 s
Midwest	—	4.5	4.0	3.8	-0.2	—	4.3	5.4	5.4	0.0	—	6.6	6.8	4.4	-2.5 s
South	—	4.2	4.8	4.1	-0.7	—	6.3	5.9	6.6	+0.8	—	7.6	5.2	6.7	+1.5
West	—	4.4	3.6	3.3	-0.4	—	6.0	4.7	4.8	+0.1	—	6.7	4.2	5.8	+1.5
Population Density:															
Large MSA	—	3.5	2.7	3.1	+0.3	—	4.3	4.7	4.3	-0.4	—	7.6	5.4	4.9	-0.5
Other MSA	—	4.4	4.8	3.5	-1.2	—	5.5	5.6	6.2	+0.6	—	6.0	5.9	5.5	-0.5
Non-MSA	—	4.6	4.2	4.3	+0.1	—	6.3	6.3	4.7	-1.6	—	7.5	6.1	6.4	+0.2
Parental Education: <sup>a</sup>															
1.0–2.0 (Low)	—	6.2	5.7	4.8	-0.9	—	5.1	6.4	6.8	+0.4	—	7.7	7.2	6.8	-0.4
2.5–3.0	—	5.1	4.5	4.4	-0.1	—	6.2	7.4	5.9	-1.5	—	6.2	6.7	5.0	-1.7
3.5–4.0	—	4.4	5.4	3.8	-1.6	—	6.2	6.0	5.0	-1.0	—	7.7	4.6	6.3	+1.7
4.5–5.0	—	3.8	3.4	3.4	0.0	—	4.1	4.5	5.6	+1.0	—	6.7	6.8	4.8	-2.0
5.5–6.0 (High)	—	3.0	2.0	2.5	+0.5	—	5.1	3.0	3.9	+0.9	—	4.9	4.0	4.4	+0.4
Race (2-year average): <sup>b</sup>															
White	—	—	4.5	4.1	-0.3	—	—	6.0	6.2	+0.3	—	—	6.3	5.8	-0.5
African American	—	—	2.2	2.3	+0.2	—	—	3.9	3.1	-0.7	—	—	5.0	4.2	-0.8
Hispanic	—	—	4.4	3.8	-0.6	—	—	3.2	4.0	+0.7	—	—	7.9	6.0	-1.9

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Tables D-107 through D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-62**  
**Rohypnol: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 12 months														2007–	2008			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	—	—	—	—	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	—	—	—	—	—	1.0	0.8	0.8	0.5	0.5	0.7	0.3	0.5	0.6	0.7	0.5	0.7	0.5	-0.2
Gender:																			
Male	—	—	—	—	—	1.1	0.7	0.8	0.6	0.5	0.6	0.2	0.4	0.5	0.7	0.7	0.6	0.6	0.0
Female	—	—	—	—	—	1.0	0.9	0.9	0.2	0.6	0.7	0.2	0.4	0.7	0.7	0.4	0.7	0.3	-0.3
College Plans:																			
None or under 4 years	—	—	—	—	—	2.5	1.5	3.0	0.9	2.2	2.0	1.0	1.3	2.4	1.8	1.1	3.3	2.6	-0.7
Complete 4 years	—	—	—	—	—	0.8	0.7	0.6	0.4	0.4	0.5	0.2	0.4	0.4	0.6	0.5	0.4	0.3	-0.1
Region:																			
Northeast	—	—	—	—	—	0.9	0.3	0.9	0.3	0.6	0.9	0.2	0.2	0.3	0.6	1.4	0.1	0.0	-0.1
Midwest	—	—	—	—	—	0.9	0.8	0.8	0.3	0.4	1.0	0.4	0.2	0.8	0.6	0.0	0.8	0.7	-0.2
South	—	—	—	—	—	1.3	1.1	0.9	0.7	0.9	0.6	0.4	0.6	0.5	0.5	0.6	0.7	0.6	-0.1
West	—	—	—	—	—	1.0	0.7	0.8	0.5	*	0.4	0.1	0.7	0.7	1.1	0.2	0.8	0.5	-0.3
Population Density:																			
Large MSA	—	—	—	—	—	1.2	0.8	0.7	0.4	0.9	1.2	0.1	0.1	0.5	0.4	0.6	0.4	0.6	+0.2
Other MSA	—	—	—	—	—	1.1	0.9	1.0	0.6	0.5	0.5	0.3	0.4	0.8	0.7	0.5	0.8	0.5	-0.3
Non-MSA	—	—	—	—	—	0.8	0.7	0.8	0.3	0.2	0.4	0.5	1.0	0.3	1.0	0.5	0.8	0.4	-0.5
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	—	2.0	2.1	2.2	0.2	0.9	1.3	0.9	1.8	2.4	0.6	0.7	0.5	0.7	+0.1
2.5–3.0	—	—	—	—	—	1.1	1.1	0.8	0.3	0.8	0.3	0.0	0.9	0.1	1.3	0.1	0.5	0.5	-0.1
3.5–4.0	—	—	—	—	—	1.2	0.7	0.9	0.6	0.2	1.2	0.2	0.1	0.2	0.4	0.7	0.7	0.7	0.0
4.5–5.0	—	—	—	—	—	0.8	0.6	0.6	0.5	0.4	0.7	0.6	0.4	0.6	0.9	0.1	0.9	0.2	-0.7
5.5–6.0 (High)	—	—	—	—	—	0.8	0.5	0.9	0.7	0.9	0.2	0.2	0.0	0.1	0.5	1.5	0.4	0.3	-0.1
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, "—" indicates data not available. "\*\*\*\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of two forms in 1996; N is one half of N indicated in Table D-107.

Data based on three of four forms in 1997–1998; N is two thirds of N indicated in Table D-107. Data based on two of four forms in 1999–2001; N is one third of N indicated in Table D-107.

Data based on one of four forms beginning in 2002; N is one sixth of N indicated in Table D-107.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-63**  
**Rohypnol: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 12 months													2007–	2008				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>						15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	—	—	—	—	—	1.1	1.3	1.2	1.0	0.8	1.0	0.7	0.6	0.7	0.5	0.5	0.7	0.4	-0.3
Gender:																			
Male	—	—	—	—	—	1.1	1.4	1.4	1.2	1.0	1.1	0.4	0.7	0.8	0.3	0.4	0.7	0.3	-0.4
Female	—	—	—	—	—	1.1	1.1	1.1	0.9	0.6	0.9	0.9	0.6	0.6	0.6	0.7	0.7	0.6	-0.2
College Plans:																			
None or under 4 years	—	—	—	—	—	2.9	2.7	2.9	2.8	1.4	2.8	0.5	0.3	1.4	1.6	1.5	1.4	0.5	-0.8
Complete 4 years	—	—	—	—	—	0.8	1.1	0.9	0.8	0.6	0.7	0.7	0.6	0.6	0.3	0.4	0.6	0.4	-0.2
Region:																			
Northeast	—	—	—	—	—	0.6	0.7	0.9	0.4	0.6	0.9	0.4	1.0	0.8	0.7	0.3	0.5	0.7	+0.2
Midwest	—	—	—	—	—	0.5	0.8	1.0	0.9	0.4	0.9	0.3	0.2	0.3	0.2	1.0	1.4	0.2	-1.2 s
South	—	—	—	—	—	1.9	2.4	2.0	1.8	1.2	1.0	0.4	0.8	0.9	0.7	0.7	0.5	0.4	0.0
West	—	—	—	—	—	1.1	0.6	0.5	0.6	0.7	1.3	2.0	0.4	0.9	0.2	0.0	0.4	0.4	0.0
Population Density:																			
Large MSA	—	—	—	—	—	1.1	1.3	1.3	0.9	0.9	1.2	0.7	0.3	0.6	0.3	0.2	0.7	0.1	-0.6
Other MSA	—	—	—	—	—	1.4	1.3	1.3	1.3	0.9	0.8	0.9	0.4	0.7	0.5	0.7	0.6	0.7	+0.1
Non-MSA	—	—	—	—	—	0.6	1.3	1.0	0.7	0.5	1.2	0.3	1.5	0.8	0.5	0.8	0.9	0.3	-0.5
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	—	—	—	—	—	1.7	1.3	1.7	1.2	1.3	2.3	0.4	1.3	0.4	1.1	1.4	0.4	1.2	+0.7
2.5–3.0	—	—	—	—	—	1.0	1.1	1.6	1.6	0.5	1.1	0.9	0.7	0.4	0.5	0.3	0.6	0.3	-0.3
3.5–4.0	—	—	—	—	—	1.5	1.6	1.0	0.8	0.8	0.7	1.0	0.9	1.0	0.4	0.7	0.5	0.5	0.0
4.5–5.0	—	—	—	—	—	0.7	1.5	0.9	0.6	0.7	1.1	0.7	0.2	0.6	0.6	0.3	0.6	0.2	-0.3
5.5–6.0 (High)	—	—	—	—	—	1.1	0.8	1.3	1.1	0.8	0.3	0.2	0.4	1.0	0.0	0.0	1.1	0.6	-0.4
Race (2-year average): <sup>b</sup>																			
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of two forms in 1996; N is one half of N indicated in Table D-108.

Data based on three of four forms in 1997–1998; N is two thirds of N indicated in Table D-108. Data based on two of four forms in 1999–2001; N is one third of N indicated in Table D-108.

Data based on one of four forms beginning in 2002; N is one sixth of N indicated in Table D-108.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-64**  
**Rohypnol: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months												2007–	2008			
	1975–	1980–	1990–	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004	2005	2006	2007	2008	change
	1979	1989	1995	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Approximate wtd. N =	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9†	1.6	1.3	1.6	1.2	1.1	1.0	1.3	+0.3
Total	—	—	—	1.1	1.2	1.4	1.0	0.8	0.9†	1.6	1.3	1.6	1.2	1.1	1.0	1.3	+0.3
Gender:																	
Male	—	—	—	1.8	1.2	1.7	1.0	0.8	1.1†	2.3	2.0	2.3	1.5	1.3	0.9	1.5	+0.5
Female	—	—	—	0.3	1.1	1.1	1.0	0.7	0.6†	1.0	0.5	0.7	0.8	0.5	0.7	0.8	+0.2
College Plans:																	
None or under 4 years	—	—	—	1.4	0.5	1.8	1.0	0.1	1.2†	2.5	2.1	3.0	2.4	1.6	1.8	2.3	+0.4
Complete 4 years	—	—	—	0.8	1.3	1.3	1.0	0.9	0.8†	1.4	0.9	1.0	0.9	0.8	0.7	1.0	+0.3
Region:																	
Northeast	—	—	—	0.9	0.6	1.2	0.8	0.3	1.7†	1.2	1.4	0.8	1.1	1.3	1.7	0.8	-0.9
Midwest	—	—	—	1.0	0.5	1.0	0.8	0.9	0.5†	1.8	1.2	1.3	1.7	0.8	0.9	1.0	0.0
South	—	—	—	1.8	2.2	2.6	1.6	1.3	1.0†	1.5	1.4	2.1	1.3	1.3	1.0	2.0	+1.0 s
West	—	—	—	0.1	0.8	0.0	0.2	0.1	0.8†	2.0	1.1	1.8	0.6	1.3	0.5	0.9	+0.4
Population Density:																	
Large MSA	—	—	—	1.3	0.9	0.8	0.3	0.3	1.0†	1.6	1.1	1.8	1.4	1.2	1.0	0.6	-0.4
Other MSA	—	—	—	1.3	1.5	2.2	1.4	1.1	1.2†	2.0	1.7	1.6	1.2	1.0	1.1	1.8	+0.7
Non-MSA	—	—	—	0.7	0.7	0.6	0.9	0.7	0.3†	1.1	0.9	1.2	1.1	1.4	0.8	1.0	+0.2
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	—	—	1.6	0.4	0.6	4.7	0.0	4.2†	3.7	2.8	3.4	3.9	1.2	1.3	1.6	+0.3
2.5–3.0	—	—	—	0.5	0.6	1.0	0.3	0.4	0.4†	2.9	1.8	1.8	1.2	1.2	0.8	1.7	+0.9
3.5–4.0	—	—	—	0.8	1.4	1.1	1.1	1.5	0.8†	0.8	1.2	1.5	1.4	1.0	0.5	1.3	+0.8
4.5–5.0	—	—	—	0.9	1.7	2.7	0.3	0.6	0.8†	1.6	0.9	0.6	0.3	1.2	1.4	0.7	-0.6
5.5–6.0 (High)	—	—	—	1.8	1.7	1.4	0.7	0.0	0.2†	0.8	0.2	1.5	0.9	0.7	0.9	0.6	-0.3
Race (2-year average): <sup>c</sup>																	
White	—	—	—	—	1.2	1.6	1.5	0.9	0.8†	—	1.5	1.3	1.1	0.9	0.7	0.9	+0.1
African American	—	—	—	—	0.1	0.0	0.2	0.4	0.2†	—	0.8	1.2	1.7	1.3	1.6	2.1	+0.6
Hispanic	—	—	—	—	2.0	1.3	1.0	0.6	1.3†	—	1.6	1.7	1.9	2.1	1.5	0.8	-0.6

(Table continued on next page.)

**TABLE D-64 (cont.)**  
**Rohypnol: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* "†" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of six forms in 1996–2001; *N* is one sixth of *N* indicated in Table D-109. Data based on two of six forms beginning in 2002; *N* is two sixths of *N* indicated in Table D-109.

**Caution:** Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.

<sup>a</sup>The 2001 and 2002 data are not comparable due to changes in the questionnaire forms.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-65**  
**Alcohol: Trends in 30-Day Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 30 days																	2007- 2008		
	1991	1992	1993 <sup>a</sup>	1994 <sup>a</sup>	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 <sup>a</sup>	2005 <sup>a</sup>	2006	2007	2008	change	
Approximate <i>wtid</i> . N =	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	25.1	26.1†	24.3	25.5	24.6	26.2	24.5	23.0	24.0	22.4	21.5	19.6	19.7	18.6	17.1	17.2	15.9	15.9	+0.1	
Gender:																				
Male	26.3	26.3†	25.3	26.5	25.0	26.6	25.2	24.0	24.8	22.5	22.3	19.1	19.4	17.9	16.2	16.3	15.6	15.4	-0.2	
Female	23.8	25.9†	23.7	24.7	24.0	25.8	23.9	21.9	23.3	22.0	20.6	20.0	19.8	19.0	17.9	17.6	16.0	16.4	+0.4	
College Plans:																				
None or under 4 years	37.2	39.6†	41.1	41.4	40.0	41.7	40.2	41.2	41.6	38.3	37.0	35.3	35.3	32.6	32.6	30.8	33.5	30.4	-3.1	
Complete 4 years	23.1	24.2†	22.2	23.6	22.6	24.0	22.8	21.0	22.0	20.4	19.7	18.2	18.1	17.2	15.5	15.8	14.3	14.7	+0.4	
Region:																				
Northeast	24.3	23.8†	21.0	25.4	24.1	26.9	24.8	21.2	25.7	25.6	23.3	19.3	18.4	18.0	14.5	16.9	12.9	15.9	+3.0	
Midwest	26.6	28.3†	24.7	24.2	24.7	26.9	22.8	23.9	25.7	24.1	21.2	19.1	21.9	19.3	16.9	17.0	15.5	16.1	+0.6	
South	25.1	26.8†	25.4	25.6	25.5	26.3	26.4	23.8	24.4	20.9	22.8	21.6	20.8	18.8	19.0	18.5	17.1	18.2	+1.0	
West	23.1	23.5†	25.6	27.2	23.1	24.8	22.7	22.2	19.8	20.2	18.1	17.0	16.0	17.9	16.4	15.3	15.9	12.6	-3.3 s	
Population Density:																				
Large MSA	25.4	27.4†	21.2	23.8	22.3	24.9	23.1	21.4	21.7	21.2	19.4	17.4	18.2	18.1	17.2	16.6	14.8	15.2	+0.3	
Other MSA	24.3	26.1†	26.0	27.4	25.3	27.4	24.9	22.4	23.4	21.3	21.5	20.1	19.4	19.1	17.9	17.4	16.1	16.3	+0.2	
Non-MSA	26.2	24.2†	24.9	23.8	26.0	25.7	25.4	26.0	28.1	26.1	24.1	21.4	22.3	18.1	15.6	17.5	16.8	16.2	-0.5	
Parental Education: <sup>b</sup>																				
1.0-2.0 (Low)	30.7	32.8†	28.0	33.5	30.8	28.1	29.7	28.9	30.7	30.2	28.5	27.6	25.5	24.2	23.8	24.1	26.1	25.5	-0.6	
2.5-3.0	27.0	27.2†	28.0	27.4	27.8	30.1	26.2	26.5	27.9	26.3	27.0	23.2	24.0	22.1	20.4	20.0	20.3	19.3	-1.0	
3.5-4.0	25.1	26.3†	25.9	26.7	26.8	27.6	27.8	24.5	25.2	23.0	23.3	21.2	22.0	20.0	18.8	19.0	16.9	16.8	-0.2	
4.5-5.0	22.8	24.6†	20.6	22.6	21.0	25.0	22.6	20.2	20.4	18.4	17.2	17.0	16.0	16.3	14.6	13.9	11.6	13.4	+1.9	
5.5-6.0 (High)	24.0	25.2†	22.3	23.6	20.5	21.5	20.5	21.3	22.1	19.0	16.4	15.1	15.7	15.8	13.1	13.8	11.2	11.5	+0.3	
Race (2-year average): <sup>c</sup>																				
White	—	26.6	27.1†	25.3	25.4	26.6	26.7	24.8	24.7	24.7	23.2	21.5	20.1	19.2	17.9	16.9	15.6	15.2	-0.4	
African American	—	18.6	19.7†	19.4	18.7	18.1	17.9	16.1	16.1	16.0	15.0	14.8	15.5	16.2	14.9	13.1	12.3	12.9	+0.6	
Hispanic	—	31.0	32.3†	33.5	32.4	29.7	29.8	29.5	29.0	26.7	25.7	26.5	25.3	23.5	20.6	21.2	23.0	21.5	-1.5	

Source. The Monitoring the Future study, the University of Michigan.

Notes. "†" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

"In 1993, the question text was changed slightly in one form to indicate that a "drink" meant "more than a few sips." The 1993 data are based on the changed form only; N is one half of N indicated. In 1994 the question text was changed in the remaining form. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-66**  
**Alcohol: Trends in 30-Day Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 30 days																2007- 2008			
	1991	1992	1993 <sup>a</sup>	1994 <sup>a</sup>	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 <sup>a</sup>	2005 <sup>a</sup>	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	42.8	39.9‡	38.2	39.2	38.8	40.4	40.1	38.8	40.0	41.0	39.0	35.4	35.4	35.2	33.2	33.8	33.4	28.8	-4.7 sss	
Gender:																				
Male	45.5	41.6‡	40.6	43.5	39.7	42.6	42.5	40.0	42.3	43.3	41.1	35.3	35.3	36.3	32.8	33.8	33.4	28.6	-4.9 sss	
Female	40.2	38.3‡	35.6	34.8	37.8	38.3	37.9	37.7	38.1	38.6	36.8	35.7	35.3	34.0	33.6	33.8	33.3	29.0	-4.3 sss	
College Plans:																				
None or under 4 years	53.6	49.5‡	48.6	52.0	52.2	53.3	51.6	52.4	53.7	53.9	52.2	47.1	46.6	47.5	44.9	44.8	47.4	44.6	-2.8	
Complete 4 years	40.6	37.9‡	36.1	36.4	36.4	38.3	38.1	36.5	37.9	39.1	36.8	33.5	33.6	33.6	31.6	32.5	31.7	26.9	-4.8 sss	
Region:																				
Northeast	48.0	42.3‡	42.4	37.4	38.3	41.4	41.1	41.6	44.8	42.0	37.8	36.3	38.7	40.4	37.0	35.7	36.2	31.4	-4.7 s	
Midwest	43.5	40.3‡	37.4	39.6	38.9	39.1	38.6	37.6	40.9	42.5	41.0	35.7	34.4	30.9	31.9	33.7	34.4	29.5	-4.9 s	
South	41.7	38.2‡	38.0	40.5	39.4	41.7	40.8	39.9	38.8	39.1	38.3	33.7	34.8	36.4	33.4	32.8	31.2	29.0	-2.2	
West	39.6	39.8‡	35.6	38.2	38.0	38.9	39.9	35.5	36.1	41.1	38.2	37.2	34.1	33.7	30.7	33.9	32.9	25.9	-7.1 sss	
Population Density:																				
Large MSA	43.6	40.4‡	39.0	36.3	34.6	37.9	37.8	34.2	39.7	42.4	37.6	32.0	33.1	32.0	31.1	32.5	31.8	27.4	-4.4 s	
Other MSA	41.4	38.6‡	36.2	40.1	39.9	41.0	40.2	39.0	39.7	39.3	38.3	35.2	35.6	37.0	34.4	34.5	33.3	28.7	-4.6 ss	
Non-MSA	44.8	41.9‡	41.3	40.6	41.3	42.1	42.6	43.7	41.0	42.4	41.8	40.4	38.3	35.8	33.5	34.4	36.2	31.1	-5.1 s	
Parental Education: <sup>b</sup>																				
1.0-2.0 (Low)	42.1	40.4‡	37.5	38.6	43.5	43.2	39.2	39.9	40.6	41.1	38.6	38.2	38.4	38.6	36.5	33.1	36.5	35.5	-1.1	
2.5-3.0	43.9	40.9‡	40.6	41.5	42.3	42.6	41.1	41.2	42.3	42.8	41.4	38.0	37.4	38.5	36.0	38.0	37.0	30.9	-6.1 sss	
3.5-4.0	44.2	40.0‡	38.0	40.6	38.8	42.2	41.6	40.1	40.2	42.8	41.0	36.4	36.6	37.5	33.5	35.6	35.6	30.4	-5.2 sss	
4.5-5.0	40.7	39.4‡	36.2	37.7	37.9	37.8	39.3	36.9	38.7	40.2	37.0	33.7	32.7	32.6	31.8	32.0	31.5	25.9	-5.6 sss	
5.5-6.0 (High)	44.9	41.7‡	39.3	35.4	34.3	39.6	38.9	37.0	40.9	39.0	37.1	32.0	34.1	32.4	31.8	31.7	28.8	26.2	-2.6	
Race (2-year average): <sup>c</sup>																				
White	—	44.1	43.1‡	40.4	41.0	42.2	43.0	42.7	43.0	43.9	42.7	40.0	38.7	37.8	37.0	36.3	35.9	33.3	-2.6 s	
African American	—	30.2	29.3‡	29.7	28.0	23.9	24.6	25.1	24.4	24.7	25.3	24.3	23.7	24.6	23.0	21.5	21.7	20.6	-1.0	
Hispanic	—	41.0	39.9‡	37.7	40.5	44.0	42.8	39.4	39.6	40.5	40.2	37.9	37.1	39.5	38.2	36.1	34.8	33.7	-1.0	

Source: The Monitoring the Future study, the University of Michigan.

Notes: "‡" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 1993, the question text was changed slightly in one form to indicate that a "drink" meant "more than a few sips." The 1993 data are based on the changed form only; N is one half of N indicated. In 1994, the question text was changed in the remaining form. Beginning in 1994, the data are based on all forms. In 2004, the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-67**  
**Alcohol: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	68.2	68.3	71.2	72.1	71.8	72.0	70.7	69.7	69.4	67.2	65.9	65.3	66.4	63.9	60.0	57.1	54.0
Gender:																	
Male	75.0	74.5	77.8	77.5	76.7	77.4	75.7	74.1	74.4	71.4	69.8	69.0	69.9	68.0	65.1	61.3	58.4
Female	62.2	61.8	65.0	67.1	67.0	66.8	65.7	65.4	64.3	62.8	62.1	61.9	63.1	59.9	54.9	52.3	49.0
College Plans:																	
None or under 4 years	—	69.9	72.8	72.7	72.2	73.5	72.1	71.6	70.5	69.0	67.9	66.6	68.6	65.0	61.6	58.7	57.1
Complete 4 years	—	66.5	69.4	71.6	71.4	70.8	70.0	68.6	68.1	65.7	64.6	64.8	65.7	63.6	59.1	56.4	52.7
Region:																	
Northeast	76.9	75.7	76.6	78.0	81.1	79.4	80.4	76.7	74.4	73.6	72.3	67.6	69.1	66.7	61.7	65.3	59.6
Midwest	71.1	73.2	76.4	77.2	73.9	75.1	73.6	75.0	74.4	70.6	66.8	71.3	70.7	67.9	65.9	61.5	59.7
South	62.8	60.2	64.7	67.0	65.7	65.5	62.9	61.3	64.3	62.1	60.0	58.2	60.7	58.6	55.1	51.0	49.1
West	60.0	62.2	64.4	63.1	65.5	67.6	65.3	63.8	62.9	63.6	66.2	64.5	66.7	65.0	59.3	51.6	49.7
Population Density:																	
Large MSA	75.3	72.6	74.0	75.5	77.3	78.0	75.5	72.9	69.2	66.6	67.4	66.2	66.3	63.8	56.9	59.2	52.9
Other MSA	68.5	67.0	72.0	72.7	72.0	70.8	69.1	69.3	69.8	66.2	65.1	64.8	66.9	64.1	60.7	57.4	55.7
Non-MSA	63.2	66.5	67.8	68.4	67.3	69.0	68.9	67.6	69.0	69.0	65.9	65.2	65.5	63.8	61.7	54.4	52.0
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	58.7	62.5	62.0	62.7	64.6	65.9	62.1	61.3	61.2	58.1	58.7	56.1	56.3	54.5	47.8	47.2	49.9
2.5–3.0	70.0	71.4	72.5	71.9	71.1	72.0	70.7	69.4	69.2	67.4	65.9	65.3	67.0	64.6	59.7	57.2	53.3
3.5–4.0	69.2	67.9	73.5	75.0	74.6	73.3	71.5	72.7	70.4	69.6	66.9	66.7	67.2	64.3	62.9	57.7	54.3
4.5–5.0	69.6	71.3	74.5	77.0	76.0	74.4	73.1	74.5	73.1	69.3	68.9	68.0	68.8	66.0	62.1	60.8	54.8
5.5–6.0 (High)	67.3	72.5	77.1	79.2	75.9	77.2	77.4	74.1	75.0	70.3	67.9	69.9	70.5	67.3	62.2	60.8	58.0
Race (2-year average): <sup>b</sup>																	
White	—	—	72.8	75.0	75.3	75.4	74.6	73.9	72.8	71.2	70.2	70.2	71.0	70.6	67.3	63.8	60.0
African American	—	—	49.5	48.7	47.2	47.6	46.7	46.0	47.7	45.5	42.8	42.1	39.4	39.8	39.5	35.8	33.7
Hispanic	—	—	63.0	64.5	63.8	63.6	62.0	60.3	59.1	59.7	58.1	56.3	57.2	57.8	52.9	49.1	51.5

Source: The Monitoring the Future study, the University of Michigan.

Notes: "±" indicates some change in the question. See relevant footnote. See relevant figure to assess the impact of the wording changes.

Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-67 (cont.)**  
**Alcohol: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																2007– 2008		
	1992	1993 <sup>c</sup>	1994 <sup>c</sup>	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 <sup>c</sup>	2005 <sup>c</sup>	2006	2007	2008	change	
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	51.3†	48.6	50.1	51.3	50.8	52.7	52.0	51.0	50.0	49.8	48.6	47.5	48.0	47.0	45.3	44.4	43.1	-1.3	
Gender:																			
Male	55.8†	54.2	55.5	55.7	54.8	56.2	57.3	55.3	54.0	54.7	52.3	51.7	51.1	50.7	47.3	47.1	45.8	-1.3	
Female	46.8†	43.4	45.2	47.0	46.9	48.9	46.9	46.8	46.1	45.1	45.1	43.8	45.1	43.3	43.0	41.4	40.9	-0.6	
College Plans:																			
None or under 4 years	54.9†	52.4	53.6	55.9	54.8	56.1	56.0	55.2	54.3	55.5	53.0	55.4	52.1	52.8	54.0	48.6	49.7	+1.1	
Complete 4 years	50.0†	47.4	48.9	49.6	49.3	51.4	50.9	49.8	48.3	47.9	47.4	45.2	47.0	45.5	43.2	43.3	41.7	-1.6	
Region:																			
Northeast	51.5†	56.1	53.1	55.0	56.5	56.7	56.2	57.2	58.0	54.3	50.9	51.6	53.9	54.5	52.4	51.8	49.1	-2.7	
Midwest	58.0†	51.6	53.8	55.3	51.5	51.5	51.9	51.1	52.3	54.5	52.1	50.8	49.5	48.0	46.3	47.9	42.8	-5.1 s	
South	48.1†	47.7	49.2	50.6	51.1	51.1	51.4	49.5	44.9	45.9	46.8	43.0	43.5	43.9	43.2	43.1	42.9	-0.2	
West	46.7†	39.8	44.2	43.2	42.1	52.7	49.2	47.8	48.3	44.9	45.0	47.0	47.3	43.6	41.3	36.6	39.2	+2.6	
Population Density:																			
Large MSA	49.0†	50.6	49.5	50.6	51.6	51.1	49.1	48.9	51.2	49.7	50.3	43.0	44.1	46.6	47.6	47.1	46.1	-1.1	
Other MSA	50.8†	47.1	49.2	50.6	50.1	53.4	53.9	52.8	48.8	49.6	48.8	49.6	51.7	47.6	43.9	42.1	40.4	-1.6	
Non-MSA	54.1†	49.8	52.5	53.4	51.4	52.9	51.6	50.1	50.8	50.0	45.9	49.6	45.5	46.1	44.7	45.2	45.8	+0.5	
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	45.6†	36.6	43.5	45.9	41.2	43.8	43.8	46.8	43.4	42.9	42.2	43.6	42.1	38.2	44.4	38.3	41.4	+3.1	
2.5–3.0	52.3†	49.0	49.9	52.0	48.2	51.0	50.1	50.5	50.0	49.0	47.9	47.8	46.8	47.8	46.7	46.0	42.4	-3.6 s	
3.5–4.0	51.2†	51.2	50.1	50.6	51.4	52.1	55.6	51.1	51.3	51.4	50.9	47.9	52.4	47.8	46.3	43.6	43.2	-0.4	
4.5–5.0	51.0†	49.8	52.6	51.8	53.6	55.3	52.4	50.2	48.1	51.5	48.9	47.5	47.7	50.2	42.9	45.0	43.9	-1.1	
5.5–6.0 (High)	55.7†	53.2	52.2	55.1	54.2	57.4	54.7	56.0	54.0	49.5	51.1	49.3	47.4	46.0	48.2	47.6	45.9	-1.7	
Race (2-year average): <sup>b</sup>																			
White	56.8	55.6†	54.0	54.5	54.8	56.4	57.7	56.3	55.1	55.3	54.0	52.3	52.2	52.3	50.7	49.3	48.6	-0.6	
African American	31.7	32.4†	33.8	35.2	36.5	34.3	33.3	32.2	30.0	29.4	30.1	29.9	29.2	29.0	29.2	28.7	28.6	-0.1	
Hispanic	53.8	50.5†	45.9	48.7	47.5	48.2	49.8	50.2	51.2	48.9	47.5	46.4	45.4	43.3	43.4	41.4	38.9	-2.5	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>c</sup>In 1993, the question text was changed slightly in three of six forms to indicate that a "drink" meant "more than a few sips." The 1993 data are based on the changed forms only; *N* is three sixths of *N* indicated. In 1994 the question text was changed in the remaining forms. Beginning in 1994, the data are based on all six forms. In 2004 the question text was changed slightly in half of the forms. An examination of the data did not show any effect from the wording change. The remaining forms were changed in 2005.

**TABLE D-68**  
**Been Drunk: Trends in 30-Day Prevalence by Subgroups in Grade 8**

	Percentage who had been drunk in last 30 days																2007–			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	7.6	7.5	7.8	8.7	8.3	9.6	8.2	8.4	9.4	8.3	7.7	6.7	6.7	6.2	6.0	6.2	5.5	5.4	-0.1	
Gender:																				
Male	8.4	7.4	7.8	9.0	8.2	9.7	8.4	8.5	10.2	8.2	7.8	7.1	6.6	5.8	5.9	6.1	5.3	5.3	-0.1	
Female	7.0	7.6	7.8	8.3	8.2	9.5	7.9	8.2	8.6	8.1	7.4	6.3	6.8	6.6	6.2	6.2	5.6	5.4	-0.1	
College Plans:																				
None or under 4 years	15.8	17.2	18.4	20.0	17.2	19.3	18.7	21.4	22.4	18.9	18.9	15.5	17.0	16.1	15.7	15.4	16.3	14.9	-1.4	
Complete 4 years	6.4	6.1	6.4	7.3	7.3	8.2	7.1	6.9	8.0	7.0	6.5	5.9	5.7	5.2	5.1	5.4	4.6	4.6	+0.1	
Region:																				
Northeast	5.7	6.4	6.2	8.2	8.2	9.7	7.9	6.9	9.4	8.3	8.0	5.3	4.9	4.8	4.2	5.8	3.5	4.5	+1.0	
Midwest	7.7	7.6	7.3	8.3	8.3	10.2	8.2	10.4	11.6	9.7	8.2	7.0	8.1	6.8	6.2	6.3	5.7	5.3	-0.4	
South	8.8	8.2	8.3	8.8	8.4	9.1	8.3	7.8	9.5	7.4	8.1	7.6	7.2	6.4	7.1	6.9	6.1	6.8	+0.7	
West	7.3	6.9	9.4	9.6	8.2	9.8	8.3	8.3	6.6	8.1	6.0	5.9	6.0	6.4	5.8	5.2	5.7	4.2	-1.5	
Population Density:																				
Large MSA	7.4	7.0	6.0	7.6	7.2	8.9	6.7	6.9	7.8	7.1	6.3	5.2	5.6	5.4	5.4	5.1	4.8	5.4	+0.6	
Other MSA	7.3	7.4	8.4	9.7	8.9	9.9	8.6	7.5	8.4	7.2	7.9	7.3	6.8	6.5	6.1	6.4	5.6	5.2	-0.3	
Non-MSA	8.4	8.2	8.8	7.9	8.6	10.0	9.2	11.7	13.3	12.0	8.9	7.3	8.1	6.5	6.9	7.5	6.4	5.9	-0.5	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	13.4	11.0	10.4	12.5	13.1	11.1	11.5	13.1	14.5	14.0	12.1	10.5	13.4	10.0	9.3	9.4	10.6	10.1	-0.5	
2.5–3.0	9.2	8.8	9.2	9.3	9.6	11.9	9.3	9.5	11.7	10.5	9.7	8.5	9.4	7.4	8.4	7.9	7.9	7.4	-0.5	
3.5–4.0	6.9	7.6	8.5	9.3	9.4	10.4	10.2	9.1	9.9	8.0	8.7	6.7	7.1	6.8	6.7	7.1	6.0	5.8	-0.2	
4.5–5.0	6.1	6.5	5.9	7.5	6.4	8.7	6.7	7.0	6.9	5.6	5.7	5.5	4.5	5.0	4.6	4.4	3.1	3.7	+0.5	
5.5–6.0 (High)	6.8	4.9	6.7	7.6	6.0	7.1	5.8	6.9	8.7	7.1	4.6	4.8	4.2	4.4	3.5	4.6	3.1	3.3	+0.2	
Race (2-year average): <sup>b</sup>																				
White	—	7.7	7.8	8.4	8.9	9.7	9.7	9.1	9.8	10.0	9.0	8.0	7.2	6.8	6.6	6.4	5.9	5.5	-0.3	
African American	—	5.4	5.1	5.6	5.6	5.5	4.6	3.9	4.9	4.7	4.0	4.0	4.2	4.1	3.8	3.6	3.7	3.8	0.0	
Hispanic	—	9.9	9.9	10.8	10.8	10.8	10.4	9.8	9.9	8.5	7.8	8.4	8.5	8.1	7.0	7.2	7.4	6.7	-0.7	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-69**  
**Been Drunk: Trends in 30-Day Prevalence by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008 change
Percentage who had been drunk in last 30 days																			
<i>Approximate wtd. N =</i>																			
Total	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	15,100
	20.5	18.1	19.8	20.3	20.8	21.3	22.4	21.1	22.5	23.5	21.9	18.3	18.2	18.5	17.6	18.8	18.1	14.4	-3.7 sss
Gender:																			
Male	22.3	18.6	21.4	23.2	21.9	23.0	24.6	22.3	25.4	26.2	24.2	19.3	18.8	20.2	18.2	19.1	18.9	14.6	-4.3 sss
Female	18.7	17.5	18.1	17.2	19.6	19.8	20.2	19.9	19.8	20.9	19.7	17.4	17.7	17.0	16.8	18.4	17.4	14.3	-3.1 ss
College Plans:																			
None or under 4 years	29.5	26.3	29.0	31.1	31.4	32.0	35.5	33.5	34.6	35.1	34.8	27.4	27.4	27.5	27.8	29.0	28.9	25.2	-3.7
Complete 4 years	18.6	16.4	17.9	18.0	19.0	19.7	20.3	19.1	20.7	21.8	19.8	16.8	16.9	17.4	16.3	17.5	16.8	13.2	-3.6 sss
Region:																			
Northeast	23.9	18.8	20.0	19.0	19.5	22.4	21.9	23.1	25.8	22.8	19.9	18.1	20.3	22.4	20.5	20.4	20.5	15.3	-5.2 ss
Midwest	21.8	18.9	20.1	21.0	22.6	22.0	23.3	21.8	26.0	27.6	24.0	18.7	18.8	16.6	17.4	19.8	19.6	16.0	-3.6 s
South	19.2	16.8	19.8	20.9	20.9	21.4	22.0	21.9	20.3	21.4	21.5	17.5	17.6	18.7	17.2	17.6	16.3	14.9	-1.4
West	18.2	18.3	19.0	19.5	19.5	19.3	22.6	17.0	19.0	22.4	21.2	19.5	16.5	16.7	15.2	17.9	16.9	11.8	-5.1 sss
Population Density:																			
Large MSA	20.6	17.6	17.6	16.1	18.2	19.6	20.7	17.2	21.6	23.4	19.5	16.5	15.7	15.1	16.2	17.7	16.3	12.7	-3.7 ss
Other MSA	20.1	17.3	18.2	21.7	21.8	21.9	21.8	21.2	22.7	22.5	21.6	18.0	18.6	20.5	18.3	19.0	18.5	14.8	-3.7 ss
Non-MSA	21.1	19.9	24.7	21.8	21.8	22.4	25.5	25.4	23.4	25.4	25.3	21.4	21.4	19.0	17.8	20.0	20.0	16.4	-3.6
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	20.9	18.2	22.2	20.0	23.4	22.1	19.7	20.1	21.8	21.3	22.0	17.3	19.0	17.7	15.8	18.4	17.7	16.9	-0.7
2.5-3.0	22.5	18.5	21.4	21.2	22.9	23.4	22.5	23.3	23.4	24.5	22.6	19.9	18.9	21.0	19.4	21.6	19.9	15.0	-5.0 sss
3.5-4.0	20.4	19.4	19.4	22.1	21.4	22.1	24.1	21.3	23.3	24.5	22.8	19.5	19.3	18.9	17.5	19.9	19.1	15.7	-3.4 ss
4.5-5.0	19.7	17.1	18.2	18.7	19.7	19.5	22.3	20.2	21.7	24.1	21.4	17.4	17.5	17.3	17.5	17.4	16.8	13.3	-3.5 ss
5.5-6.0 (High)	20.6	18.5	18.6	17.9	17.9	22.3	22.4	20.4	24.0	23.1	21.5	16.8	17.7	19.3	17.0	17.6	17.7	14.2	-3.6 s
Race (2-year average): <sup>b</sup>																			
White	—	21.6	20.8	22.0	22.7	23.7	25.0	25.5	25.7	26.7	25.8	23.2	21.9	21.7	21.0	20.9	21.3	19.2	-2.1
African American	—	9.4	10.3	10.1	9.8	8.5	8.6	8.8	7.6	8.6	9.5	8.6	8.0	8.3	8.0	7.8	8.3	8.0	-0.3
Hispanic	—	16.2	15.9	17.0	18.6	20.1	19.5	18.0	17.8	18.0	18.7	17.4	15.7	17.0	17.3	16.6	15.0	14.0	-0.9

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-70**  
**Been Drunk: Trends in 30-Day Prevalence by Subgroups in Grade 12**

	Percentage who had been drunk in last 30 days																			2007–	2008
	1975–	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	—	15,000	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	—	31.6	29.9	28.9	28.9	30.8	33.2	31.3	34.2	32.9	32.9	32.3	32.7	30.3	30.9	32.5	30.2	30.0	28.7	27.6	-1.1
Gender:																					
Male	—	37.1	35.2	34.5	34.5	34.5	37.8	35.4	39.2	39.0	37.9	38.4	37.0	34.3	34.9	36.0	33.6	32.9	31.7	29.2	-2.5
Female	—	25.4	24.5	23.5	23.5	26.8	28.8	27.3	29.1	26.6	27.7	26.7	28.4	26.9	26.9	29.0	26.4	26.3	25.7	26.2	+0.5
College Plans:																					
None or under 4 years	—	32.2	31.4	32.6	32.6	32.2	37.6	31.4	38.1	33.7	36.1	35.0	36.3	31.7	37.6	34.7	34.3	37.2	30.6	32.0	+1.4
Complete 4 years	—	30.9	29.2	27.4	27.4	29.4	31.4	31.0	32.3	32.0	31.7	30.6	31.3	29.3	28.7	31.2	28.5	27.6	28.2	26.4	-1.8
Region:																					
Northeast	—	36.4	30.0	35.0	35.0	35.2	35.5	37.2	35.9	35.6	37.5	39.3	33.9	33.6	35.4	38.1	38.7	37.9	32.6	31.1	-1.5
Midwest	—	37.2	38.2	32.5	32.5	34.1	38.2	31.5	33.7	34.8	33.4	34.8	39.2	35.0	34.9	34.2	31.3	32.2	32.0	31.2	-0.8
South	—	26.5	25.2	26.4	26.4	29.1	31.2	31.0	34.5	30.1	30.8	26.5	28.8	28.4	25.9	29.3	26.9	27.4	26.5	25.5	-0.9
West	—	28.5	26.6	23.2	23.2	25.4	27.1	24.7	32.7	33.5	32.2	32.8	28.8	25.0	30.1	29.5	26.5	25.2	26.0	24.1	-1.9
Population Density:																					
Large MSA	—	30.4	26.1	29.4	29.4	28.7	32.0	31.5	31.5	32.2	29.2	30.5	30.6	32.9	25.4	27.4	28.2	30.4	29.8	31.4	+1.6
Other MSA	—	33.5	29.8	26.9	26.9	29.9	31.7	33.0	33.7	34.0	35.4	34.5	31.7	29.1	33.5	37.3	31.5	29.0	27.6	25.0	-2.6
Non-MSA	—	29.4	33.7	32.0	32.0	34.4	36.9	28.2	38.2	31.4	32.5	30.5	36.7	29.2	33.2	29.1	29.9	31.4	29.4	28.8	-0.5
Parental Education: <sup>a</sup>																					
1.0–2.0 (Low)	—	20.4	20.5	23.6	23.6	25.7	25.4	18.8	23.7	24.6	20.8	28.4	22.2	20.0	25.6	25.5	22.0	27.7	19.7	26.7	+7.0
2.5–3.0	—	30.2	30.0	26.4	26.4	30.3	30.0	27.4	31.5	28.0	30.5	33.1	32.2	27.0	28.7	32.3	29.9	29.5	31.6	25.3	-6.3 s
3.5–4.0	—	31.0	31.3	29.2	29.2	29.9	34.4	31.1	32.7	34.1	34.0	31.2	32.0	32.4	30.6	35.1	31.3	31.0	26.8	28.2	+1.4
4.5–5.0	—	34.4	29.4	32.8	32.8	33.5	36.5	35.8	37.7	36.0	32.8	31.9	36.1	31.0	33.3	33.7	31.3	29.7	28.4	30.0	+1.6
5.5–6.0 (High)	—	40.5	34.3	30.4	30.4	30.7	34.9	34.6	39.8	39.9	40.6	35.5	33.6	34.5	33.4	32.6	32.2	30.1	33.0	27.8	-5.2
Race (2-year average): <sup>b</sup>																					
White	—	—	34.7	33.6	34.0	34.0	36.4	36.6	37.7	39.3	37.8	37.0	37.7	36.6	35.6	36.4	36.5	35.2	33.7	32.7	-1.0
African American	—	—	11.0	12.5	14.1	13.2	13.0	13.8	13.8	13.8	14.9	14.9	12.0	12.1	11.7	14.3	15.4	13.5	14.6	14.8	+0.2
Hispanic	—	—	27.2	24.8	23.0	24.2	26.2	26.2	26.9	25.9	27.5	29.8	25.5	23.5	23.9	24.1	22.2	23.1	24.0	22.2	-1.8

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on two of six forms; N is two sixths of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-71**  
**Alcohol: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 8**

	Percentage reporting 5+ drinks in a row on one or more occasions																	2007–	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,700	16,500	17,000	16,800	16,500	16,700	15,700	15,700
Total	10.9	11.3	11.3	12.1	12.3	13.3	12.3	11.5	13.1	11.7	11.0	10.3	9.8	9.4	8.4	8.7	8.3	8.1	-0.2
Gender:																			
Male	12.1	11.6	12.4	13.2	12.5	14.1	13.0	12.1	14.0	11.7	11.5	10.4	10.2	8.8	8.2	8.6	8.2	8.1	-0.1
Female	9.6	10.8	10.3	11.1	12.1	12.4	11.5	10.8	12.0	11.3	10.2	10.0	9.4	9.9	8.6	8.5	8.2	8.0	-0.2
College Plans:																			
None or under 4 years	21.1	23.0	25.7	25.3	25.0	26.1	26.5	26.7	30.2	25.0	24.7	24.7	23.2	21.2	21.0	19.3	21.5	21.3	-0.1
Complete 4 years	9.3	9.7	9.4	10.5	10.8	11.3	10.7	9.8	11.2	10.1	9.4	9.0	8.4	8.2	7.2	7.6	7.1	7.0	-0.1
Region:																			
Northeast	8.6	8.8	8.1	10.9	11.1	12.8	10.9	9.7	12.4	11.5	10.5	8.4	7.8	8.1	6.0	7.8	5.6	7.1	+1.6
Midwest	11.5	12.5	10.9	11.5	12.2	13.5	12.0	12.4	15.5	13.2	10.8	10.5	10.8	10.1	8.7	8.8	7.5	8.2	+0.7
South	11.9	12.3	12.9	12.4	13.0	13.7	13.2	11.9	13.3	11.0	12.5	11.4	10.6	9.6	9.8	9.7	9.4	9.7	+0.3
West	10.2	10.4	12.8	13.8	12.3	12.9	12.3	11.6	10.3	10.9	9.0	9.9	9.0	9.5	8.0	7.6	8.9	6.3	-2.6 s
Population Density:																			
Large MSA	10.6	10.4	8.6	10.4	10.3	12.2	11.3	10.1	11.0	10.6	9.2	8.3	8.8	8.7	8.0	8.1	7.4	8.1	+0.7
Other MSA	10.5	11.7	12.3	13.1	12.2	13.7	12.1	10.9	12.1	10.5	11.0	10.8	8.9	9.3	8.3	8.3	8.5	7.9	-0.6
Non-MSA	12.0	11.7	12.9	12.1	15.0	14.2	13.9	14.3	17.4	15.3	13.1	11.8	12.9	10.5	9.2	10.2	9.2	8.4	-0.9
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	18.3	17.8	16.3	16.8	20.1	16.9	17.6	16.5	20.8	18.9	16.5	16.6	16.3	14.9	14.4	13.3	15.5	17.0	+1.5
2.5–3.0	12.6	13.4	13.3	14.2	14.8	15.4	13.5	13.8	17.0	15.3	14.3	12.8	13.5	12.1	10.7	10.6	10.5	10.5	-0.1
3.5–4.0	10.7	11.3	11.5	12.5	13.3	14.3	14.2	12.4	14.0	11.0	11.7	11.1	10.5	10.0	9.4	9.9	9.2	7.9	-1.3
4.5–5.0	8.8	8.7	8.5	10.3	9.3	11.1	10.3	9.3	9.5	8.2	8.1	7.9	6.7	8.0	6.4	6.7	5.5	5.7	+0.2
5.5–6.0 (High)	8.8	8.4	8.9	9.1	8.7	10.7	9.0	9.4	9.2	9.5	6.6	7.3	6.8	6.2	5.0	5.9	5.0	4.7	-0.3
Race (2-year average): <sup>b</sup>																			
White	—	11.2	10.9	11.1	12.1	13.2	13.3	12.3	12.6	13.0	11.9	10.9	10.0	9.6	9.0	8.4	8.0	7.8	-0.2
African American	—	6.5	7.6	8.6	8.3	8.0	7.5	6.9	7.7	7.3	6.4	7.1	7.5	6.9	6.1	5.7	5.6	5.7	+0.1
Hispanic	—	16.5	17.7	18.9	18.4	17.5	17.4	16.9	17.4	16.0	14.4	14.4	13.8	13.2	12.1	11.6	12.5	12.3	-0.2

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008.

The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this table.

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-72**  
**Alcohol: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007– 2008 change	
Percentage reporting 5+ drinks in a row on one or more occasions																			
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	21.0	19.1	21.0	21.9	22.0	22.8	23.1	22.4	23.5	24.1	22.8	20.3	20.0	19.9	19.0	19.9	19.6	16.0	-3.7 sss
Gender:																			
Male	24.1	21.5	24.1	26.4	24.1	25.1	26.3	24.7	27.4	27.6	26.1	21.6	21.1	21.6	19.9	21.0	20.9	16.6	-4.4 sss
Female	18.1	17.0	17.7	17.3	19.7	20.4	20.1	20.4	20.0	20.6	19.7	19.0	19.0	18.1	17.9	18.9	18.3	15.4	-3.0 ss
College Plans:																			
None or under 4 years	30.5	28.6	31.8	34.1	34.5	35.7	36.9	35.7	36.5	36.7	37.2	31.0	31.5	29.6	31.3	30.8	30.7	29.1	-1.6
Complete 4 years	19.1	17.2	18.8	19.3	19.8	20.7	20.8	20.2	21.5	22.2	20.5	18.5	18.2	18.6	17.3	18.6	18.2	14.4	-3.9 sss
Region:																			
Northeast	23.7	18.0	21.1	19.9	20.3	22.3	21.8	24.1	26.0	23.8	20.7	19.5	21.5	23.8	21.0	21.2	20.4	16.8	-3.6
Midwest	21.7	19.8	22.0	23.0	23.3	23.4	22.4	22.2	25.0	26.2	24.8	20.3	19.9	16.7	18.8	20.0	20.7	16.5	-4.2 s
South	20.8	18.9	20.4	22.9	22.4	23.5	23.4	23.1	22.1	22.5	22.1	19.7	19.1	20.1	18.6	19.1	18.4	16.3	-2.1
West	18.6	19.8	20.0	20.4	21.1	21.4	25.3	19.9	21.7	24.6	23.1	22.2	20.1	19.6	17.6	20.1	19.5	14.4	-5.1 ss
Population Density:																			
Large MSA	20.2	17.5	19.1	17.6	18.4	20.5	20.4	18.3	22.4	24.0	20.8	17.6	18.0	16.9	17.4	19.2	17.9	14.5	-3.4 s
Other MSA	20.4	18.1	19.2	22.7	22.1	23.0	22.9	22.0	22.7	23.4	21.7	20.4	19.9	21.6	19.4	19.7	19.6	16.0	-3.6 ss
Non-MSA	22.9	22.8	25.8	24.6	25.9	25.3	26.6	28.0	26.7	25.7	27.2	23.8	23.4	20.1	20.3	21.9	22.5	18.1	-4.4 s
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	23.2	23.0	24.3	22.6	26.7	24.7	22.7	24.1	25.2	24.7	23.0	23.9	24.4	23.0	21.0	19.8	22.0	20.6	-1.3
2.5–3.0	23.8	20.0	23.4	23.4	24.7	25.5	23.5	25.5	26.3	27.0	24.6	22.5	21.8	21.9	21.3	22.8	22.6	17.8	-4.8 sss
3.5–4.0	19.9	19.2	20.6	23.3	22.8	23.7	24.6	22.8	23.6	23.8	24.2	20.7	20.5	20.4	18.9	21.2	20.7	16.6	-4.2 sss
4.5–5.0	19.3	18.1	18.6	20.2	20.2	20.3	21.6	20.1	21.3	23.3	21.5	17.7	17.8	18.2	17.9	18.1	17.7	14.7	-3.0 ss
5.5–6.0 (High)	20.9	18.4	18.9	18.5	17.3	22.4	22.4	20.1	23.6	23.1	21.2	18.7	18.4	19.0	17.9	19.0	17.2	12.8	-4.4 ss
Race (2-year average): <sup>b</sup>																			
White	—	21.6	21.4	22.9	23.8	24.5	25.2	25.3	25.4	26.2	25.6	23.6	22.5	22.2	21.8	21.7	21.8	19.7	-2.1
African American	—	12.3	11.9	11.8	11.1	9.4	10.0	10.6	10.7	10.8	10.3	10.0	9.8	9.7	9.1	9.1	10.0	9.8	-0.2
Hispanic	—	20.3	20.5	20.9	23.3	25.7	24.4	23.6	24.4	25.1	24.8	23.3	22.9	23.3	22.4	21.2	20.1	19.6	-0.5

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008.

The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-73**  
**Alcohol: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	Percentage reporting 5+ drinks in a row on one or more occasions																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<i>Approximate wtd. N =</i>	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	36.8	37.1	39.4	40.3	41.2	41.2	41.4	40.5	40.8	38.7	36.7	36.8	37.5	34.7	33.0	32.2	29.8
Gender:																	
Male	49.0	47.9	50.0	51.4	51.9	52.1	51.6	49.8	50.4	47.5	45.3	46.1	46.1	43.0	41.2	39.1	37.8
Female	26.4	25.9	29.3	29.6	30.9	30.5	30.8	31.1	31.0	29.6	28.2	28.1	29.2	26.5	24.9	24.4	21.2
College Plans:																	
None or under 4 years	—	41.8	44.7	44.3	44.5	46.3	46.7	45.7	44.9	43.5	41.6	41.3	42.7	38.5	38.2	35.8	34.4
Complete 4 years	—	31.5	33.9	35.9	37.7	36.9	37.4	36.5	37.2	34.6	33.0	34.1	35.0	32.8	30.5	30.3	27.9
Region:																	
Northeast	43.0	40.8	40.0	43.5	47.4	48.0	49.3	43.3	42.2	42.9	42.4	37.1	37.2	34.3	33.3	37.2	33.4
Midwest	40.6	42.8	44.5	45.3	44.8	45.4	44.9	47.9	47.2	44.3	39.7	42.6	43.5	39.9	40.4	37.9	34.6
South	32.1	30.8	36.3	36.4	36.7	34.4	34.7	34.6	37.6	33.5	29.7	31.7	33.4	30.4	28.5	27.2	26.3
West	29.0	32.8	34.2	33.3	34.0	36.0	35.6	32.5	33.3	34.5	36.1	35.9	36.6	35.4	30.8	26.3	26.3
Population Density:																	
Large MSA	37.9	37.0	38.1	39.5	42.2	44.8	43.4	40.9	38.8	37.9	37.6	36.4	34.8	32.5	28.8	34.5	28.6
Other MSA	36.1	36.8	39.5	40.1	40.8	38.9	39.5	39.7	41.0	37.3	35.4	35.5	38.6	35.3	33.7	31.8	30.1
Non-MSA	36.9	38.0	40.5	41.3	40.9	41.4	42.2	41.3	42.0	41.2	37.6	39.1	38.3	35.9	35.8	30.6	30.4
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	31.6	34.1	35.6	36.3	36.0	37.0	37.0	35.3	37.2	34.8	31.8	31.7	33.9	30.7	25.4	25.3	26.8
2.5–3.0	37.5	41.1	41.8	40.9	42.3	43.3	43.2	41.4	41.2	39.8	38.2	37.9	38.9	35.7	34.0	32.7	29.9
3.5–4.0	35.1	36.4	39.5	41.3	41.4	42.1	42.4	42.4	40.9	39.3	36.9	37.9	38.3	34.7	34.3	32.0	30.4
4.5–5.0	34.4	36.9	37.2	42.4	43.8	40.8	40.8	41.9	41.9	38.6	37.1	37.1	37.2	35.1	34.2	34.5	29.9
5.5–6.0 (High)	29.9	34.5	41.1	37.2	41.9	38.5	39.3	40.9	42.1	38.2	34.9	36.7	37.2	34.7	31.8	34.1	30.6
Race (2-year average): <sup>b</sup>																	
White	—	—	—	40.5	42.4	43.5	44.3	44.9	44.5	43.6	41.5	40.3	40.9	40.0	37.9	36.6	34.6
African American	—	—	—	19.0	19.3	18.9	17.7	17.1	18.3	17.2	15.7	16.4	15.8	15.2	15.7	14.4	11.7
Hispanic	—	—	—	36.4	37.2	33.6	33.1	34.8	32.9	32.5	31.7	30.8	33.0	33.7	28.8	25.6	27.9

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

↑  
Cont.

**TABLE D-73 (cont.)**  
**Alcohol: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	Percentage reporting 5+ drinks in a row on one or more occasions													2007- 2008					
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005 <sup>c</sup>	2006 <sup>c</sup>	2007	2008	change	
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	27.9	27.5	28.2	29.8	30.2	31.3	31.5	30.8	30.0	29.7	28.6	27.9	29.2	27.1	25.4	25.9	24.6	-1.3	
Gender:																			
Male	35.6	34.6	37.0	36.9	37.0	37.9	39.2	38.1	36.7	36.0	34.2	34.2	34.3	32.6	28.9	30.7	28.4	-2.2	
Female	20.3	20.7	20.2	23.0	23.5	24.4	24.0	23.6	23.5	23.7	23.0	22.1	24.2	21.6	21.5	21.5	21.3	-0.2	
College Plans:																			
None or under 4 years	32.8	32.7	34.0	35.2	33.9	36.2	36.3	35.4	35.7	35.9	34.0	34.5	34.6	34.3	32.3	30.8	31.5	+0.8	
Complete 4 years	26.0	25.8	26.3	27.8	28.8	29.5	30.0	29.5	27.6	27.8	27.2	25.9	27.6	25.1	23.7	24.7	23.2	-1.4	
Region:																			
Northeast	25.8	30.3	29.2	31.2	33.7	33.5	33.5	33.7	35.1	31.8	30.7	30.9	33.2	32.2	30.9	29.7	27.3	-2.3	
Midwest	34.6	30.1	31.9	34.3	31.5	31.6	32.6	31.6	33.9	34.5	33.4	32.5	30.2	29.1	26.5	28.9	25.2	-3.7	
South	24.7	27.1	26.9	28.6	30.2	30.6	30.7	30.0	24.9	26.6	26.8	23.7	26.1	24.2	23.9	25.4	24.7	-0.7	
West	26.0	22.0	24.5	24.2	24.0	29.6	29.5	28.6	29.3	26.0	23.9	26.5	28.6	24.5	22.0	20.5	21.9	+1.3	
Population Density:																			
Large MSA	25.5	27.6	26.8	28.3	29.8	29.9	27.9	27.1	29.7	29.0	29.9	23.3	25.5	26.5	26.6	28.0	25.8	-2.2	
Other MSA	27.0	26.5	27.1	28.4	30.3	31.1	33.1	32.2	29.3	29.0	28.0	29.8	31.9	27.4	25.0	24.2	22.5	-1.7	
Non-MSA	31.9	29.2	31.5	34.0	30.5	33.2	32.4	32.4	31.7	31.9	28.2	30.5	28.2	27.0	24.5	26.4	28.1	+1.7	
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	23.4	21.9	24.0	26.6	24.8	22.6	26.3	27.4	25.1	24.8	22.2	23.5	22.9	19.4	25.4	20.4	21.3	+1.0	
2.5-3.0	28.1	27.6	28.5	31.2	28.6	30.4	30.3	30.8	29.2	30.2	28.5	27.6	28.8	28.3	25.8	27.3	23.0	-4.3 ss	
3.5-4.0	27.9	28.4	28.4	29.5	29.8	31.0	33.2	30.5	30.5	30.3	28.6	28.4	30.9	27.6	26.5	24.8	25.1	+0.3	
4.5-5.0	28.1	28.4	29.3	29.9	32.4	32.4	32.3	30.6	29.9	30.9	30.9	28.6	30.5	29.4	24.0	27.5	26.2	-1.3	
5.5-6.0 (High)	30.4	29.0	29.0	30.7	33.1	34.9	32.4	34.2	32.7	28.6	30.6	28.7	27.8	25.2	26.3	27.1	26.4	-0.7	
Race (2-year average): <sup>b</sup>																			
White	32.1	31.3	31.5	32.3	33.4	35.1	36.4	35.7	34.6	34.5	33.7	32.4	32.5	32.5	30.4	29.7	29.9	+0.2	
African American	11.3	12.6	14.4	14.9	15.3	13.4	12.3	12.3	11.5	11.8	11.5	10.8	11.4	11.3	11.4	11.5	10.9	-0.5	
Hispanic	31.1	27.2	24.3	26.6	27.1	27.6	28.1	29.3	31.0	28.4	26.4	25.9	26.0	23.9	23.3	22.5	21.5	-1.1	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

<sup>c</sup>Due to a coding error, previously released versions of this table contained values that were slightly off for 2005 and 2006. These have been corrected here.

**TABLE D-74**  
**Beer: Trends in 30-Day Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 30 days																2007–	2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	16.2	16.9	17.4	18.3	18.8	18.4	16.7	16.2	16.6	15.2	15.0	12.3	12.0	14.4	12.8	12.5	12.2	11.8	-0.3	
Gender:																				
Male	19.1	18.6	19.1	21.2	20.4	19.9	18.6	17.7	19.4	16.8	16.5	12.2	12.4	14.0	12.9	13.0	11.3	12.3	+1.0	
Female	13.5	15.3	16.1	16.0	17.0	17.1	14.6	14.7	14.1	13.5	13.6	12.2	11.4	14.6	12.9	11.9	12.2	11.2	-1.1	
College Plans:																				
None or under 4 years	26.4	27.7	32.2	32.8	36.0	33.0	33.9	32.6	35.5	29.6	32.9	27.4	28.7	26.4	26.3	24.7	27.3	30.5	+3.2	
Complete 4 years	14.6	15.4	15.6	16.6	16.8	16.3	14.6	14.4	14.3	13.8	12.9	11.1	10.2	13.1	11.5	11.4	10.8	10.3	-0.4	
Region:																				
Northeast	14.0	14.0	14.9	18.6	19.3	21.7	18.4	14.7	18.5	14.2	18.7	10.8	12.3	15.1	11.4	11.4	9.5	10.4	+0.9	
Midwest	16.4	18.0	16.7	18.0	17.4	19.3	16.8	18.4	17.5	17.0	13.2	10.2	14.0	15.9	11.4	13.2	10.6	12.5	+1.9	
South	17.8	18.5	19.1	18.2	20.1	16.6	15.5	16.1	17.2	14.2	14.3	14.0	11.4	14.4	15.0	13.3	14.0	14.1	+0.1	
West	14.9	15.1	18.0	18.8	17.6	17.8	17.2	15.1	12.6	15.7	15.3	13.9	10.3	12.2	11.4	11.4	12.0	8.9	-3.1	
Population Density:																				
Large MSA	15.0	18.7	15.1	15.2	12.0	16.2	15.0	13.8	14.3	14.0	12.0	11.5	11.0	14.2	11.4	11.9	10.3	13.0	+2.7	
Other MSA	16.1	16.8	17.6	19.4	19.1	19.6	15.9	14.3	16.5	14.1	15.5	12.4	11.9	13.9	13.6	12.1	12.3	11.3	-1.0	
Non-MSA	17.8	15.4	19.8	18.3	21.8	18.8	19.6	22.7	19.4	18.8	17.2	13.2	13.5	15.6	13.1	14.3	14.6	11.3	-3.3	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	22.0	22.5	21.5	24.4	23.9	19.7	21.6	21.9	25.4	23.2	21.3	24.1	17.1	23.7	22.6	17.3	21.0	21.3	+0.3	
2.5–3.0	18.2	18.4	19.5	19.7	22.8	21.3	21.2	17.4	19.7	20.7	18.4	14.8	15.1	17.8	15.8	16.8	19.5	16.7	-2.8	
3.5–4.0	15.7	18.0	19.4	19.7	19.6	20.2	18.5	17.9	16.9	13.5	18.1	13.5	14.3	15.0	13.9	13.6	10.6	13.1	+2.5	
4.5–5.0	14.4	13.4	14.9	15.3	15.6	17.8	12.7	12.6	12.3	12.0	10.0	8.4	7.4	11.9	11.2	9.4	9.3	8.8	-0.5	
5.5–6.0 (High)	13.5	14.6	14.4	17.2	14.2	13.2	14.1	17.0	16.0	11.4	9.7	10.3	10.2	13.3	6.7	9.3	6.7	7.0	+0.3	
Race (2-year average): <sup>b</sup>																				
White	—	16.7	17.6	17.9	19.0	19.7	18.8	17.4	17.4	16.8	15.5	13.5	12.0	13.5	14.0	12.7	11.5	11.5	0.0	
African American	—	12.6	13.0	15.8	14.5	11.1	9.7	8.1	9.7	9.7	7.9	7.2	7.5	8.1	7.6	8.5	9.0	7.4	-1.7	
Hispanic	—	23.9	24.2	22.2	23.3	23.7	21.8	19.9	19.5	19.8	20.7	21.8	19.6	18.4	18.3	17.1	17.8	17.8	0.0	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996;  $N$  is one half of  $N$  indicated in Table D-107. Data based on one of four forms beginning in 1997;  $N$  is one third of  $N$  indicated in Table D-107.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-75**  
**Beer: Trends in 30-Day Prevalence of Use by Subgroups in Grade 10**

		Percentage who used in last 30 days																	2007– 2008 change	
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =		14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total		31.1	28.9	28.7	30.2	29.9	30.5	30.4	28.3	29.5	30.6	28.0	24.6	23.2	26.5	24.8	26.8	24.4	22.4	-2.0
Gender:																				
Male		37.6	33.1	33.3	37.3	33.5	34.7	34.1	32.5	35.4	35.4	33.7	28.7	27.9	30.7	26.5	29.2	26.8	24.5	-2.3
Female		25.2	25.1	24.2	23.3	26.2	26.7	27.1	24.3	23.8	25.6	22.9	20.9	19.3	22.3	23.1	24.0	21.8	20.6	-1.2
College Plans:																				
None or under 4 years		39.4	37.5	37.4	41.4	41.9	44.8	43.8	40.5	43.7	42.7	42.3	37.2	30.3	36.4	36.4	39.2	39.2	38.1	-1.1
Complete 4 years		29.4	27.2	26.9	28.0	27.8	28.1	28.2	26.1	27.0	28.6	25.9	22.7	22.2	25.1	23.2	25.2	22.6	20.4	-2.2
Region:																				
Northeast		37.1	29.4	32.0	31.9	31.7	33.1	33.2	31.0	34.7	31.7	27.0	23.8	25.6	30.4	25.2	31.4	27.3	24.9	-2.4
Midwest		31.7	29.4	29.1	31.6	31.1	30.4	30.1	27.8	29.8	33.1	29.0	25.6	23.3	22.1	26.2	25.5	24.7	23.0	-1.7
South		29.4	28.4	26.6	29.5	29.4	30.6	28.5	27.2	27.8	27.1	26.6	22.6	21.9	27.2	23.6	25.0	21.2	22.7	+1.5
West		28.4	28.8	28.7	27.5	27.3	28.1	31.1	28.1	26.6	32.6	30.6	27.6	22.6	27.0	24.4	27.2	25.8	19.7	-6.1 ss
Population Density:																				
Large MSA		31.0	30.1	28.8	28.9	23.9	28.9	28.8	24.3	29.3	30.1	25.5	22.5	21.6	23.4	21.8	25.5	24.6	21.7	-3.0
Other MSA		28.9	27.4	26.4	30.8	30.3	30.1	31.2	28.9	29.4	29.8	26.2	24.7	22.9	27.0	25.2	27.5	22.4	21.8	-0.6
Non-MSA		35.2	30.8	32.8	30.0	32.2	33.0	30.5	31.4	30.0	32.7	34.4	27.1	26.1	29.3	27.9	27.3	28.7	24.8	-3.8
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)		33.5	27.7	33.3	30.0	34.0	28.9	28.6	29.3	26.5	26.7	26.7	22.4	26.3	28.7	28.9	27.8	28.9	29.2	+0.3
2.5–3.0		32.0	30.3	28.4	31.1	33.0	31.1	30.3	30.9	32.3	30.8	27.2	28.6	24.1	30.3	29.1	30.7	29.7	25.7	-3.9
3.5–4.0		31.4	29.9	29.0	31.3	30.1	30.9	31.3	30.0	29.5	32.3	29.0	25.1	24.3	26.2	23.8	28.4	25.4	23.5	-1.9
4.5–5.0		29.9	27.7	28.0	30.3	28.5	29.0	31.4	25.0	27.4	32.4	27.7	22.7	21.9	26.4	24.4	23.4	21.5	20.6	-0.8
5.5–6.0 (High)		30.7	27.4	28.1	27.1	26.5	33.7	30.7	26.5	31.1	28.7	30.4	21.9	21.0	24.2	21.7	26.0	20.5	17.3	-3.1
Race (2-year average): <sup>b</sup>																				
White		—	31.7	30.2	31.1	32.1	32.5	32.4	31.9	32.2	33.1	31.7	28.7	27.0	27.5	28.2	28.4	27.8	25.3	-2.6 s
African American		—	20.9	20.3	19.0	18.8	15.9	15.6	13.1	10.0	13.5	14.8	11.6	10.2	11.3	12.5	11.9	9.7	10.0	+0.3
Hispanic		—	32.2	29.6	29.3	31.2	31.9	31.3	29.8	28.3	28.9	30.7	28.6	25.1	27.8	31.3	30.7	29.3	28.2	-1.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996; N is one half of N indicated in Table D-108. Data based on one of four forms beginning in 1997; N is one third of N indicated in Table D-108.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-76**  
**Beer: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	—	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	—	59.8	62.1	62.3	63.7	62.9	62.7	60.3	61.7	59.5	56.7	55.5	56.2	53.3	51.4	47.2	47.2
Gender:																	
Male	—	68.6	73.1	73.0	74.0	74.3	71.4	68.3	69.7	67.4	64.5	64.3	64.9	61.8	59.7	55.7	55.3
Female	—	51.3	52.8	52.7	54.5	52.4	53.9	52.7	54.0	51.8	49.4	47.9	48.1	46.3	43.4	38.0	39.3
College Plans:																	
None or under 4 years	—	62.1	64.6	65.2	65.7	68.3	65.0	64.6	62.4	62.7	59.8	54.2	58.2	57.3	55.5	46.5	52.4
Complete 4 years	—	57.6	60.3	59.5	61.6	58.4	61.0	57.4	61.1	57.4	55.1	55.7	55.1	51.8	49.4	47.5	45.2
Region:																	
Northeast	—	64.9	65.9	64.7	71.9	67.6	67.1	65.7	68.3	62.6	64.4	51.5	56.8	54.8	54.2	52.7	49.5
Midwest	—	65.4	66.9	68.3	66.1	64.9	67.5	66.1	66.6	66.8	57.4	66.3	61.4	59.8	58.5	50.3	53.5
South	—	53.2	55.3	58.4	59.2	60.3	57.5	53.0	56.5	53.7	51.0	48.6	52.1	47.6	46.1	42.0	41.1
West	—	52.8	59.4	54.2	56.1	57.7	56.9	52.8	53.8	55.3	56.4	54.4	54.8	52.7	48.5	45.4	46.0
Population Density:																	
Large MSA	—	62.5	64.2	62.8	65.3	67.7	63.8	63.3	63.1	58.8	56.0	55.1	56.9	52.6	50.1	52.3	44.4
Other MSA	—	58.6	62.0	62.4	62.3	62.1	61.9	58.6	59.4	56.6	56.8	55.1	56.4	53.0	51.6	47.3	47.6
Non-MSA	—	59.3	60.7	61.7	64.4	60.5	63.0	60.0	63.6	63.7	57.3	56.3	55.4	54.3	52.1	42.4	48.8
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	58.5	48.3	54.6	52.9	55.9	54.7	56.8	58.8	51.1	52.2	46.8	55.8	47.1	45.3	42.2	48.1
2.5–3.0	—	62.7	64.8	63.6	64.5	66.1	65.4	58.5	59.8	62.4	56.8	54.6	53.6	51.9	52.4	47.5	46.7
3.5–4.0	—	58.4	66.0	62.7	67.1	64.4	64.0	63.9	62.3	61.2	57.9	56.0	56.0	51.5	52.2	45.8	48.4
4.5–5.0	—	62.6	64.4	64.7	68.4	58.4	60.1	60.0	66.2	61.9	60.5	57.6	59.9	58.2	51.4	49.3	46.4
5.5–6.0 (High)	—	64.1	69.3	68.3	63.6	69.3	68.9	68.3	65.9	54.2	55.4	62.5	57.7	57.4	53.2	53.4	46.1
Race (2-year average): <sup>b</sup>																	
White	—	—	63.8	65.2	65.9	66.3	66.3	65.4	64.6	64.6	62.2	59.9	59.6	59.1	57.0	54.1	51.6
African American	—	—	38.7	36.4	37.4	38.7	38.8	37.2	39.2	36.9	33.1	32.7	28.6	30.3	32.6	28.4	25.3
Hispanic	—	—	52.7	54.3	52.3	52.5	47.7	47.5	43.4	40.7	46.5	50.9	55.4	49.2	40.4	36.6	40.3

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of five forms in 1976–1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

Cont.

**TABLE D-76 (cont.)  
Beer: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																	2007– 2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	42.0	43.4	42.6	44.9	46.9	44.4	45.6	42.7	42.7	41.5	39.7	37.8	38.3	38.0	35.5	36.6	33.7	-2.9
Gender:																		
Male	50.1	50.0	51.2	53.0	53.5	49.7	55.0	48.2	51.7	50.9	44.3	44.5	44.1	47.3	39.7	43.7	40.7	-3.0
Female	34.6	37.2	35.6	37.4	40.2	39.9	37.0	36.9	33.9	32.1	34.4	31.7	32.1	30.4	31.1	29.3	27.7	-1.6
College Plans:																		
None or under 4 years	48.8	48.2	47.1	50.1	46.2	44.6	49.6	47.5	42.4	54.1	45.7	39.4	44.0	45.1	46.2	39.0	43.7	+4.7
Complete 4 years	39.9	41.5	41.6	42.8	47.0	44.4	44.4	41.7	42.4	38.4	37.9	37.2	36.6	36.6	33.4	35.7	31.7	-4.1
Region:																		
Northeast	40.8	47.0	43.3	47.0	56.9	47.5	52.6	54.3	48.9	47.2	43.4	41.9	42.6	41.3	42.9	44.1	39.7	-4.4
Midwest	49.1	46.3	48.0	49.7	48.1	43.3	44.6	45.4	47.6	48.1	42.9	43.1	41.4	40.5	35.8	39.2	32.7	-6.4
South	39.5	43.0	40.4	43.8	44.4	43.3	43.2	36.6	35.1	33.6	35.1	32.0	34.2	33.8	34.2	34.2	33.4	-0.8
West	36.7	37.0	38.2	37.8	38.8	44.5	45.5	40.2	43.5	39.9	39.8	36.9	36.1	38.8	31.3	31.7	31.8	+0.1
Population Density:																		
Large MSA	42.3	44.0	42.8	45.9	49.1	45.5	42.1	39.9	45.2	38.0	40.5	36.3	34.2	37.9	35.1	40.7	36.9	-3.8
Other MSA	40.3	42.0	39.4	43.7	46.9	45.0	47.6	42.8	40.7	42.6	38.8	38.9	38.9	38.4	37.2	32.8	31.5	-1.3
Non-MSA	45.1	45.3	47.6	46.0	45.3	41.9	45.6	45.4	43.2	43.3	40.5	37.5	41.4	37.1	33.0	38.2	35.0	-3.2
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	36.6	41.1	37.0	43.1	31.2	30.4	37.0	35.4	37.2	39.1	41.6	30.9	34.1	32.9	27.5	32.8	28.5	-4.3
2.5–3.0	41.4	43.7	44.4	44.0	42.4	41.5	42.8	43.0	37.4	48.0	36.6	36.2	38.0	35.8	38.1	35.2	34.7	-0.4
3.5–4.0	40.7	44.4	42.2	42.8	48.2	46.3	48.9	42.5	45.1	35.8	40.9	39.9	43.0	38.4	35.7	36.8	30.9	-5.9
4.5–5.0	43.8	41.9	41.1	47.1	47.1	47.7	48.9	40.0	43.9	43.6	39.9	38.4	36.1	42.4	35.3	39.4	33.8	-5.5
5.5–6.0 (High)	47.0	47.7	46.6	49.6	58.0	49.9	44.5	51.8	52.0	42.3	45.2	41.4	38.7	37.6	38.4	38.8	43.1	+4.3
Race (2-year average): <sup>b</sup>																		
White	48.3	46.0	46.5	47.8	50.1	50.7	49.9	47.7	45.8	46.7	45.4	43.1	42.1	42.3	41.8	41.0	39.7	-1.3
African American	24.2	28.0	29.9	25.6	28.4	25.5	22.8	22.3	21.7	20.6	16.9	14.0	15.7	18.0	14.8	13.6	14.6	+1.0
Hispanic	44.7	39.8	40.5	41.7	41.3	39.8	39.0	43.6	45.3	42.6	40.8	37.2	36.7	39.2	35.4	32.7	31.2	-1.5

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-77**  
**Beer: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 8**

	Percentage reporting 5+ drinks in a row on one or more occasions																	2007–	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,700	16,500	17,000	16,800	16,500	16,700	15,700	15,700
Total	7.2	7.3	8.2	8.5	8.5	9.2	7.6	8.0	8.3	7.5	8.1	6.1	5.5	6.8	5.8	5.5	5.4	5.1	-0.3
<b>Gender:</b>																			
Male	9.2	8.9	9.4	10.6	9.8	10.1	9.2	10.0	10.5	8.8	9.4	6.5	5.8	6.4	5.5	5.9	5.5	6.0	+0.5
Female	5.2	5.9	7.1	6.7	7.4	8.2	6.0	6.3	6.2	6.3	7.0	5.5	5.1	6.9	6.2	4.9	4.8	4.3	-0.4
<b>College Plans:</b>																			
None or under 4 years	15.4	18.2	18.4	20.7	17.5	19.7	22.0	21.6	24.8	21.9	25.4	19.0	17.5	19.0	16.7	13.9	15.3	19.2	+4.0
Complete 4 years	5.9	5.8	6.9	7.1	7.5	7.6	6.0	6.6	6.2	6.1	6.3	5.0	4.2	5.5	4.9	4.7	4.4	4.1	-0.3
<b>Region:</b>																			
Northeast	4.8	5.5	5.8	8.1	9.3	10.7	7.6	6.6	9.1	5.7	9.4	3.5	5.6	6.5	3.7	4.1	4.8	5.3	+0.5
Midwest	6.9	7.0	7.6	8.8	8.0	9.2	8.4	10.0	9.3	8.9	7.8	5.6	7.0	8.3	4.7	5.9	3.6	4.6	+1.0
South	8.9	9.0	9.4	8.1	8.8	8.4	6.9	8.0	8.9	7.1	7.9	6.7	5.1	6.4	7.4	6.3	6.6	6.2	-0.4
West	7.0	6.7	9.2	9.1	8.1	9.2	7.9	7.1	5.3	8.0	7.9	8.4	4.2	6.0	6.0	4.9	5.4	3.9	-1.5
<b>Population Density:</b>																			
Large MSA	6.6	7.4	6.1	6.9	5.3	8.5	5.6	6.7	6.2	6.0	5.4	5.0	4.2	5.6	4.9	4.1	4.5	5.6	+1.1
Other MSA	7.0	7.6	8.2	9.1	8.8	9.3	7.4	6.6	8.6	6.4	8.4	6.0	5.3	6.4	6.0	5.4	5.2	4.7	-0.5
Non-MSA	8.4	6.8	10.7	8.4	9.8	9.8	9.6	12.3	10.2	11.5	10.5	7.7	7.3	8.9	6.6	7.8	6.9	5.2	-1.7
<b>Parental Education:<sup>a</sup></b>																			
1.0–2.0 (Low)	12.6	12.5	11.0	11.6	12.5	12.8	9.8	12.6	17.9	14.8	11.5	11.2	9.4	11.9	14.0	8.9	11.6	11.3	-0.2
2.5–3.0	7.7	8.9	9.9	9.3	10.2	10.7	10.1	8.0	9.8	10.9	10.0	8.1	7.2	8.8	8.1	7.1	8.8	8.8	0.0
3.5–4.0	7.8	7.0	7.9	9.0	9.8	10.1	8.3	9.0	10.4	6.6	9.1	6.8	6.0	7.9	5.3	5.4	4.8	5.7	+0.9
4.5–5.0	5.0	4.5	7.3	6.8	6.1	7.5	5.3	5.9	3.9	5.0	5.1	3.7	3.5	5.3	4.3	4.3	3.4	2.5	-0.9
5.5–6.0 (High)	6.2	6.0	6.2	8.4	5.9	6.7	5.7	8.7	6.1	4.3	5.3	4.8	4.1	4.7	2.4	4.7	2.1	2.3	+0.3
<b>Race (2-year average):<sup>b</sup></b>																			
White	—	7.0	7.6	8.0	8.7	9.2	8.6	7.9	8.3	8.3	7.7	6.7	5.7	6.1	5.9	5.2	4.9	4.8	0.0
African American	—	5.2	5.1	7.2	6.4	4.9	4.4	3.6	4.7	4.9	4.0	3.2	3.0	3.6	3.1	2.7	2.6	2.4	-0.2
Hispanic	—	12.7	13.2	12.1	11.6	12.7	12.3	10.5	10.2	9.8	12.3	13.2	10.3	9.1	10.0	9.0	9.0	9.0	0.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996; N is one half of N indicated in Table D-107. Data based on one of four forms beginning in 1997; N is one third of N indicated in Table D-107.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-78**  
**Beer: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 10**

	Percentage reporting 5+ drinks in a row on one or more occasions																	2007– 2008 change	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,700	
Total	16.4	15.1	16.1	17.0	17.1	17.9	17.6	16.0	18.1	17.5	16.3	14.1	13.8	13.6	13.1	14.5	13.7	10.8	-2.8 ss
Gender:																			
Male	21.7	18.9	20.4	23.0	21.1	22.5	21.2	20.7	24.0	22.5	22.2	16.7	18.3	17.1	15.2	16.3	16.5	12.8	-3.6 s
Female	11.7	11.7	11.8	11.1	13.1	13.7	14.4	11.8	12.5	12.7	11.2	11.7	9.9	10.4	10.8	12.3	10.7	9.2	-1.5
College Plans:																			
None or under 4 years	25.4	22.8	25.4	26.6	28.2	30.7	31.6	26.1	29.9	26.8	31.2	26.2	22.7	20.5	23.0	26.1	26.4	21.2	-5.2
Complete 4 years	14.5	13.5	14.2	15.0	15.3	15.8	15.4	14.2	16.2	15.9	14.1	12.2	12.6	12.7	11.8	12.8	12.3	9.6	-2.7 s
Region:																			
Northeast	19.0	14.6	17.1	18.4	17.4	19.9	17.5	18.8	21.5	16.4	15.2	12.6	16.4	16.9	15.2	17.7	14.7	12.0	-2.7
Midwest	16.5	16.7	17.3	18.2	18.3	18.8	18.4	16.3	18.3	20.9	16.4	14.9	13.5	10.9	14.6	14.8	14.2	11.2	-3.0
South	15.4	13.9	14.9	16.9	16.9	17.7	16.6	15.4	17.5	15.7	15.9	13.2	12.4	12.8	10.8	12.7	12.5	11.3	-1.2
West	15.9	15.5	15.2	13.5	15.5	15.1	18.3	14.0	15.5	16.9	18.3	16.0	14.0	15.0	12.4	13.7	13.9	9.0	-4.8 sss
Population Density:																			
Large MSA	16.0	14.8	15.2	14.5	12.7	16.4	15.9	12.8	18.0	16.9	13.0	12.0	13.0	11.5	10.6	13.3	12.7	10.2	-2.6
Other MSA	15.8	13.9	13.9	17.0	17.2	17.6	17.6	15.9	17.3	16.3	15.7	13.5	13.1	14.4	13.8	15.3	12.5	10.9	-1.6
Non-MSA	17.9	17.7	20.9	18.7	19.6	20.1	19.1	19.6	20.1	20.1	21.2	18.1	17.0	14.7	14.6	14.1	17.8	11.7	-6.1 s
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	21.3	15.6	18.9	19.2	20.3	20.5	18.1	12.8	14.2	16.7	17.9	13.8	19.0	14.1	15.1	16.4	19.2	15.1	-4.1
2.5–3.0	18.5	16.6	15.3	18.5	19.7	18.8	18.0	19.0	20.5	16.5	15.9	15.8	14.8	17.1	16.3	17.8	18.1	13.2	-4.9 s
3.5–4.0	15.0	15.6	16.5	16.7	17.4	18.5	18.9	15.8	17.6	17.9	17.8	14.4	13.7	13.9	13.6	14.5	13.9	10.9	-3.0
4.5–5.0	15.1	14.0	16.3	16.8	16.0	15.9	16.5	14.9	17.3	19.0	14.3	12.5	13.1	12.0	11.6	12.3	11.0	9.5	-1.6
5.5–6.0 (High)	15.4	13.1	15.3	14.5	13.8	18.3	16.1	16.2	19.3	16.8	17.5	13.1	11.8	13.7	11.3	14.3	10.6	7.6	-3.1
Race (2-year average): <sup>b</sup>																			
White	—	16.7	16.4	17.4	18.1	19.0	19.3	18.6	19.7	19.9	18.1	16.5	16.1	15.5	15.1	15.8	15.7	13.7	-2.0
African American	—	9.8	10.1	9.3	8.7	6.5	6.6	5.5	4.0	6.2	6.8	6.1	4.7	4.1	4.2	3.8	3.7	3.7	0.0
Hispanic	—	17.2	16.1	16.8	18.6	19.7	19.5	16.9	14.8	17.5	20.3	17.5	16.2	17.5	16.5	16.0	16.6	15.7	-0.9

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996; N is one half of N indicated in Table D-108. Data based on one of four forms beginning in 1997; N is one third of N indicated in Table D-108.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-79**  
**Beer: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	—	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	—	33.0	35.1	35.4	36.4	36.6	38.0	37.6	38.1	36.2	32.0	33.1	33.8	31.0	31.3	27.0	28.5
Gender:																	
Male	—	45.6	49.0	49.8	50.6	51.1	49.4	48.5	49.8	47.7	42.6	45.4	45.4	41.5	39.5	37.1	37.0
Female	—	21.4	23.5	22.6	24.2	23.9	26.5	27.3	27.4	25.0	22.4	22.4	23.1	22.2	23.8	16.5	20.1
College Plans:																	
None or under 4 years	—	37.7	39.2	41.6	39.5	43.5	42.8	42.1	43.1	41.2	35.5	36.1	37.8	36.9	37.7	29.0	35.1
Complete 4 years	—	27.8	31.0	29.4	33.3	30.9	34.2	34.2	34.3	33.6	29.8	30.8	31.7	28.4	28.5	26.0	26.0
Region:																	
Northeast	—	39.0	35.3	36.5	41.9	41.4	42.1	40.0	37.9	39.8	35.5	32.6	32.1	32.7	32.1	27.4	27.8
Midwest	—	35.8	37.6	39.9	39.0	42.3	43.6	45.3	45.1	43.7	34.2	40.8	41.3	38.5	38.2	31.4	34.7
South	—	26.6	33.9	31.8	34.0	30.5	33.9	31.7	35.1	31.5	26.6	29.4	30.7	25.7	27.5	23.8	24.2
West	—	31.0	31.6	32.0	28.3	31.1	28.5	28.1	31.3	29.4	33.8	27.5	29.8	28.5	27.4	25.1	27.3
Population Density:																	
Large MSA	—	32.8	34.4	34.4	35.0	40.9	38.9	36.2	37.4	34.5	31.2	33.9	32.3	29.6	27.3	32.0	24.7
Other MSA	—	33.9	35.4	35.7	36.3	33.9	37.7	36.6	36.6	33.2	30.2	31.5	34.5	30.9	32.3	26.9	28.8
Non-MSA	—	32.1	35.2	35.7	37.6	37.0	37.6	39.8	40.6	41.4	35.1	35.0	33.9	32.6	32.9	22.6	31.0
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	30.7	31.9	33.6	32.8	31.1	32.3	35.0	38.4	26.8	27.4	28.5	32.9	31.3	26.9	28.1	34.9
2.5–3.0	—	37.5	36.4	37.8	38.0	38.8	42.9	37.5	37.4	39.2	33.6	34.2	34.3	31.0	32.2	26.7	29.2
3.5–4.0	—	32.9	34.8	34.4	36.5	37.6	39.2	41.6	39.1	37.1	32.1	32.9	34.9	29.4	32.8	24.9	29.4
4.5–5.0	—	33.9	34.1	36.2	38.2	36.0	31.7	35.3	39.1	39.9	35.9	34.4	34.7	32.8	31.2	27.7	26.2
5.5–6.0 (High)	—	27.2	38.0	28.7	35.5	37.6	38.5	38.9	36.5	30.2	27.4	33.8	29.7	31.4	26.5	32.3	25.7
Race (2-year average): <sup>b</sup>																	
White	—	—	35.5	36.8	37.6	38.5	40.1	40.9	40.8	40.0	37.1	35.3	35.8	35.2	34.4	32.5	30.6
African American	—	—	18.8	19.5	19.4	17.7	16.4	16.9	18.1	18.9	15.5	13.2	13.6	16.1	18.5	13.5	10.2
Hispanic	—	—	34.4	33.5	31.5	32.7	30.8	27.6	27.9	27.4	24.6	29.4	32.8	27.5	22.0	20.6	23.8

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of five forms in 1976–1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

Cont.

**TABLE D-79 (cont.)**  
**Beer: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	Percentage reporting 5+ drinks in a row on one or more occasions																	2007-	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000		
Total	25.4	25.5	24.6	27.6	29.2	26.7	28.5	25.6	27.5	26.7	26.1	21.4	23.7	22.4	21.4	22.0	20.9	-1.1	
Gender:																			
Male	34.0	34.2	35.7	36.5	38.7	32.9	39.3	34.7	38.2	35.9	33.7	31.1	32.1	30.9	26.9	27.7	27.7	0.0	
Female	17.6	18.1	15.5	19.5	19.2	21.2	19.5	17.0	17.6	18.0	18.2	12.9	15.6	15.3	16.2	16.1	15.1	-1.0	
College Plans:																			
None or under 4 years	32.8	30.2	29.6	32.7	29.4	29.0	39.7	29.5	31.0	40.5	37.0	24.9	32.0	28.9	31.5	24.2	30.9	+6.7	
Complete 4 years	23.3	23.8	23.4	25.4	28.8	26.2	25.1	24.7	26.0	23.3	22.9	20.3	21.5	21.1	19.0	21.2	18.7	-2.5	
Region:																			
Northeast	25.7	28.5	23.4	30.5	35.4	32.0	34.2	33.0	32.7	26.5	28.6	27.1	26.1	25.8	25.9	29.5	23.7	-5.7	
Midwest	32.5	27.6	28.3	30.2	29.9	25.7	31.4	28.9	32.4	33.9	28.9	24.8	26.2	26.2	22.1	24.3	21.0	-3.3	
South	22.9	25.2	24.8	27.2	27.5	24.1	25.5	21.3	20.0	19.7	22.4	16.8	21.8	20.2	20.6	18.8	21.1	+2.3	
West	18.4	20.8	19.7	21.8	24.6	27.6	25.6	22.8	29.4	27.9	26.3	19.2	20.9	18.0	18.1	18.6	18.7	+0.1	
Population Density:																			
Large MSA	26.0	23.8	23.6	26.9	32.4	26.2	24.4	21.3	29.8	23.4	25.7	18.9	20.9	21.4	21.2	25.1	22.7	-2.4	
Other MSA	24.2	24.8	22.6	26.7	29.3	27.9	30.3	26.8	26.1	26.7	25.2	22.9	22.9	23.7	21.2	19.0	18.8	-0.2	
Non-MSA	27.2	28.1	28.7	30.0	26.6	25.0	29.5	28.1	27.4	30.2	28.1	21.7	28.2	21.0	22.1	23.3	23.4	+0.1	
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	23.4	27.3	23.7	28.9	23.8	18.7	23.5	22.1	16.8	28.2	32.0	20.1	18.5	17.0	19.3	21.5	14.0	-7.5	
2.5-3.0	26.6	26.1	25.3	27.6	25.0	26.0	26.5	27.7	24.3	31.9	24.5	22.9	27.0	21.3	23.2	23.1	20.4	-2.7	
3.5-4.0	25.2	26.6	24.2	25.6	29.3	28.3	31.9	26.5	29.1	21.4	27.4	20.5	26.3	23.0	23.9	21.1	19.8	-1.3	
4.5-5.0	23.9	24.1	24.1	27.6	28.1	29.1	29.3	24.2	28.7	28.7	24.4	23.3	20.9	25.5	19.6	24.2	21.1	-3.1	
5.5-6.0 (High)	26.9	26.1	26.0	32.2	41.0	28.3	27.6	24.3	35.1	28.0	27.3	19.0	20.2	21.8	19.3	21.0	27.6	+6.6	
Race (2-year average): <sup>b</sup>																			
White	29.6	27.6	27.3	29.0	31.3	31.4	31.3	30.0	28.8	31.0	30.2	26.4	25.3	26.1	25.8	25.8	25.3	-0.5	
African American	13.1	15.5	15.4	12.6	14.6	13.3	11.7	10.6	9.9	9.1	7.6	6.1	9.3	11.2	7.1	5.0	5.7	+0.7	
Hispanic	27.2	24.8	24.9	23.8	26.1	26.0	24.4	27.5	29.0	27.1	24.7	21.6	20.0	19.7	19.8	19.8	17.5	-2.4	

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-80**  
**Liquor: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Percentage who used in last 30 days																
Approximate wtd. N =	—	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	—	44.1	45.0	48.2	47.3	47.9	44.6	45.2	46.4	42.3	40.0	41.0	39.0	35.6	35.7	30.8	31.3
Gender:																	
Male	—	44.4	44.7	48.9	48.5	48.8	45.3	45.2	48.8	43.3	40.3	43.7	42.8	38.5	39.6	36.9	34.9
Female	—	43.8	45.3	47.6	46.6	47.4	44.3	45.1	43.7	40.8	39.5	38.6	35.4	33.6	32.1	24.6	28.0
College Plans:																	
None or under 4 years	—	44.6	47.8	49.3	46.1	51.4	46.9	47.5	47.4	44.6	41.0	38.9	39.4	36.8	38.1	30.6	37.0
Complete 4 years	—	43.8	42.5	47.7	48.5	45.1	43.0	43.6	45.3	40.6	39.6	41.8	39.0	35.0	35.0	30.4	29.0
Region:																	
Northeast	—	52.5	47.4	47.8	56.7	53.2	49.5	50.8	50.8	46.4	42.1	37.2	43.3	36.1	40.3	34.5	36.6
Midwest	—	47.0	49.7	53.7	45.4	46.5	47.2	49.1	50.5	45.6	40.1	49.8	42.2	42.2	40.5	31.0	33.5
South	—	37.6	39.8	46.0	43.6	48.5	38.8	38.7	43.3	38.5	37.1	35.9	34.6	30.4	33.0	29.6	28.1
West	—	38.3	41.3	42.0	45.0	42.9	43.2	40.0	38.4	39.6	42.1	39.6	37.4	35.0	30.0	28.5	29.0
Population Density:																	
Large MSA	—	47.3	45.4	49.3	52.0	51.7	44.4	48.5	48.1	40.8	37.7	41.2	39.9	36.0	36.4	33.8	30.4
Other MSA	—	44.7	46.0	48.3	47.1	48.4	45.9	45.6	45.5	40.9	39.3	39.9	40.5	36.3	33.5	31.1	33.1
Non-MSA	—	41.4	43.3	47.2	44.1	44.8	43.2	42.1	46.1	45.1	42.6	42.4	35.5	34.0	40.3	27.7	29.1
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	40.8	38.2	37.3	38.2	44.2	43.1	40.3	41.6	33.1	36.2	36.1	32.2	33.5	32.1	25.7	29.7
2.5–3.0	—	46.7	45.9	49.8	46.6	47.8	43.5	44.8	44.7	46.3	37.9	38.1	36.0	34.6	32.1	29.5	32.6
3.5–4.0	—	44.7	47.3	51.9	51.7	47.5	46.6	48.0	46.5	42.0	39.2	42.3	38.2	33.1	38.3	31.6	33.6
4.5–5.0	—	47.9	45.6	49.1	51.7	48.7	40.7	43.6	50.0	44.9	48.0	43.9	43.4	38.7	36.9	34.2	27.4
5.5–6.0 (High)	—	46.6	53.4	54.2	49.3	53.4	53.8	54.2	55.2	40.4	40.9	47.4	45.7	39.4	37.7	33.8	33.5
Race (2-year average): <sup>b</sup>																	
White	—	—	47.5	49.5	50.3	50.1	48.9	48.2	49.0	47.3	44.1	43.5	43.4	41.1	39.8	37.7	35.0
African American	—	—	21.2	19.9	23.3	27.5	25.1	21.5	25.3	23.7	18.5	17.4	15.0	16.0	16.8	14.4	14.1
Hispanic	—	—	47.7	48.8	43.3	47.2	45.6	41.2	35.6	35.4	42.1	40.4	36.9	31.6	24.6	21.0	23.2

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table. Data based on one of five forms in 1976–1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

↑  
Cont.

**TABLE D-80 (cont.)**  
**Liquor: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																	2007- 2008 change
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	28.6	31.4	28.0	34.3	34.7	34.6	37.3	34.3	36.0	35.1	36.0	34.3	35.6	36.4	34.2	34.1	32.4	-1.7
Gender:																		
Male	32.0	36.4	32.8	38.2	36.4	36.3	41.2	38.0	41.7	35.6	37.9	36.1	39.3	38.4	33.7	36.2	33.8	-2.4
Female	25.9	27.3	23.2	30.9	32.6	33.4	33.3	30.0	30.7	33.7	33.8	32.9	32.2	34.9	33.9	31.4	30.7	-0.6
College Plans:																		
None or under 4 years	31.9	37.3	28.3	36.8	35.8	34.2	38.3	35.0	38.1	40.4	42.5	36.9	40.3	42.6	39.7	37.5	38.0	+0.5
Complete 4 years	27.4	29.9	28.1	33.4	34.1	34.9	36.6	33.9	35.0	33.6	34.2	33.6	34.3	35.5	33.0	33.5	31.4	-2.1
Region:																		
Northeast	25.8	32.4	25.9	37.7	40.9	36.6	46.3	39.8	40.9	40.8	41.4	35.8	41.1	41.9	40.0	41.2	37.1	-4.2
Midwest	33.5	32.1	29.0	35.4	36.2	35.2	36.6	33.7	40.5	37.4	39.6	37.4	35.4	39.3	35.2	38.1	33.4	-4.7
South	27.1	34.7	28.1	34.9	33.6	32.9	33.9	32.1	28.3	31.7	32.9	30.7	33.3	33.7	32.5	30.6	32.2	+1.6
West	26.3	24.0	28.2	28.7	27.8	35.1	37.2	34.5	38.5	33.3	31.8	35.4	33.8	32.3	30.9	29.8	28.7	-1.1
Population Density:																		
Large MSA	29.8	32.2	30.3	33.3	30.6	36.0	37.2	34.5	41.1	36.0	37.5	32.4	30.1	36.2	34.4	37.4	37.1	-0.3
Other MSA	27.4	30.4	26.5	34.9	38.0	34.6	38.9	34.9	33.8	35.4	37.0	35.6	37.7	37.8	36.3	31.7	29.2	-2.5
Non-MSA	30.0	32.7	28.1	34.3	32.4	33.4	33.9	33.3	34.0	33.9	32.3	34.3	37.4	34.2	30.2	34.1	34.1	-0.1
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	25.4	29.1	23.6	26.8	24.7	27.7	33.5	35.3	30.8	28.2	29.4	27.6	29.5	30.9	30.2	27.1	33.3	+6.2
2.5-3.0	29.9	29.4	28.2	34.8	37.5	31.8	33.5	33.7	28.7	36.3	33.5	35.2	34.0	33.0	36.7	33.7	30.8	-2.9
3.5-4.0	29.0	34.1	25.8	32.4	34.7	36.4	40.6	32.7	40.0	35.4	37.3	35.7	38.2	33.8	34.7	33.2	33.1	-0.1
4.5-5.0	25.9	32.2	29.3	35.7	30.1	35.8	38.2	33.4	35.2	38.3	38.2	36.5	36.4	43.3	33.8	37.3	30.3	-7.0
5.5-6.0 (High)	33.1	29.9	32.0	41.1	42.1	40.4	38.3	40.8	47.8	34.5	38.8	33.0	36.6	38.4	35.9	39.4	37.5	-1.9
Race (2-year average): <sup>b</sup>																		
White	32.9	32.5	32.6	34.1	37.2	38.5	39.5	37.6	37.2	38.8	38.9	37.8	37.8	39.8	39.5	37.5	35.2	-2.3
African American	15.1	17.5	17.1	17.9	24.9	20.4	17.6	21.5	22.2	22.1	22.0	23.0	23.7	25.3	23.0	21.6	23.7	+2.1
Hispanic	29.2	28.9	26.3	27.4	29.4	28.1	31.7	36.6	36.3	36.0	36.3	33.3	29.6	30.2	28.4	27.5	29.3	+1.8

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-81**  
**Liquor: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

		Percentage reporting 5+ drinks in a row on one or more occasions																
		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =		—	15,400	17,100	17,800	15,500	15,900	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,700	15,200	15,000
Total		—	19.8	19.9	22.0	22.8	23.0	21.3	23.8	22.0	21.3	19.6	21.4	20.5	18.2	20.0	16.8	17.4
Gender:																		
Male		—	23.3	21.1	24.4	26.3	26.1	23.0	25.8	26.4	24.6	20.9	24.7	25.0	20.3	24.5	20.7	20.5
Female		—	16.1	18.5	19.6	19.8	20.2	19.7	21.9	17.8	18.2	18.2	18.6	16.2	16.6	15.7	12.8	14.4
College Plans:																		
None or under 4 years		—	23.8	23.4	26.7	24.2	26.5	26.4	26.9	25.7	24.7	22.0	24.0	24.5	20.7	23.7	17.3	21.7
Complete 4 years		—	15.8	16.8	17.9	21.5	19.7	18.0	21.8	19.2	19.2	18.4	19.9	18.6	17.2	18.6	16.4	15.8
Region:																		
Northeast		—	24.9	20.2	21.8	28.8	27.2	25.0	26.1	24.7	24.9	23.8	20.1	22.3	17.4	23.7	18.0	21.3
Midwest		—	22.1	23.3	24.0	23.0	23.7	22.9	27.5	24.0	24.1	19.3	25.9	21.9	23.1	21.4	17.7	19.0
South		—	16.0	16.4	22.5	20.6	22.1	18.0	19.6	20.7	20.2	17.0	19.1	18.7	15.2	18.6	15.4	15.3
West		—	14.8	19.2	16.2	18.5	18.2	19.2	20.1	17.0	15.3	19.8	19.6	19.6	17.2	17.5	16.5	15.2
Population Density:																		
Large MSA		—	20.3	18.3	20.5	22.6	22.8	22.6	26.1	24.3	21.1	18.7	21.7	20.3	16.8	18.4	17.9	16.4
Other MSA		—	19.9	21.8	21.4	23.4	23.9	20.7	22.2	21.8	20.1	19.6	19.7	20.8	19.8	19.1	16.4	17.5
Non-MSA		—	19.4	18.8	23.8	22.3	22.1	21.2	24.1	20.5	23.0	20.2	23.9	20.2	16.6	23.7	16.8	18.1
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)		—	22.0	18.1	20.9	19.1	22.0	24.3	21.0	21.5	21.0	19.6	19.0	20.6	19.9	17.6	18.0	19.9
2.5–3.0		—	22.8	20.4	23.7	23.6	23.9	21.3	24.7	23.6	25.5	20.4	24.2	21.2	21.6	18.1	16.4	18.1
3.5–4.0		—	17.4	21.5	22.0	22.9	20.5	24.9	25.2	19.9	19.7	18.1	20.1	18.1	15.7	23.2	15.0	18.6
4.5–5.0		—	18.0	16.7	18.6	24.7	24.8	14.7	21.3	22.6	20.0	20.2	20.4	21.8	16.7	20.9	18.5	16.4
5.5–6.0 (High)		—	14.0	24.9	22.5	23.2	23.6	19.5	28.1	20.4	17.5	20.6	22.0	22.2	16.4	16.3	19.4	13.3
Race (2-year average): <sup>b</sup>																		
White		—	—	20.5	22.1	23.6	24.1	23.3	24.2	24.5	23.0	22.0	22.0	22.6	21.3	21.0	20.7	19.0
African American		—	—	10.5	7.7	8.4	11.1	10.6	8.6	10.9	11.2	8.0	7.5	6.2	7.2	10.4	9.6	6.8
Hispanic		—	—	25.5	26.8	25.9	22.9	25.3	26.7	24.5	21.4	20.9	20.8	21.9	19.0	14.6	11.9	13.4

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency of difference between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1976–1988;  $N$  is one fifth of  $N$  indicated in Table D-109. Data based on one of six forms beginning in 1989;  $N$  is one sixth of  $N$  indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

↑  
Cont.

**TABLE D-81 (cont.)**  
**Liquor: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	Percentage reporting 5+ drinks in a row on one or more occasions													2007- 2008				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N = 15,800 16,300 15,400 15,400 14,300 15,400 15,200 13,600 12,800 12,800 12,900 14,600 14,600 14,700 14,200 14,500 14,000</i>																		
Total	16.0	18.2	17.1	20.2	21.6	21.1	23.6	22.3	23.8	22.7	25.6	21.1	23.8	25.0	23.3	22.9	22.1	-0.8
Gender:																		
Male	20.0	24.6	22.4	24.7	24.6	23.9	27.3	27.6	30.8	26.4	27.2	24.1	29.2	28.5	24.7	24.4	24.0	-0.4
Female	12.6	13.2	12.6	16.2	17.7	18.7	20.0	16.1	17.4	18.8	23.6	18.9	18.2	22.0	22.0	21.5	20.3	-1.2
College Plans:																		
None or under 4 years	21.4	24.6	19.1	22.5	21.1	23.4	31.2	23.2	26.4	29.2	31.9	23.0	29.2	32.6	27.1	26.5	29.3	+2.7
Complete 4 years	14.1	16.5	16.6	19.2	21.4	20.6	21.7	21.9	22.9	20.7	23.7	20.5	22.1	23.7	22.6	22.1	20.5	-1.6
Region:																		
Northeast	14.8	15.1	14.2	19.2	25.4	24.6	29.8	25.5	24.7	27.9	27.8	23.5	28.2	28.7	29.0	31.2	23.2	-8.0
Midwest	19.0	18.9	17.7	21.5	22.0	20.6	23.6	19.9	29.7	21.5	28.1	24.8	23.4	28.3	26.2	26.7	23.4	-3.3
South	15.5	21.7	17.6	21.8	21.9	20.0	21.7	21.7	17.4	20.4	24.3	17.4	21.6	22.8	20.5	19.0	21.2	+2.2
West	13.7	13.6	18.0	16.4	16.3	20.5	22.3	23.6	26.1	24.3	22.7	20.7	23.4	21.2	19.8	19.0	21.3	+2.3
Population Density:																		
Large MSA	15.6	16.8	16.1	19.3	19.5	23.0	23.9	21.4	26.6	23.6	25.8	20.0	20.7	25.3	22.6	26.0	24.0	-2.0
Other MSA	15.2	17.3	16.3	20.3	24.9	21.3	25.1	22.8	21.7	22.2	26.3	21.9	24.6	26.2	25.0	21.4	20.3	-1.1
Non-MSA	17.9	20.7	19.5	21.1	17.7	18.7	20.3	22.2	24.1	22.6	24.0	21.2	25.5	22.5	21.0	21.6	23.8	+2.2
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	15.9	20.7	14.4	15.2	14.7	16.7	23.9	25.5	24.4	15.2	18.4	17.9	17.8	18.5	19.1	18.8	16.9	-1.9
2.5-3.0	17.9	18.3	18.5	19.7	22.1	18.3	21.3	20.7	17.8	25.4	24.2	24.2	25.9	22.1	22.7	22.0	20.1	-1.9
3.5-4.0	15.9	19.7	16.2	20.7	20.4	23.3	25.4	23.6	25.8	21.8	24.4	21.1	26.2	23.5	26.1	24.3	22.8	-1.4
4.5-5.0	13.5	17.4	17.7	21.6	18.0	22.2	24.3	20.6	24.5	24.9	29.0	21.0	22.2	29.8	24.5	24.1	22.0	-2.1
5.5-6.0 (High)	16.5	16.0	18.8	22.0	31.3	23.5	23.0	22.8	30.4	22.4	31.0	21.0	20.3	28.7	20.3	24.1	25.5	+1.4
Race (2-year average): <sup>b</sup>																		
White	18.0	18.7	19.4	20.4	22.3	23.4	24.7	24.4	24.3	25.3	26.3	25.4	24.6	26.9	27.5	25.8	23.9	-1.9
African American	7.1	8.9	9.5	11.3	15.4	12.5	9.9	10.4	10.2	12.8	14.6	14.9	15.8	17.2	14.9	13.7	17.1	+3.4
Hispanic	19.4	18.1	16.8	18.1	18.9	20.0	22.2	24.3	25.2	24.0	24.0	21.1	18.9	20.6	18.4	17.6	19.1	+1.5

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-82**  
**Wine: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

Percentage who used in last 30 days

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 <sup>a</sup>	1989	1990	1991
Approximate <i>wtid</i> . <i>N</i> =	—	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	—	34.5	37.4	37.7	36.6	39.5	36.6	37.8	36.0	34.1	36.0	34.5	33.5	22.7	19.7	14.7	16.1
Gender:																	
Male	—	34.1	35.5	34.8	33.9	38.1	35.3	35.6	33.8	30.3	34.2	30.8	29.3	20.7	18.9	16.1	16.9
Female	—	34.5	39.1	40.2	39.0	41.1	38.2	39.9	37.7	38.1	37.4	38.1	37.1	24.3	20.4	13.5	15.5
College Plans:																	
None or under 4 years	—	31.5	33.1	33.8	33.8	37.1	32.8	36.3	34.5	33.7	34.6	31.5	28.2	19.7	18.6	11.9	16.1
Complete 4 years	—	38.0	41.4	41.5	38.5	41.0	39.1	39.5	37.2	34.0	37.3	36.2	35.7	24.0	20.5	16.0	16.4
Region:																	
Northeast	—	45.2	42.6	47.5	45.3	48.0	51.6	51.4	46.0	41.5	43.9	32.0	35.6	27.7	22.1	15.0	22.1
Midwest	—	33.8	36.3	40.8	33.8	36.6	38.5	38.9	36.0	34.3	34.1	41.0	34.0	23.0	23.7	13.4	17.3
South	—	27.5	34.2	30.2	30.8	34.8	26.3	27.7	30.9	29.5	30.7	28.1	31.7	18.9	17.4	14.5	11.8
West	—	34.0	38.1	32.7	40.8	42.4	31.6	32.5	32.4	34.7	38.4	38.1	33.8	24.5	16.0	16.9	16.2
Population Density:																	
Large MSA	—	46.6	47.0	45.6	44.2	46.9	46.0	46.3	45.0	36.7	40.7	36.6	35.3	27.6	20.6	15.3	13.9
Other MSA	—	33.0	36.5	36.8	36.0	42.1	34.6	36.6	32.4	34.0	36.4	36.0	34.9	22.0	20.5	16.8	17.8
Non-MSA	—	28.0	31.4	32.8	31.9	31.0	32.4	32.8	33.8	32.3	31.7	30.7	29.2	19.3	16.7	9.9	15.1
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	33.4	30.1	32.3	31.4	28.0	28.0	30.2	26.6	28.3	28.6	28.0	23.9	16.4	19.0	9.5	10.8
2.5–3.0	—	33.8	32.8	35.3	33.0	38.0	33.2	33.8	35.3	34.0	32.4	31.3	30.7	17.8	15.6	12.4	16.0
3.5–4.0	—	36.9	42.0	40.2	38.2	39.6	37.2	42.0	32.9	35.9	36.9	37.1	31.5	23.4	18.8	14.2	16.4
4.5–5.0	—	39.6	42.5	40.8	43.6	45.2	41.5	43.4	46.1	37.1	43.1	36.3	39.7	26.5	24.1	18.9	17.5
5.5–6.0 (High)	—	48.4	57.3	49.8	46.7	51.7	52.9	47.5	43.2	33.9	42.6	40.1	40.9	31.4	23.5	19.3	19.4
Race (2-year average): <sup>c</sup>																	
White	—	—	35.9	38.1	38.1	39.2	40.2	39.6	38.4	36.5	36.7	37.1	35.7	29.9	23.0	18.6	16.6
African American	—	—	36.2	30.8	27.4	27.9	24.9	26.0	28.9	24.4	21.3	21.0	21.8	18.4	15.0	11.2	10.2
Hispanic	—	—	42.9	38.5	30.0	31.0	27.3	26.8	28.3	30.9	37.0	37.4	33.0	22.2	15.0	14.2	10.9

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1976–1988; *N* is one fifth of *N* indicated in Table D-109. Data based on one of six forms beginning in 1989; *N* is one sixth of *N* indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)



**TABLE D-82 (cont.)**  
**Wine: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																	2007–	2008
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>																			
Total	16.9	14.9	14.2	14.3	18.3	17.0	16.0	15.8	16.2	14.1	13.4	13.4	13.9	14.4	12.6	14.1	14.0	0.0	
Gender:																			
Male	17.2	15.9	13.8	13.2	18.1	16.7	17.4	17.6	17.7	12.8	13.2	13.9	13.8	13.8	11.6	12.1	13.4	+1.3	
Female	16.6	13.9	14.3	15.3	18.2	17.3	15.0	14.4	15.0	15.5	13.2	13.5	14.1	15.1	13.6	15.3	14.4	-0.9	
College Plans:																			
None or under 4 years	12.6	16.5	11.7	10.6	14.5	14.2	19.0	11.9	12.0	15.9	11.7	13.8	12.7	14.4	13.9	13.1	17.3	+4.2	
Complete 4 years	18.4	14.4	14.8	15.3	19.3	18.0	15.3	16.8	17.1	13.3	13.7	13.5	14.5	14.3	11.9	14.4	13.4	-0.9	
Region:																			
Northeast	18.5	15.2	15.9	14.2	23.4	19.4	18.7	23.5	20.8	19.2	17.3	12.5	18.2	15.2	13.9	17.6	17.0	-0.6	
Midwest	21.9	14.0	14.3	14.3	13.1	14.2	17.7	16.2	11.9	13.5	14.9	13.5	13.0	15.3	13.9	14.1	13.9	-0.2	
South	11.0	16.7	13.0	15.9	20.0	17.7	13.8	14.6	17.2	13.9	12.7	14.0	12.6	13.4	12.1	13.9	13.3	-0.6	
West	18.3	13.0	15.0	11.6	16.8	17.1	15.9	11.2	15.9	11.3	9.8	13.5	12.8	14.1	10.7	11.5	13.3	+1.9	
Population Density:																			
Large MSA	17.0	20.0	16.8	14.8	19.5	18.2	19.5	17.4	20.4	16.7	17.2	11.1	12.5	16.9	15.0	16.7	18.8	+2.1	
Other MSA	19.0	15.0	14.4	15.1	18.6	18.2	15.9	16.5	14.6	11.5	11.8	15.0	15.4	14.0	12.8	13.5	13.0	-0.5	
Non-MSA	12.6	11.3	11.3	12.4	16.6	13.6	12.3	13.3	14.2	15.6	11.9	13.5	12.8	12.2	8.9	11.3	11.0	-0.2	
Parental Education: <sup>b</sup>																			
1.0–2.0 (Low)	11.7	14.3	9.8	13.5	9.7	13.1	14.6	16.7	19.7	12.3	14.8	9.4	12.8	10.9	4.0	9.9	11.3	+1.4	
2.5–3.0	13.9	12.1	13.6	10.2	15.2	13.8	10.2	10.5	10.4	13.6	8.6	13.1	10.9	13.4	10.6	9.0	11.9	+2.9	
3.5–4.0	15.4	14.3	11.7	10.5	17.9	15.7	15.1	11.5	14.6	10.2	13.1	13.1	15.6	12.2	11.4	15.3	13.3	-2.0	
4.5–5.0	19.2	17.7	14.6	18.1	18.0	18.0	20.8	19.6	16.2	19.1	15.4	15.5	14.1	16.8	15.5	16.4	13.7	-2.8	
5.5–6.0 (High)	27.1	16.5	23.8	24.9	27.2	29.1	20.0	29.8	29.1	16.7	19.0	15.8	18.3	18.2	18.4	19.9	17.2	-2.7	
Race (2-year average): <sup>c</sup>																			
White	17.4	16.2	14.4	14.4	16.8	19.3	18.1	16.6	16.4	15.9	15.2	14.5	14.7	15.5	15.6	15.4	14.3	-1.1	
African American	11.7	14.5	17.6	13.6	12.8	11.1	9.9	9.3	9.5	10.9	8.5	8.0	7.9	7.8	6.1	6.5	11.2	+4.7	
Hispanic	14.9	14.3	14.2	15.0	13.8	13.5	13.4	16.4	17.9	12.9	9.4	12.2	13.5	13.1	10.5	11.0	15.7	+4.7	

<sup>a</sup>In the 1988 questionnaires, a question on the use of wine coolers was added. This change may account for the discontinuity between the 1987 and 1988 use rates for wine.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-83**  
**Wine: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

Percentage reporting 5+ drinks in a row on one or more occasions

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 <sup>a</sup>	1989	1990	1991
Approximate <i>wtid</i> , N =	—	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	—	12.5	13.1	13.5	12.9	13.2	13.0	14.9	14.3	13.0	12.8	13.8	12.7	7.8	6.8	4.9	5.8
Gender:																	
Male	—	14.5	13.9	14.3	13.9	13.3	12.2	12.6	14.4	12.6	12.9	12.4	12.3	7.8	6.1	5.5	7.1
Female	—	10.4	12.1	12.8	12.0	12.8	13.5	16.8	13.9	13.1	12.5	14.6	12.8	7.7	7.3	4.3	4.6
College Plans:																	
None or under 4 years	—	14.1	14.6	14.6	14.8	15.3	13.2	16.1	15.7	14.4	13.9	14.6	13.7	9.5	9.0	5.1	8.0
Complete 4 years	—	10.4	11.6	12.7	11.4	11.3	12.6	13.9	13.2	11.9	11.9	13.3	12.0	7.1	6.0	4.9	5.3
Region:																	
Northeast	—	14.8	14.8	15.0	16.4	18.2	17.9	18.3	19.1	16.9	15.7	11.5	10.7	8.1	7.4	3.6	7.1
Midwest	—	13.8	12.9	15.4	12.6	12.2	13.9	16.0	13.6	14.1	12.3	17.2	13.5	7.8	6.9	3.9	5.6
South	—	10.1	11.8	11.7	11.8	11.6	10.0	12.4	12.5	11.0	10.9	12.9	13.1	6.8	6.7	5.4	5.1
West	—	10.8	13.4	10.9	10.4	11.6	9.8	12.0	13.1	10.9	13.3	12.2	13.2	9.5	6.3	7.0	6.0
Population Density:																	
Large MSA	—	17.0	14.9	14.7	14.3	14.9	16.8	17.9	17.1	14.1	14.0	13.5	11.0	9.7	6.1	4.4	5.3
Other MSA	—	11.4	13.0	12.5	11.8	13.2	11.6	13.3	12.6	12.4	13.7	13.8	13.6	7.8	8.0	4.9	6.5
Non-MSA	—	10.7	11.8	14.0	13.1	12.0	11.8	14.7	14.4	13.0	10.6	13.9	12.9	6.0	4.8	5.2	4.9
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	14.0	16.4	14.9	12.7	10.2	13.7	15.7	12.1	12.8	11.9	14.7	12.2	8.2	8.3	4.6	5.7
2.5–3.0	—	13.4	12.0	13.7	12.4	15.4	13.1	12.1	16.8	14.6	12.1	13.6	13.0	7.2	6.2	5.4	6.8
3.5–4.0	—	11.7	14.0	12.2	10.3	13.0	13.4	16.7	12.4	15.0	13.1	14.9	12.1	7.5	6.3	5.4	6.5
4.5–5.0	—	12.4	9.4	12.9	16.5	12.7	11.2	14.9	14.4	10.2	13.4	12.2	13.3	7.7	8.0	4.3	4.9
5.5–6.0 (High)	—	14.4	15.4	15.0	16.5	12.0	14.2	21.2	12.5	7.7	14.5	12.9	12.3	9.5	5.0	4.4	3.5
Race (2-year average): <sup>c</sup>																	
White	—	—	12.0	13.1	13.4	13.1	13.4	14.4	14.8	13.8	13.3	13.6	13.4	10.4	7.5	6.0	5.3
African American	—	—	16.7	12.6	10.8	10.4	9.0	10.0	11.4	10.1	8.3	8.3	7.6	8.3	7.8	4.7	5.1
Hispanic	—	—	19.3	14.7	9.7	9.5	15.3	15.1	15.8	14.3	13.4	16.1	14.7	8.4	5.1	6.4	4.3

Source: The Monitoring the Future study, the University of Michigan.  
 Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.  
 Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.  
 See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.  
 Data based on one of five forms in 1976–1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

**TABLE D-83 (cont.)**  
**Wine: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008 change
Percentage reporting 5+ drinks in a row on one or more occasions																		
<i>Approximate wtd. N = 15,800 16,300 15,400 15,400 14,300 15,400 15,400 15,200 13,600 12,800 12,800 12,900 14,600 14,600 14,700 14,200 14,500 14,000</i>																		
Total	5.7	5.8	4.9	5.8	7.0	6.4	6.4	5.0	5.4	5.9	4.7	5.0	4.9	5.4	4.4	5.1	5.0	-0.1
Gender:																		
Male	6.5	7.2	4.9	6.1	8.3	6.9	6.9	6.5	7.3	5.8	4.6	5.7	6.2	5.1	4.9	4.7	4.8	+0.1
Female	4.5	4.4	4.9	5.6	5.7	6.1	5.8	3.8	3.6	5.3	4.1	4.3	3.5	5.6	4.1	5.6	5.1	-0.5
College Plans:																		
None or under 4 years	6.7	8.3	4.0	6.1	5.7	8.7	9.6	5.0	4.2	7.8	6.4	7.0	5.2	7.1	6.0	5.4	7.7	+2.3
Complete 4 years	5.4	5.1	5.3	5.4	7.2	5.7	5.5	5.1	5.6	5.2	4.1	4.5	4.8	4.8	4.0	5.1	4.3	-0.8
Region:																		
Northeast	4.5	3.4	4.2	5.9	10.2	6.6	8.0	5.4	5.9	8.3	5.3	4.1	4.6	5.2	5.6	8.3	4.2	-4.1 s
Midwest	7.2	4.6	4.6	6.3	5.7	5.5	6.4	6.4	5.3	4.5	4.6	5.5	5.1	6.1	5.0	4.9	6.2	+1.3
South	4.1	8.2	4.7	6.9	6.7	7.2	5.7	5.0	5.2	5.8	3.9	5.4	4.9	5.1	3.6	4.4	4.7	+0.3
West	7.1	5.3	6.5	3.0	6.1	6.3	6.5	3.2	5.5	6.1	5.8	4.5	4.9	5.3	4.1	4.1	4.8	+0.7
Population Density:																		
Large MSA	6.1	5.4	4.7	5.6	9.6	7.3	6.6	5.3	6.7	5.5	5.4	4.1	5.3	5.8	5.3	6.4	4.2	-2.2
Other MSA	5.8	6.8	6.2	5.4	7.0	6.4	6.6	4.2	5.4	5.4	3.2	5.0	4.6	5.3	3.9	5.3	5.4	0.0
Non-MSA	5.1	4.5	3.2	6.6	4.9	5.6	5.8	6.2	3.9	7.0	6.7	5.9	5.0	5.2	4.1	2.9	5.2	+2.2
Parental Education: <sup>b</sup>																		
1.0-2.0 (Low)	8.0	12.4	4.9	6.1	4.2	5.2	10.7	8.2	11.3	8.0	8.2	6.8	6.4	5.6	4.3	2.3	5.1	+2.8
2.5-3.0	4.8	5.3	3.8	5.6	6.5	6.8	6.0	3.5	3.7	5.6	4.6	6.6	4.4	5.3	2.8	3.1	5.2	+2.1
3.5-4.0	4.1	4.3	5.5	4.2	7.1	4.8	5.7	4.1	5.3	4.7	4.5	4.6	6.5	4.6	3.6	6.5	5.2	-1.3
4.5-5.0	6.1	6.0	3.7	5.6	4.4	8.1	7.6	4.7	4.8	7.2	4.4	4.1	4.1	4.7	5.2	5.3	3.9	-1.4
5.5-6.0 (High)	8.3	4.4	8.4	11.1	13.0	8.2	4.5	8.8	6.5	5.5	4.4	4.2	4.2	8.1	7.3	7.5	4.5	-3.0
Race (2-year average): <sup>c</sup>																		
White	5.5	5.0	4.8	5.2	6.2	6.9	6.5	5.4	4.7	4.8	4.9	5.0	4.9	5.1	5.2	5.2	4.9	-0.3
African American	5.1	7.6	7.5	4.0	4.9	5.1	5.3	4.5	5.2	6.5	5.0	4.3	3.5	2.3	1.7	2.6	3.8	+1.2
Hispanic	7.5	7.8	7.2	7.3	7.6	7.6	7.1	7.8	7.8	7.8	4.7	3.5	5.2	5.0	3.9	4.4	5.6	+1.2

<sup>a</sup>In the 1988 questionnaires, a question on the use of wine coolers was added. This change may account for the discontinuity between the 1987 and 1988 use rates for wine.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-84**  
**Wine Coolers: Trends in 30-Day Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 30 days																	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Approximate wtd. N =	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500					
Total	14.8	15.1	16.1	15.9	15.3	17.5	15.9	15.6	16.5	14.8	15.3	12.9	12.4					
Gender:																		
Male	14.7	13.8	16.2	15.8	14.6	16.1	14.5	15.4	16.7	13.4	14.2	11.9	10.2					
Female	14.6	16.2	16.0	16.2	15.6	18.7	16.9	15.8	16.3	15.9	15.9	13.3	14.3					
College Plans:																		
None or under 4 years	21.2	23.9	30.6	28.1	25.3	28.7	32.1	27.3	31.9	28.5	31.6	21.1	24.2					
Complete 4 years	13.7	14.0	14.3	14.5	14.1	15.7	14.0	14.3	14.7	13.3	13.4	12.2	11.1					
Region:																		
Northeast	9.8	11.5	12.7	15.8	15.0	17.7	14.5	15.7	15.4	13.5	17.7	11.8	10.9					
Midwest	14.5	14.6	15.7	15.0	13.9	18.5	16.1	16.2	17.6	17.0	14.8	12.1	15.5					
South	17.4	18.1	17.8	16.7	17.0	17.5	16.6	16.2	18.6	14.6	16.8	15.0	12.7					
West	14.8	14.2	17.3	15.9	13.9	16.0	15.3	14.0	12.7	13.3	11.4	11.3	8.9					
Population Density:																		
Large MSA	14.1	16.4	12.7	14.4	11.1	16.5	14.1	14.0	14.0	12.9	12.3	12.1	10.4					
Other MSA	14.6	15.4	17.4	17.8	16.1	18.2	15.7	15.4	16.8	14.5	15.4	12.7	12.3					
Non-MSA	15.8	13.4	17.3	13.2	15.8	17.3	17.9	17.6	18.9	17.5	18.3	14.4	14.7					
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	19.3	18.7	18.5	21.1	20.4	21.7	22.2	20.7	30.2	22.1	25.1	22.8	18.2					
2.5-3.0	16.9	16.6	19.9	17.7	17.6	20.2	19.2	17.8	19.7	18.1	19.7	14.3	15.4					
3.5-4.0	12.9	16.8	17.2	18.4	15.7	18.4	16.8	16.6	17.5	14.3	19.6	15.7	15.8					
4.5-5.0	13.9	11.8	13.5	12.0	12.5	15.4	11.9	13.6	13.1	11.8	9.0	9.8	8.1					
5.5-6.0 (High)	13.5	12.5	11.9	14.7	13.2	13.8	13.5	14.2	11.4	12.1	8.2	9.0	8.7					
Race (2-year average): <sup>b</sup>																		
White	—	14.4	15.1	15.1	14.9	16.4	16.5	15.4	16.0	15.9	15.0	14.0	12.6					
African American	—	13.7	13.3	14.4	12.7	12.2	14.7	12.8	12.8	13.1	12.0	9.8	9.6					
Hispanic	—	21.9	23.2	23.4	24.4	22.9	21.3	21.2	22.4	21.1	18.5	18.9	18.8					

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991-1996;  $N$  is one half of  $N$  indicated in Table D-107. Data based on one of four forms beginning in 1997;  $N$  is one third of  $N$  indicated in Table D-107.

The category of wine coolers was dropped from the 8th- and 10th-grade questionnaires in 2004 to make space for a more general class of flavored alcoholic beverages.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

**TABLE D-85**  
**Wine Coolers: Trends in 30-Day Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 30 days																	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800					
Total	24.0	21.5	22.5	21.8	20.8	22.8	22.1	20.9	22.1	21.2	20.8	18.9	17.2					
Gender:																		
Male	23.9	19.8	20.5	21.9	19.4	21.8	20.6	19.0	20.5	19.6	19.8	16.0	14.8					
Female	24.1	22.9	24.3	21.6	21.9	23.6	23.4	22.0	23.4	22.6	21.7	21.6	19.5					
College Plans:																		
None or under 4 years	31.1	26.7	27.6	28.4	28.9	33.0	28.4	29.3	33.4	32.6	31.6	30.2	23.8					
Complete 4 years	22.5	20.5	21.4	20.4	19.4	21.0	21.1	19.3	20.3	19.5	19.1	17.2	16.2					
Region:																		
Northeast	23.2	19.0	24.1	21.6	18.5	20.3	21.0	19.1	21.7	18.8	21.5	18.1	18.7					
Midwest	23.0	20.2	20.4	21.6	20.6	21.9	20.9	19.1	21.1	20.6	20.2	19.2	15.3					
South	26.0	23.3	23.6	23.0	22.9	25.0	23.4	22.5	24.0	23.3	21.4	17.7	16.9					
West	23.0	22.7	23.0	20.2	19.2	22.3	22.4	22.0	20.3	20.7	19.6	21.5	18.2					
Population Density:																		
Large MSA	23.1	21.6	21.5	21.2	16.4	19.3	20.2	16.9	23.1	19.8	19.9	17.4	17.0					
Other MSA	23.8	22.3	22.4	22.6	20.7	23.7	22.2	21.9	21.3	19.7	19.7	18.7	16.4					
Non-MSA	25.1	20.0	23.6	20.4	23.7	24.6	23.8	23.2	22.6	25.6	23.7	21.2	19.5					
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	25.9	24.4	27.4	24.4	27.7	25.4	21.1	22.6	26.3	23.8	22.2	20.3	23.4					
2.5-3.0	26.8	21.3	22.3	22.4	23.8	25.5	24.3	25.4	25.1	24.2	22.7	22.5	19.8					
3.5-4.0	24.8	22.5	22.5	22.3	22.1	23.7	23.6	22.0	22.3	23.6	22.2	19.1	17.5					
4.5-5.0	21.8	20.6	21.9	21.4	19.1	19.9	21.2	15.6	17.5	19.4	17.7	18.2	15.4					
5.5-6.0 (High)	20.7	20.5	20.2	17.8	14.5	21.3	18.5	18.5	21.2	14.2	20.3	13.7	13.3					
Race (2-year average): <sup>b</sup>																		
White	—	23.0	21.9	22.1	21.2	21.7	22.6	21.7	21.6	21.9	21.2	20.3	18.1					
African American	—	19.9	19.3	20.6	20.0	16.6	16.1	17.6	17.0	18.1	18.3	15.3	15.2					
Hispanic	—	26.3	26.2	24.7	24.9	28.1	28.0	24.1	24.5	25.2	24.5	22.3	21.7					

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991-1996;  $N$  is one half of  $N$  indicated in Table D-108. Data based on one of four forms beginning in 1997;  $N$  is one third of  $N$  indicated in Table D-108

The category of wine coolers was dropped from the 8th- and 10th-grade questionnaires in 2004 to make space for a more general class of flavored alcoholic beverages.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates.

**TABLE D-86**  
**Wine Coolers: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

Percentage who used in last 30 days

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	—	—	—	—	—	—	—	—	—	—	—	—	—	16,300	16,700	15,200	15,000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	36.6	29.4	26.2	24.3
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	—	—	30.8	25.5	22.7	22.1
Female	—	—	—	—	—	—	—	—	—	—	—	—	—	41.5	33.6	29.8	26.3
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	—	—	38.2	30.9	29.2	29.3
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	—	—	35.9	28.6	24.9	22.8
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	29.6	29.2	21.0
Midwest	—	—	—	—	—	—	—	—	—	—	—	—	—	37.9	33.0	28.6	26.1
South	—	—	—	—	—	—	—	—	—	—	—	—	—	33.6	25.7	22.9	23.1
West	—	—	—	—	—	—	—	—	—	—	—	—	—	42.7	31.3	24.7	26.3
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	37.7	28.6	25.9	20.9
Other MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	37.1	31.1	28.7	28.1
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	34.6	26.4	21.1	20.6
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	—	—	28.8	27.7	22.9	24.0
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	—	—	37.8	31.9	28.1	25.4
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	—	—	38.5	31.2	27.1	27.2
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	—	—	35.6	27.6	27.6	22.1
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	—	—	36.9	23.5	21.5	18.0
Race (2-year average): <sup>b</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35.4	29.6	26.7
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.3	21.7	20.9
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.2	23.3	22.3

↑  
Cont.

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

**TABLE D-86 (cont.)**  
**Wine Coolers: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																2007-	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wt. N =</i>	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	21.9	19.4	22.2	20.6	20.7	20.7	20.1	18.4	17.6	19.0	19.3	14.6	14.4	14.1	13.3	12.7	12.8	+0.2
Gender:																		
Male	19.1	15.1	16.9	15.5	17.7	15.9	15.0	15.6	15.6	14.1	12.0	9.4	11.2	8.7	9.2	9.2	8.3	-0.9
Female	24.3	22.8	26.4	25.1	23.6	24.4	23.5	20.6	19.5	22.2	24.2	18.9	17.2	18.7	17.1	16.1	16.6	+0.5
College Plans:																		
None or under 4 years	21.9	20.5	22.8	22.7	20.0	17.8	21.8	22.8	21.2	23.1	21.8	17.2	16.7	18.6	17.5	18.0	16.8	-1.2
Complete 4 years	22.0	19.2	22.3	19.8	20.9	21.6	19.6	17.3	16.1	17.7	18.8	14.0	13.7	13.2	12.3	11.5	12.0	+0.4
Region:																		
Northeast	19.6	18.9	15.4	14.6	21.1	17.2	20.8	22.1	19.1	18.4	17.8	15.9	14.7	17.3	13.3	15.2	11.7	-3.5
Midwest	23.7	19.4	26.0	19.8	20.9	21.5	18.6	19.2	18.3	19.5	20.9	15.5	11.0	13.7	13.2	11.9	12.3	+0.4
South	21.3	20.6	23.4	24.1	23.2	22.9	20.6	18.7	16.8	19.7	20.6	13.9	16.7	13.5	14.6	13.0	15.1	+2.1
West	22.2	17.8	19.8	20.4	14.9	18.9	20.4	13.7	16.7	17.5	16.6	13.1	14.6	12.7	10.9	10.9	10.8	0.0
Population Density:																		
Large MSA	21.2	20.4	21.2	20.7	22.7	23.9	22.5	14.7	19.8	18.1	20.5	12.8	14.2	13.5	10.7	11.9	11.4	-0.5
Other MSA	21.0	19.0	23.3	19.8	19.3	19.1	19.4	17.5	15.0	18.5	18.4	13.7	13.8	13.2	14.4	12.6	12.8	+0.2
Non-MSA	24.1	19.4	21.3	21.8	21.6	20.1	18.7	23.4	19.4	20.6	19.4	18.0	15.6	16.7	14.7	13.9	14.3	+0.4
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	25.7	20.8	23.5	21.1	18.2	13.2	19.8	19.0	24.8	19.3	18.4	13.7	21.3	15.6	12.8	18.4	17.3	-1.1
2.5-3.0	21.2	17.1	26.4	20.4	26.8	20.0	21.4	23.2	16.3	22.8	19.6	18.1	17.2	19.8	15.6	13.1	12.8	-0.3
3.5-4.0	22.9	24.4	20.9	22.0	19.5	23.0	23.3	17.3	21.8	18.5	17.8	14.7	16.4	12.6	15.3	13.5	12.3	-1.2
4.5-5.0	18.0	17.2	22.8	21.0	17.0	21.4	17.9	14.3	13.6	19.0	19.4	12.4	9.1	13.6	12.7	10.8	11.1	+0.3
5.5-6.0 (High)	24.5	16.4	14.6	16.7	20.8	21.0	16.6	19.9	16.8	14.6	23.5	10.1	13.3	9.8	9.8	11.7	12.5	+0.8
Race (2-year average): <sup>b</sup>																		
White	23.7	21.3	21.5	21.9	20.8	21.2	21.0	19.6	18.0	18.2	19.7	16.8	13.1	13.6	14.6	13.1	11.4	-1.7
African American	18.2	17.6	18.3	17.6	22.1	21.1	18.4	15.5	12.4	17.0	17.0	15.8	19.4	18.4	10.9	11.8	16.8	+5.0
Hispanic	26.7	22.9	22.9	26.0	22.0	19.8	18.2	17.4	20.7	20.0	16.7	16.0	19.7	19.4	13.8	13.0	12.9	-0.2

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

TABLE D-87

Wine Coolers: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12

Cont.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	—	—	—	—	—	—	—	—	—	—	—	—	—	16,300	16,700	15,200	15,000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	12.4	10.5	10.2
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	—	—	12.1	11.3	9.9	10.0
Female	—	—	—	—	—	—	—	—	—	—	—	—	—	15.1	13.5	11.3	10.2
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	—	—	17.7	16.2	14.2	13.5
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	—	—	12.5	10.7	9.0	9.2
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	—	—	14.7	14.3	10.0	7.6
Midwest	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	13.1	12.0	10.9
South	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2	9.3	8.8
West	—	—	—	—	—	—	—	—	—	—	—	—	—	17.4	12.0	11.0	13.2
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	14.2	11.7	10.0	7.9
Other MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	15.6	12.4	11.0	12.4
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	—	—	10.7	13.3	9.9	8.2
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	—	—	13.9	9.2	10.7	12.5
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	—	—	16.6	13.8	13.3	10.9
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	14.9	9.3	12.0
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	—	—	11.7	10.5	11.3	9.2
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	—	—	11.4	7.4	6.3	3.7
Race (2-year average): <sup>b</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	12.3	10.7
African American	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.0	9.9	9.2
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.5	6.0	9.8

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of five forms in 1988; N is one fifth of N indicated in Table D-109. Data based on one of six forms beginning in 1989; N is one sixth of N indicated in Table D-109.

Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.

(Table continued on next page.)

**TABLE D-87 (cont.)**  
**Wine Coolers: Trends in 2-Week Prevalence of 5 or More Drinks in a Row by Subgroups in Grade 12**

	Percentage reporting 5+ drinks in a row on one or more occasions													2007- 2008	change			
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	10.4	8.5	8.9	9.0	8.4	9.4	9.5	7.7	8.8	9.7	10.0	7.1	7.5	7.2	7.1	5.8	7.3	+1.5
Gender:																		
Male	10.2	7.3	7.4	6.7	6.9	6.7	7.0	7.0	9.4	6.2	7.2	5.4	7.5	4.2	6.1	4.8	4.5	-0.3
Female	10.3	9.5	10.0	10.8	9.7	11.3	11.0	7.8	8.4	11.4	11.4	8.2	8.0	9.7	8.0	7.0	9.6	+2.6
College Plans:																		
None or under 4 years	11.1	10.8	10.9	12.1	8.8	10.1	9.9	10.2	12.1	14.8	13.7	8.9	10.8	11.4	11.9	11.1	8.2	-2.9
Complete 4 years	10.1	8.0	8.6	8.0	8.3	9.2	9.5	7.0	7.4	8.2	9.2	6.7	6.8	6.2	6.0	4.7	7.0	+2.4 ss
Region:																		
Northeast	8.8	6.5	5.5	5.5	9.8	8.2	9.6	8.9	10.1	10.2	9.8	8.0	7.5	10.7	6.9	6.1	7.4	+1.3
Midwest	12.0	8.0	9.9	7.0	9.2	9.7	7.3	7.0	10.8	8.9	12.0	8.8	6.4	6.6	7.3	6.0	8.1	+2.1
South	10.3	11.1	9.3	11.5	8.7	9.7	10.5	8.8	5.9	10.9	9.6	6.7	8.6	6.6	8.3	5.7	8.4	+2.7 s
West	9.7	6.2	10.0	10.4	4.8	9.7	10.2	5.6	10.1	8.4	8.4	5.0	7.1	5.7	5.1	5.5	4.6	-0.9
Population Density:																		
Large MSA	11.8	7.9	8.5	11.1	8.8	10.8	12.1	7.5	11.1	10.6	9.6	6.8	7.2	7.0	6.4	5.3	6.3	+1.0
Other MSA	9.2	8.7	8.8	7.5	8.3	9.5	8.7	6.5	8.1	8.2	9.9	6.3	7.0	7.4	6.6	6.4	6.7	+0.3
Non-MSA	11.7	8.6	9.6	9.1	8.2	7.8	7.9	9.7	7.4	11.3	10.7	8.9	8.9	7.1	9.1	5.3	9.4	+4.1 ss
Parental Education: <sup>a</sup>																		
1.0-2.0 (Low)	13.1	12.2	11.4	11.7	9.6	6.8	13.2	8.3	16.8	14.1	14.6	9.3	11.9	8.3	12.0	8.8	9.1	+0.3
2.5-3.0	9.5	6.9	10.4	9.5	11.4	9.8	11.0	9.2	8.8	12.6	9.9	9.4	9.5	9.9	8.2	8.1	8.0	-0.1
3.5-4.0	11.1	11.1	8.8	8.5	6.8	10.6	9.9	7.7	8.8	7.3	9.9	6.1	9.1	6.2	7.4	5.6	6.8	+1.3
4.5-5.0	8.8	7.4	9.2	9.2	7.2	8.6	7.7	7.2	8.6	10.7	10.7	5.9	4.2	6.8	7.4	4.7	5.5	+0.8
5.5-6.0 (High)	10.6	5.6	4.8	7.5	7.7	9.5	7.9	5.8	7.0	6.1	8.0	5.9	5.5	5.2	3.4	4.1	8.3	+4.3 s
Race (2-year average): <sup>b</sup>																		
White	10.3	9.5	8.6	8.6	8.1	8.7	8.8	7.6	7.6	8.9	10.2	8.4	6.4	6.9	7.5	6.4	5.4	-1.0
African American	8.7	8.6	8.6	7.5	10.4	10.0	9.2	6.9	4.2	9.6	10.0	7.8	11.7	10.5	4.6	4.9	6.6	+1.7
Hispanic	14.5	13.5	13.1	13.9	11.1	9.8	12.0	12.6	13.2	11.5	9.1	9.3	10.6	9.4	8.0	7.9	8.1	+0.2

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-88**  
**Flavored Alcoholic Beverages: Trends in 30-Day Prevalence of Use by Subgroups**  
**in Grades 8, 10, and 12**

	Percentage who used in last 30 days																							
	8th Graders			10th Graders			12th Graders			1991-2003			2007-2008			1991-2008								
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2003	2004	2005	2004	2005	2006	2003	2004	2005	2007	2008	change	2007	2008	change
<i>Approximate wtd. N =</i>	17,000	16,800	16,500	16,100	16,100	16,100	16,100	16,100	15,100	—	14,600	14,200	14,600	14,700	14,200	—	14,600	14,500	14,500	14,000	14,000	2007	2008	change
Total	14.6	12.9	13.1	12.2	10.2	-2.0 ss	25.1	23.1	24.7	21.8	20.2	-1.6	31.1	30.5	29.3	31.1	30.5	29.1	27.4	27.4	-1.8	29.1	27.4	-1.8
Gender:																								
Male	12.7	11.4	10.8	10.4	9.2	-1.2	24.5	20.3	22.4	18.8	17.0	-1.8	28.9	28.3	26.0	28.9	28.3	26.0	25.4	25.8	+0.4	25.4	25.8	+0.4
Female	16.3	14.4	15.3	13.4	10.9	-2.5 s	25.6	25.8	26.9	24.7	22.9	-1.8	33.2	33.2	32.3	33.2	33.2	32.3	32.8	29.0	-3.8	32.8	29.0	-3.8
College Plans:																								
None or under 4 years	28.1	24.9	25.9	23.8	24.0	+0.2	32.5	33.8	37.2	32.0	29.1	-2.9	34.7	34.2	32.9	34.7	34.2	32.9	37.0	29.0	-8.0 s	37.0	29.0	-8.0 s
Complete 4 years	13.3	11.8	11.8	11.1	9.0	-2.1 ss	24.2	21.7	23.1	20.6	19.1	-1.5	30.3	29.6	28.7	30.3	29.6	28.7	27.5	26.9	-0.6	27.5	26.9	-0.6
Region:																								
Northeast	14.9	11.0	12.2	9.7	9.2	-0.5	26.6	22.4	26.3	23.2	22.2	-1.0	33.5	38.1	29.4	33.5	38.1	29.4	36.0	33.5	-2.5	36.0	33.5	-2.5
Midwest	16.2	12.6	12.9	12.0	10.5	-1.5	22.5	23.4	23.5	21.2	20.0	-1.2	35.3	33.4	32.2	35.3	33.4	32.2	28.5	25.8	-2.8	28.5	25.8	-2.8
South	15.1	14.6	14.3	14.0	12.6	-1.3	25.6	23.7	24.5	20.0	20.3	+0.4	25.9	25.9	27.0	25.9	25.9	27.0	28.8	26.9	-1.9	28.8	26.9	-1.9
West	11.7	11.9	12.0	10.9	7.2	-3.7 ss	26.5	22.5	25.4	23.6	19.0	-4.6 s	32.1	27.9	29.9	32.1	27.9	29.9	24.9	25.8	+0.9	24.9	25.8	+0.9
Population Density:																								
Large MSA	14.4	11.5	12.6	10.6	11.1	+0.5	22.4	22.0	23.1	21.5	19.0	-2.5	27.0	29.9	32.3	27.0	29.9	32.3	30.8	28.7	-2.0	30.8	28.7	-2.0
Other MSA	14.2	14.0	13.0	12.4	9.7	-2.8 ss	26.1	23.1	25.5	21.4	20.9	-0.6	33.4	29.9	27.7	33.4	29.9	27.7	27.8	25.8	-1.9	27.8	25.8	-1.9
Non-MSA	15.6	12.8	13.9	14.2	10.2	-4.1 s	26.5	24.4	25.5	23.0	20.5	-2.5	30.9	32.2	28.5	30.9	32.2	28.5	29.5	29.1	-0.4	29.5	29.1	-0.4
Parental Education: <sup>a</sup>																								
1.0-2.0 (Low)	19.5	19.5	18.7	21.1	19.3	-1.8	27.3	24.9	25.8	25.5	21.8	-3.8	28.5	22.2	30.3	28.5	22.2	30.3	34.0	24.9	-9.1	34.0	24.9	-9.1
2.5-3.0	17.5	18.0	18.7	17.5	14.4	-3.1	30.5	28.1	27.9	25.8	23.4	-2.4	31.0	33.3	30.6	31.0	33.3	30.6	32.4	28.3	-4.1	32.4	28.3	-4.1
3.5-4.0	17.8	16.2	13.4	12.3	11.7	-0.6	25.0	23.6	28.5	23.1	21.2	-1.9	33.6	31.7	30.9	33.6	31.7	30.9	29.9	28.4	-1.5	29.9	28.4	-1.5
4.5-5.0	11.8	10.3	8.5	9.8	7.2	-2.6 s	24.9	22.6	19.9	19.7	19.0	-0.7	29.4	30.2	28.8	29.4	30.2	28.8	27.6	27.6	+0.1	27.6	27.6	+0.1
5.5-6.0 (High)	11.5	7.3	9.9	7.1	6.5	-0.6	20.8	17.3	23.7	16.9	16.2	-0.7	29.8	30.2	26.4	29.8	30.2	26.4	25.3	26.6	+1.3	25.3	26.6	+1.3
Race (2-year average): <sup>b</sup>																								
White	—	—	13.8	12.6	12.1	-1.1	—	—	25.7	25.1	24.0	-2.2	—	—	33.3	—	—	33.3	31.4	30.6	-1.8	31.4	30.6	-1.8
African American	—	—	12.0	11.0	10.1	-0.9	—	—	16.1	15.5	15.9	-0.7	—	—	17.1	—	—	17.1	20.9	21.6	-1.8	20.9	21.6	-1.8
Hispanic	—	—	17.0	17.6	16.7	-0.8	—	—	29.0	28.6	26.1	-2.9	—	—	28.6	—	—	28.6	32.2	34.5	-8.3 s	32.2	34.5	-8.3 s

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Tables D-107 through D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data for 8th and 10th graders based on one of four forms; N is one third of N indicated in Tables D-107 and D-108. Data for 12th graders based on one of six forms; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-89**  
**Cigarettes: Trends in 30-Day Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 30 days																2007-			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate <i>wt</i> d. N =	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	14.3	15.5	16.7	18.6	19.1	21.0	19.4	19.1	17.5	14.6	12.2	10.7	10.2	9.2	9.3	8.7	7.1	6.8	-0.2	
Gender:																				
Male	15.5	14.9	17.2	19.3	18.8	20.6	19.1	18.0	16.7	14.3	12.2	11.0	9.6	8.3	8.7	8.1	7.5	6.7	-0.7	
Female	13.1	15.9	16.3	17.9	19.0	21.1	19.5	19.8	17.7	14.7	12.0	10.4	10.6	9.9	9.7	8.9	6.4	6.7	+0.3	
College Plans:																				
None or under 4 years	29.2	31.9	34.1	36.6	36.5	39.2	40.0	40.1	40.3	34.7	30.0	29.3	27.8	25.6	26.7	23.2	23.9	21.1	-2.7	
Complete 4 years	11.8	13.1	14.3	16.1	16.8	18.2	16.9	16.5	14.5	12.2	10.0	8.9	8.3	7.4	7.4	7.1	5.4	5.5	+0.1	
Region:																				
Northeast	13.7	14.4	15.0	17.8	18.6	22.1	18.0	15.6	15.7	13.7	11.4	9.1	7.7	7.2	7.8	6.7	3.7	5.9	+2.2	
Midwest	15.5	16.5	16.3	18.5	20.9	23.2	20.0	22.3	21.3	17.1	12.0	11.0	12.2	10.8	9.5	9.3	7.8	8.1	+0.2	
South	15.7	17.0	18.2	19.5	19.4	21.1	21.0	21.1	18.7	14.7	14.3	13.0	11.7	10.3	11.6	10.9	8.6	7.7	-0.9	
West	10.0	12.2	16.4	18.0	16.5	17.1	17.1	15.1	12.1	12.2	9.3	7.5	7.0	7.4	6.3	5.7	5.8	5.2	-0.6	
Population Density:																				
Large MSA	12.8	15.0	14.1	15.5	16.5	19.4	15.8	16.4	12.7	12.1	9.3	7.5	7.7	7.7	6.7	6.4	4.7	5.2	+0.5	
Other MSA	14.9	15.3	17.8	20.7	19.4	21.4	19.7	17.7	16.0	13.1	11.6	10.6	9.8	8.9	9.8	8.8	7.6	7.5	0.0	
Non-MSA	14.8	16.4	17.9	17.8	21.5	22.1	22.8	24.8	26.1	21.1	16.9	14.9	14.4	11.6	11.8	11.6	9.5	7.9	-1.6	
Parental Education: <sup>a</sup>																				
1.0-2.0 (Low)	26.2	24.1	23.3	26.1	25.3	26.5	26.9	26.7	26.6	22.0	20.3	20.3	17.5	15.8	16.6	14.7	13.8	12.1	-1.7	
2.5-3.0	16.4	16.9	19.8	20.6	22.7	24.4	22.4	23.9	23.5	19.6	16.4	14.5	14.8	12.2	13.4	12.5	10.2	8.7	-1.5	
3.5-4.0	13.9	14.9	17.4	20.1	20.8	21.4	20.9	21.4	17.0	14.7	12.6	10.5	9.6	9.6	10.5	8.8	7.8	7.3	-0.6	
4.5-5.0	10.1	13.3	12.5	14.9	14.9	18.4	16.2	14.2	12.3	10.2	8.3	7.8	6.7	6.7	5.9	5.5	3.9	4.7	+0.8	
5.5-6.0 (High)	11.3	11.5	13.3	15.1	14.5	17.3	15.3	13.8	12.2	9.8	6.9	5.8	6.0	5.2	4.3	4.8	2.4	4.1	+1.8 s	
Race (2-year average): <sup>b</sup>																				
White	—	16.2	17.8	18.9	20.7	22.7	22.8	21.5	20.1	17.7	14.7	12.0	10.9	10.0	9.4	9.3	8.1	7.2	-0.9	
African American	—	5.3	6.6	8.7	8.9	9.6	10.9	10.6	10.7	9.6	8.2	7.7	6.9	6.9	7.1	6.0	5.1	4.6	-0.5	
Hispanic	—	16.7	18.3	21.3	21.6	19.6	19.1	20.1	20.5	16.6	13.0	12.8	11.9	10.1	9.0	8.8	8.0	7.0	-1.0	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-90**  
**Cigarettes: Trends in 30-Day Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 30 days																	2007- 2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	20.8	21.5	24.7	25.4	27.9	30.4	29.8	27.6	25.7	23.9	21.3	17.7	16.7	16.0	14.9	14.5	14.0	12.3	-1.7 s	
Gender:																				
Male	20.8	20.6	24.6	26.6	27.7	30.1	28.2	26.2	25.2	23.8	20.9	16.7	16.2	16.2	14.5	13.4	14.6	12.7	-1.9 s	
Female	20.7	22.2	24.5	23.9	27.9	30.8	31.1	29.1	25.8	23.6	21.5	18.6	17.0	15.7	15.1	15.5	13.3	11.9	-1.4	
College Plans:																				
None or under 4 years	36.5	35.0	41.9	42.2	46.3	46.2	47.2	45.2	44.0	38.6	38.1	33.3	33.0	33.1	29.4	32.7	30.1	30.1	-0.1	
Complete 4 years	17.3	18.6	21.0	21.7	24.7	27.8	26.8	24.5	22.7	21.5	18.5	15.1	14.0	13.6	12.9	12.1	11.8	10.0	-1.9 ss	
Region:																				
Northeast	22.4	21.9	27.1	24.5	27.8	31.7	29.3	30.1	28.0	23.9	18.1	15.9	16.6	16.6	14.9	11.8	13.1	10.1	-3.0	
Midwest	22.9	24.3	26.0	28.8	30.1	32.5	31.7	29.5	30.2	27.1	24.2	19.2	18.4	14.6	16.2	18.1	17.1	14.5	-2.6	
South	21.2	19.8	24.0	25.7	30.8	33.4	32.2	29.8	26.3	25.5	23.5	19.6	18.2	20.4	16.4	15.6	14.4	14.0	-0.4	
West	16.7	20.2	21.2	20.1	19.6	20.8	23.2	19.6	17.5	16.8	15.0	14.1	12.5	10.9	10.9	10.9	11.1	9.6	-1.6	
Population Density:																				
Large MSA	19.7	21.6	22.5	22.3	23.3	26.2	26.6	22.5	22.9	23.1	17.3	14.2	13.1	12.0	11.7	11.5	12.1	10.3	-1.8	
Other MSA	20.3	20.3	23.8	26.3	28.9	31.1	28.9	26.6	25.0	21.3	20.5	17.6	16.6	16.6	14.7	13.3	13.9	12.3	-1.7	
Non-MSA	22.7	23.7	28.2	26.7	31.3	33.9	34.9	35.7	30.4	29.4	27.6	22.6	22.4	20.4	19.8	22.4	17.2	15.4	-1.9	
Parental Education: <sup>a</sup>																				
1.0-2.0 (Low)	23.5	28.4	29.5	26.4	30.9	28.7	28.2	28.0	30.5	29.3	22.5	21.4	23.4	19.3	16.4	20.4	17.5	15.7	-1.8	
2.5-3.0	24.1	23.3	28.0	29.1	33.2	33.8	33.2	33.0	29.6	26.8	25.7	22.4	21.2	19.9	19.7	19.7	18.4	15.8	-2.6	
3.5-4.0	20.4	20.6	24.8	26.0	27.8	31.6	30.9	27.3	26.0	25.3	21.1	17.4	16.2	17.8	15.7	15.5	14.7	13.9	-0.8	
4.5-5.0	18.5	19.5	20.1	22.6	25.9	28.7	28.5	25.7	22.4	21.2	18.9	15.1	13.4	12.6	12.5	10.8	11.3	9.6	-1.7	
5.5-6.0 (High)	18.5	18.9	21.4	20.7	21.8	27.8	24.6	22.5	21.4	19.1	17.1	12.7	11.6	10.8	10.8	10.0	9.7	7.8	-2.0	
Race (2-year average): <sup>b</sup>																				
White	—	24.1	26.0	27.8	29.7	32.9	34.4	33.2	30.8	28.2	25.7	22.4	20.0	18.7	17.6	16.6	16.2	15.1	-1.0	
African American	—	6.6	7.5	9.8	11.5	12.2	12.8	13.7	12.5	11.1	11.1	9.8	8.9	9.2	8.7	8.0	7.1	6.5	-0.7	
Hispanic	—	18.3	20.5	19.4	21.4	23.7	23.0	21.3	21.1	19.6	16.8	14.3	13.2	13.9	13.5	12.1	10.5	11.1	+0.6	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-91**  
**Cigarettes: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	36.7	38.8	38.4	36.7	34.4	30.5	29.4	30.0	30.3	29.3	30.1	29.6	29.4	28.7	28.6	29.4	28.3
Gender:																	
Male	37.2	37.7	36.6	34.5	31.2	26.8	26.5	26.8	28.0	25.9	28.2	27.9	27.0	28.0	27.7	29.1	29.0
Female	35.9	39.1	39.6	38.1	37.1	33.4	31.6	32.6	31.6	31.9	31.4	30.6	31.4	28.9	29.0	29.2	27.5
College Plans:																	
None or under 4 years	—	46.3	46.2	44.6	43.0	39.6	38.1	38.7	38.0	37.9	40.5	38.5	39.7	37.5	38.0	37.5	38.1
Complete 4 years	—	29.8	29.4	27.4	26.0	22.3	22.3	22.1	23.3	22.7	22.8	24.0	24.3	24.4	24.1	25.4	24.2
Region:																	
Northeast	40.1	41.8	43.0	40.6	37.0	34.1	31.5	32.1	34.6	33.5	34.2	35.2	34.1	31.2	29.4	31.9	30.5
Midwest	39.5	41.3	40.5	39.0	36.6	31.5	32.4	33.5	33.2	31.4	34.1	32.5	31.7	31.1	34.9	34.0	34.6
South	36.2	39.1	37.6	35.7	35.4	31.8	28.9	29.4	28.7	28.6	25.6	26.1	26.0	28.0	26.4	26.1	25.4
West	26.3	28.3	27.7	27.3	24.8	21.2	21.8	20.4	21.8	22.9	26.3	23.3	26.6	23.9	22.7	25.1	23.2
Population Density:																	
Large MSA	39.7	40.4	40.9	37.5	33.4	31.2	30.6	32.1	30.8	31.3	31.9	30.8	29.3	26.9	25.9	27.9	26.2
Other MSA	35.1	35.9	36.1	34.3	33.5	29.7	27.4	27.8	29.1	28.2	28.5	28.0	28.2	28.3	28.2	29.6	29.3
Non-MSA	36.7	40.9	39.2	39.4	36.4	30.9	30.9	31.2	31.5	29.3	30.8	31.0	31.8	31.4	32.2	30.4	28.6
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	37.2	43.2	39.6	38.1	38.1	32.7	32.5	32.6	32.7	33.6	32.3	28.6	28.8	28.1	25.4	26.3	31.3
2.5–3.0	37.0	41.2	40.8	39.3	35.9	34.2	31.7	32.0	32.2	31.8	32.3	32.3	31.4	29.9	30.8	30.8	28.7
3.5–4.0	31.9	35.3	37.3	34.0	33.3	28.0	28.2	29.0	28.0	28.1	29.7	29.7	28.8	27.8	29.4	29.3	28.4
4.5–5.0	32.3	35.0	33.0	32.6	30.1	25.7	26.0	25.5	27.8	25.2	27.7	26.4	27.6	28.6	27.0	29.1	26.9
5.5–6.0 (High)	26.8	30.8	32.8	31.9	29.6	24.0	22.5	25.1	25.5	23.7	22.6	26.7	29.3	27.8	26.3	28.6	27.1
Race (2-year average): <sup>b</sup>																	
White	—	—	—	38.3	37.6	36.0	30.5	30.7	31.3	31.2	31.3	31.9	32.1	32.2	32.2	32.3	32.2
African American	—	—	—	36.7	32.7	30.2	26.8	23.7	21.8	19.3	18.1	16.9	14.2	13.3	12.6	12.2	10.6
Hispanic	—	—	—	35.7	32.8	26.8	22.6	23.2	24.7	25.3	25.5	23.7	22.7	21.9	20.6	21.7	24.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-91 (cont.)**  
**Cigarettes: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																2007– 2008 change	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	27.8	29.9	31.2	33.5	34.0	36.5	35.1	34.6	31.4	29.5	26.7	24.4	25.0	23.2	21.6	21.6	20.4	-1.2
Gender:																		
Male	29.2	30.7	32.9	34.5	34.9	37.3	36.3	35.4	32.8	29.7	27.4	26.2	25.3	24.8	22.4	23.1	21.5	-1.5
Female	26.1	28.7	29.2	32.0	32.4	35.2	33.3	33.5	29.7	28.7	25.5	22.1	24.1	20.7	20.1	19.6	19.1	-0.6
College Plans:																		
None or under 4 years	38.6	37.3	40.9	43.5	45.0	45.7	46.7	44.9	43.6	40.8	37.5	36.2	36.8	34.8	32.9	32.4	32.4	0.0
Complete 4 years	23.8	27.3	28.0	29.9	30.8	33.1	31.3	31.4	27.3	25.9	23.6	20.8	21.6	20.0	18.6	19.0	17.6	-1.4
Region:																		
Northeast	29.6	34.2	33.2	34.4	38.5	40.6	35.9	34.2	33.1	30.3	27.3	25.0	25.9	22.0	23.1	23.8	19.7	-4.0
Midwest	31.7	33.2	36.2	37.8	37.7	39.3	40.0	37.8	35.6	35.9	31.7	27.3	28.3	26.8	23.6	24.7	22.1	-2.7
South	26.4	29.0	30.7	33.5	33.2	35.0	34.3	36.2	29.6	25.9	27.2	24.3	24.6	24.6	23.2	21.9	22.4	+0.5
West	22.8	22.9	24.0	26.5	24.4	30.5	29.1	27.6	28.1	25.2	19.4	20.7	20.1	17.5	15.0	15.8	15.8	0.0
Population Density:																		
Large MSA	25.6	29.5	29.0	33.9	32.1	34.9	32.9	30.0	27.4	27.3	24.8	18.9	20.8	20.8	20.7	19.9	18.8	-1.1
Other MSA	26.9	29.8	31.1	31.7	32.6	35.7	34.2	35.0	31.5	28.2	26.2	25.1	26.3	22.6	20.3	20.8	19.5	-1.3
Non-MSA	31.5	30.3	33.8	36.2	38.2	40.0	39.7	38.7	36.3	34.3	30.1	30.4	27.6	27.4	25.3	25.9	24.3	-1.6
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	27.1	26.5	26.2	31.2	31.5	31.2	32.3	33.0	31.3	24.8	20.9	23.5	21.0	19.1	21.1	20.5	18.5	-2.0
2.5–3.0	30.3	30.4	32.8	35.0	35.5	36.5	36.0	37.3	32.2	31.5	28.9	27.0	28.7	27.3	24.7	24.7	22.4	-2.4
3.5–4.0	27.8	29.9	31.4	33.2	33.2	35.6	36.7	35.0	32.8	30.3	28.6	24.3	26.3	24.8	22.9	21.6	21.3	-0.3
4.5–5.0	25.8	30.1	32.0	32.6	34.5	37.5	34.2	32.4	30.2	29.3	25.0	22.6	23.8	21.8	19.2	20.5	18.6	-1.9
5.5–6.0 (High)	25.5	30.5	30.4	34.0	32.9	38.5	33.1	34.4	27.4	25.0	25.3	21.0	19.9	18.0	17.4	18.4	19.2	+0.8
Race (2-year average): <sup>b</sup>																		
White	31.8	33.2	35.2	36.6	38.1	40.7	41.7	40.1	37.9	35.3	32.5	29.4	28.2	27.6	25.9	24.9	24.7	-0.3
African American	8.7	9.5	10.9	12.9	14.2	14.3	14.9	14.9	14.3	13.3	12.1	10.0	10.1	10.7	10.5	10.8	10.3	-0.5
Hispanic	25.0	24.2	23.6	25.1	25.4	25.9	26.6	27.3	27.7	23.8	21.3	19.0	18.5	17.1	16.0	15.3	15.0	-0.3

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-92**  
**Cigarettes: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 8**

	Percentage who used daily in last 30 days																	2007-	
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	
Total	7.2	7.0	8.3	8.8	9.3	10.4	9.0	8.8	8.1	7.4	5.5	5.1	4.5	4.4	4.0	4.0	3.0	3.1	0.0
Gender:																			
Male	8.1	6.9	8.8	9.5	9.2	10.5	9.0	8.1	7.4	7.0	5.9	5.4	4.4	4.3	3.9	4.0	3.4	3.2	-0.2
Female	6.2	7.2	7.8	8.0	9.2	10.1	8.7	9.0	8.4	7.5	4.9	4.9	4.5	4.3	4.0	3.8	2.6	2.9	+0.3
College Plans:																			
None or under 4 years	18.5	20.1	21.5	22.6	22.5	26.0	25.4	25.2	25.2	21.7	17.7	17.1	16.1	15.4	14.4	13.2	12.3	10.8	-1.5
Complete 4 years	5.3	5.1	6.4	6.8	7.5	8.0	6.9	6.6	5.9	5.6	3.9	3.9	3.2	3.1	2.9	2.9	2.2	2.3	+0.2
Region:																			
Northeast	7.2	7.1	7.1	8.6	9.2	11.0	8.8	6.1	7.2	6.9	6.1	3.7	2.9	3.3	3.2	3.0	1.7	2.4	+0.7
Midwest	7.8	7.6	8.5	9.4	11.0	12.4	10.3	11.2	11.5	9.0	6.4	5.7	5.5	5.7	4.8	4.7	3.8	3.9	+0.1
South	7.9	7.8	9.3	9.4	9.4	10.4	9.5	10.2	8.5	7.8	6.1	6.6	5.7	4.7	5.0	5.3	3.8	3.7	0.0
West	4.6	4.8	7.4	7.4	7.0	7.5	6.8	5.8	3.8	4.9	2.6	2.9	2.4	3.3	2.4	1.8	1.9	2.0	0.0
Population Density:																			
Large MSA	6.3	6.3	5.7	6.6	7.6	9.5	7.0	6.7	5.4	5.6	4.1	3.2	3.0	3.5	2.3	2.3	1.6	2.2	+0.6
Other MSA	7.7	7.2	9.1	9.5	9.3	10.2	8.7	7.9	7.4	6.3	5.4	5.1	4.3	4.1	4.1	4.1	3.1	3.3	+0.1
Non-MSA	7.3	7.8	10.1	9.6	11.1	11.8	11.7	12.7	12.7	11.8	7.2	7.6	7.0	5.9	6.2	6.3	5.0	4.2	-0.8
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	15.9	11.9	12.7	13.0	15.8	13.6	14.3	13.0	14.7	13.1	11.1	10.6	9.1	10.1	7.8	7.3	5.5	5.4	-0.1
2.5-3.0	8.6	8.4	9.7	11.3	11.3	14.0	11.7	12.0	11.4	11.3	7.5	7.1	6.6	5.6	6.3	6.6	4.9	4.4	-0.5
3.5-4.0	6.5	6.9	8.5	8.9	9.4	10.1	9.2	9.7	8.1	6.7	5.1	5.4	4.4	4.2	4.3	3.8	3.6	3.0	-0.6
4.5-5.0	4.0	5.2	5.9	6.1	7.2	7.6	6.8	5.7	4.6	3.9	3.0	3.3	2.6	2.8	2.2	2.1	1.5	1.9	+0.4
5.5-6.0 (High)	4.9	4.2	6.3	5.8	5.7	7.4	5.5	5.2	5.1	4.1	3.1	2.1	2.1	1.9	1.4	1.8	0.7	1.9	+1.2 s
Race (2-year average): <sup>b</sup>																			
White	—	7.7	8.8	9.7	10.5	11.7	11.4	10.4	9.7	9.0	7.5	6.0	5.3	4.7	4.6	4.6	3.9	3.3	-0.5
African American	—	1.4	1.8	2.6	2.8	3.2	3.7	3.8	3.8	3.2	2.8	2.8	2.9	2.7	2.1	1.9	2.1	1.9	-0.2
Hispanic	—	7.3	7.2	9.0	9.2	8.0	8.1	8.4	8.5	7.1	5.0	4.4	3.7	3.5	3.1	2.8	2.8	2.5	-0.3

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-93**  
**Cigarettes: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
Percentage who used daily in last 30 days																			
Approximate wtd. N =	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Total	12.6	12.3	14.2	14.6	16.3	18.3	18.0	15.8	15.9	14.0	12.2	10.1	8.9	8.3	7.5	7.6	7.2	5.9	-1.3 s
Gender:																			
Male	12.4	12.1	13.8	15.2	16.3	18.1	17.2	14.7	15.6	13.7	12.4	9.4	8.6	8.2	7.2	6.9	7.7	6.2	-1.5 s
Female	12.5	12.4	14.3	13.7	16.1	18.6	18.5	16.8	15.9	14.1	11.9	10.8	9.0	8.2	7.7	8.1	6.6	5.5	-1.1
College Plans:																			
None or under 4 years	25.7	25.5	28.9	28.9	32.7	34.3	35.4	31.7	32.1	28.8	27.3	22.9	22.1	21.4	19.2	21.7	18.9	17.9	-1.0
Complete 4 years	9.6	9.5	11.0	11.5	13.3	15.5	15.0	12.9	13.2	11.6	9.6	7.9	6.7	6.4	5.9	5.6	5.6	4.3	-1.4 ss
Region:																			
Northeast	14.3	13.1	16.3	14.1	15.8	18.8	18.0	18.7	17.7	14.1	11.0	8.3	8.6	8.5	7.6	6.2	6.8	5.3	-1.5
Midwest	14.3	14.3	15.1	16.9	17.6	20.6	19.5	17.3	19.6	16.3	13.2	11.5	10.2	7.4	8.6	10.3	10.0	7.6	-2.4
South	12.8	11.4	13.9	15.5	19.3	20.5	20.5	17.1	16.3	15.7	14.3	11.3	10.1	11.0	8.8	8.4	7.2	6.9	-0.3
West	9.1	10.7	10.9	9.7	9.4	10.7	11.1	8.8	9.1	7.8	7.0	7.8	6.0	5.2	4.0	4.2	4.7	3.4	-1.3
Population Density:																			
Large MSA	12.3	11.7	12.3	12.0	12.6	15.3	15.7	12.2	13.2	13.8	9.6	7.4	6.1	5.6	5.5	5.4	5.7	4.3	-1.4
Other MSA	11.7	11.6	13.6	15.5	17.5	18.8	16.9	15.1	15.5	12.1	11.6	10.4	8.7	8.1	7.0	6.7	7.2	6.2	-1.0
Non-MSA	14.3	14.5	16.9	15.5	18.4	20.8	22.5	21.1	19.7	17.5	16.3	13.1	13.7	12.3	11.4	13.2	9.6	7.5	-2.1
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	16.0	17.8	19.3	15.5	20.0	19.3	17.7	17.4	20.1	18.9	12.9	14.1	15.3	11.4	9.9	12.5	9.8	7.6	-2.2
2.5–3.0	15.5	13.9	16.9	17.6	21.6	23.1	22.1	21.3	19.1	17.6	16.2	14.7	12.7	11.5	11.1	11.9	10.8	8.7	-2.1 s
3.5–4.0	12.0	11.8	13.6	15.9	17.0	19.4	18.9	14.9	16.6	14.2	12.2	10.0	8.8	9.3	7.9	7.8	7.2	6.7	-0.5
4.5–5.0	10.6	10.5	10.7	11.5	12.6	14.8	15.6	12.9	13.0	11.5	9.7	6.8	5.8	5.4	5.2	4.4	5.5	3.8	-1.7 ss
5.5–6.0 (High)	9.6	9.0	10.5	9.6	10.3	13.6	12.0	11.1	11.2	9.8	8.3	6.4	4.5	4.2	4.4	4.3	3.5	3.0	-0.5
Race (2-year average): <sup>b</sup>																			
White	—	14.5	15.3	16.5	17.6	20.0	21.4	20.3	19.1	17.7	15.5	13.3	11.4	10.0	9.1	8.7	8.8	8.0	-0.8
African American	—	2.8	3.1	3.8	4.7	5.1	5.6	5.8	5.3	5.2	5.2	5.0	4.3	4.4	3.9	3.3	3.2	3.0	-0.2
Hispanic	—	8.4	8.9	8.1	9.9	11.6	10.8	9.4	9.1	8.8	7.4	6.4	6.0	6.0	5.9	5.3	3.8	3.8	0.0

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-94**  
**Cigarettes: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Approximate wtd. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	26.9	28.8	28.8	27.5	25.4	21.3	20.3	21.1	21.2	18.7	19.5	18.7	18.7	18.1	18.9	19.1	18.5
Gender:																	
Male	26.9	28.0	27.1	26.0	22.3	18.5	18.1	18.2	19.2	16.0	17.8	16.9	16.4	17.4	17.9	18.6	18.8
Female	26.4	28.8	30.0	28.3	27.8	23.5	21.7	23.2	22.2	20.5	20.6	19.8	20.6	18.1	19.4	19.3	17.9
College Plans:																	
None or under 4 years	—	36.5	37.2	35.2	33.8	29.7	29.3	29.5	29.3	27.2	29.6	28.2	29.0	27.4	27.9	28.3	28.4
Complete 4 years	—	19.8	19.3	18.3	17.0	13.8	12.9	13.2	13.8	11.9	12.4	12.8	13.3	13.4	14.6	14.7	14.1
Region:																	
Northeast	31.4	32.3	33.8	32.5	28.6	24.1	23.3	23.4	26.1	23.6	24.9	24.9	24.8	21.4	21.3	22.8	20.9
Midwest	28.6	30.2	29.4	28.6	27.0	22.0	23.0	24.0	23.4	20.4	22.4	19.9	20.3	19.0	23.0	22.2	23.0
South	26.2	29.1	28.7	26.4	25.8	22.6	19.1	20.2	19.4	17.7	16.0	15.8	15.7	17.7	17.1	16.5	16.4
West	17.3	19.4	19.2	19.1	17.0	14.0	13.1	12.7	13.0	12.4	14.2	13.4	14.9	14.0	13.8	14.8	13.9
Population Density:																	
Large MSA	30.8	30.4	30.9	29.2	24.5	21.6	21.9	23.5	22.1	21.5	21.9	20.6	20.3	18.0	16.7	19.0	16.7
Other MSA	25.6	27.1	27.2	25.7	25.0	21.3	19.0	19.3	20.2	17.4	17.7	17.0	17.6	17.7	19.0	19.0	19.0
Non-MSA	25.8	29.5	29.1	28.7	26.5	21.2	20.7	21.3	21.7	18.2	19.9	19.8	19.3	18.8	20.9	19.5	19.0
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	27.2	32.7	29.6	28.6	29.1	23.7	24.1	24.6	24.0	23.2	22.7	20.4	19.7	19.2	17.1	16.7	21.2
2.5–3.0	27.2	31.3	31.5	30.3	26.5	24.7	22.5	23.1	23.2	21.5	21.8	21.4	21.1	19.6	21.5	21.0	19.8
3.5–4.0	22.1	25.8	28.1	24.8	24.5	19.4	19.0	19.7	18.8	16.4	19.3	19.4	17.8	17.5	19.0	19.3	18.5
4.5–5.0	22.9	24.5	23.7	23.2	21.2	16.6	16.1	16.8	17.5	14.1	16.0	13.9	16.5	16.5	17.2	18.3	16.2
5.5–6.0 (High)	17.4	22.8	21.7	22.8	20.6	15.0	13.9	14.5	17.2	14.1	11.2	13.6	16.6	15.1	15.8	16.5	16.1
Race (2-year average): <sup>b</sup>																	
White	—	—	28.9	28.3	26.9	23.9	21.4	21.6	22.1	21.0	20.4	20.6	20.5	20.6	21.1	21.8	21.5
African American	—	—	24.9	22.7	20.9	17.4	14.6	13.1	12.5	10.7	9.9	9.4	7.9	7.3	6.4	5.8	5.1
Hispanic	—	—	22.6	20.4	15.8	12.8	13.6	14.3	14.9	13.9	11.8	11.3	11.0	10.9	10.8	10.9	11.5

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-94 (cont.)**  
**Cigarettes: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 12**

	Percentage who used daily in last 30 days																2007– 2008 change	
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<i>Approximate wtd. N =</i>																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	17.2	19.0	19.4	21.6	22.2	24.6	22.4	23.1	20.6	19.0	16.9	15.8	15.6	13.6	12.2	12.3	11.4	-0.9
Gender:																		
Male	17.2	19.4	20.4	21.7	22.2	24.8	22.7	23.6	20.9	18.4	17.2	17.0	15.4	14.6	12.0	13.0	12.0	-1.0
Female	16.7	18.2	18.1	20.8	21.8	23.6	21.5	22.2	19.7	18.9	16.1	14.0	15.0	11.9	11.8	11.2	10.6	-0.6
College Plans:																		
None or under 4 years	28.1	27.8	29.8	33.7	33.2	35.6	34.6	34.2	31.7	30.1	27.6	27.9	26.9	24.9	22.8	22.5	21.1	-1.4
Complete 4 years	12.9	15.9	15.7	17.4	18.9	20.6	18.4	19.5	16.6	15.5	13.8	12.1	12.2	10.5	9.4	9.9	9.0	-0.9
Region:																		
Northeast	19.4	23.5	21.3	22.5	27.0	29.4	23.4	23.2	22.8	21.9	18.4	16.4	16.2	13.3	14.3	14.3	11.3	-2.9
Midwest	19.0	21.3	23.8	25.7	26.1	28.0	27.8	25.9	23.6	25.2	22.5	18.2	18.5	16.3	13.2	14.5	12.9	-1.6
South	16.7	18.5	19.3	21.7	20.5	22.6	21.8	24.2	19.4	15.5	16.6	16.3	15.8	15.4	13.3	12.9	13.1	+0.3
West	13.3	13.0	12.4	14.5	13.8	17.5	15.5	17.3	16.9	13.4	9.5	11.8	10.1	7.6	7.0	7.4	7.0	-0.4
Population Density:																		
Large MSA	16.6	17.3	17.7	21.3	20.7	23.7	20.6	18.6	16.7	17.4	15.0	11.5	12.6	11.4	10.3	10.3	8.9	-1.4
Other MSA	15.9	19.7	19.2	19.9	21.9	23.9	21.2	22.8	21.1	17.5	16.7	15.9	16.1	12.7	11.5	11.7	11.2	-0.5
Non-MSA	20.3	19.2	21.6	24.8	24.1	26.8	27.2	28.5	24.5	23.9	19.8	21.4	18.0	18.2	16.2	16.6	14.8	-1.8
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)	16.5	17.6	16.9	21.3	21.1	21.9	21.7	23.8	22.8	16.4	12.4	15.1	14.2	11.7	11.4	14.6	11.9	-2.7
2.5–3.0	20.4	20.2	22.4	24.6	24.4	26.0	24.7	26.9	22.9	21.9	19.8	18.3	19.4	18.3	16.1	15.1	13.4	-1.7
3.5–4.0	16.9	18.9	18.9	21.6	21.2	23.8	23.8	23.6	21.2	19.9	19.1	16.5	16.3	14.4	12.3	12.3	12.5	+0.2
4.5–5.0	15.0	18.9	18.7	19.7	22.4	24.9	20.6	20.6	18.6	17.9	14.1	13.0	13.7	11.7	10.4	11.2	9.0	-2.2 s
5.5–6.0 (High)	12.8	16.6	17.3	18.5	20.0	22.9	17.4	19.0	15.2	13.4	14.3	11.3	10.3	8.1	8.3	7.4	9.1	+1.7
Race (2-year average): <sup>b</sup>																		
White	20.5	21.4	22.9	23.9	25.4	27.8	28.3	26.9	25.7	23.8	21.8	19.5	18.3	17.1	15.3	14.5	14.3	-0.2
African American	4.2	4.1	4.9	6.1	7.0	7.2	7.4	7.7	8.0	7.5	6.4	5.4	5.2	5.6	5.7	5.8	5.8	-0.1
Hispanic	12.5	11.8	10.6	11.6	12.9	14.0	13.6	14.0	15.7	12.0	9.2	8.0	8.2	7.7	7.0	6.6	6.7	0.0

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-95**  
**Cigarettes: Trends in 30-Day Prevalence of Use of Half Pack a Day or More**  
**by Subgroups in Grade 8**

	Percentage who used half pack a day or more in last 30 days														2007-				
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
<i>Approximate wtd. N =</i>																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,700	16,500	17,000	16,800	16,500	16,700	15,700	
Total	3.1	2.9	3.5	3.6	3.4	4.3	3.5	3.6	3.3	2.8	2.3	2.1	1.8	1.7	1.7	1.5	1.1	1.2	0.0
Gender:																			
Male	3.7	3.1	4.3	4.2	3.7	4.7	3.7	3.5	3.1	2.8	2.6	2.4	1.8	1.7	2.0	1.7	1.3	1.4	+0.1
Female	2.4	2.7	2.7	2.9	3.2	3.7	3.1	3.3	3.3	2.6	2.0	1.9	1.7	1.7	1.3	1.3	0.8	0.9	+0.1
College Plans:																			
None or under 4 years	10.1	10.8	11.9	11.7	11.4	13.5	11.6	13.8	13.4	10.3	9.8	8.4	7.5	7.4	7.7	5.8	4.7	4.7	0.0
Complete 4 years	1.9	1.7	2.2	2.4	2.3	2.8	2.4	2.2	2.0	1.8	1.4	1.5	1.2	1.1	1.0	1.1	0.7	0.8	+0.1
Region:																			
Northeast	3.3	2.8	2.7	3.7	3.7	4.1	3.7	2.1	3.1	3.3	2.6	1.7	1.0	1.4	1.4	1.2	0.8	0.9	+0.1
Midwest	3.3	3.2	3.5	3.9	4.4	5.3	4.1	4.6	5.7	3.4	3.1	2.7	2.1	2.3	2.2	1.9	1.2	1.6	+0.4
South	3.4	3.3	4.6	3.9	3.6	4.5	3.7	4.8	2.9	2.8	2.7	2.5	2.6	1.8	1.9	2.1	1.3	1.3	+0.1
West	1.9	2.0	2.2	2.6	1.8	2.7	2.2	1.6	1.2	1.3	0.7	0.9	0.8	1.2	0.9	0.6	0.9	0.6	-0.2
Population Density:																			
Large MSA	2.4	2.3	2.1	3.0	2.5	3.7	2.7	2.3	1.8	2.1	1.5	1.3	1.0	1.3	1.0	0.9	0.7	0.7	0.0
Other MSA	3.3	3.2	3.7	3.9	3.6	3.8	3.2	3.2	2.8	2.2	2.1	2.2	1.7	1.6	1.5	1.6	1.1	1.3	+0.1
Non-MSA	3.4	3.3	5.0	3.7	4.3	5.8	4.8	5.6	5.9	4.6	3.9	3.1	3.1	2.4	2.9	2.3	1.7	1.6	-0.1
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	7.9	6.5	6.4	5.1	8.2	6.5	6.4	6.2	6.2	7.1	5.2	4.6	3.7	5.6	2.9	3.6	1.9	2.5	+0.6
2.5-3.0	3.7	3.4	3.9	4.9	4.1	6.4	4.8	5.2	4.8	3.8	3.6	2.8	2.9	2.1	2.8	2.4	2.0	1.5	-0.5
3.5-4.0	2.5	2.6	3.6	3.4	3.6	3.2	3.5	3.7	3.4	2.3	2.0	2.2	1.8	1.5	1.9	1.3	1.3	1.0	-0.3
4.5-5.0	1.6	1.8	2.3	2.6	2.0	2.8	2.2	2.0	1.5	1.4	0.9	1.2	0.7	0.8	0.6	1.0	0.5	0.7	+0.2
5.5-6.0 (High)	1.8	1.5	2.2	2.2	1.5	2.7	1.8	2.1	1.8	1.5	1.4	1.1	0.9	0.6	0.5	0.6	0.2	0.9	+0.6 s
Race (2-year average): <sup>b</sup>																			
White	—	3.3	3.8	4.2	4.2	4.6	4.6	4.2	4.0	3.6	3.2	2.8	2.3	1.9	1.9	1.9	1.5	1.2	-0.3
African American	—	0.4	0.7	1.0	0.9	1.3	1.4	1.2	1.3	1.0	1.1	1.1	1.2	1.1	0.9	0.8	0.9	0.8	-0.1
Hispanic	—	2.7	2.5	3.1	3.3	2.7	2.4	2.8	3.0	2.3	1.4	1.3	1.5	1.4	1.1	0.7	0.9	0.9	0.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-96**  
**Cigarettes: Trends in 30-Day Prevalence of Use of Half Pack a Day or More**  
**by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007- 2008 change
Percentage who used half pack a day or more in last 30 days																			
<i>Approximate wtd. N =</i>																			
Total	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
	6.5	6.0	7.0	7.6	8.3	9.4	8.6	7.9	7.6	6.2	5.5	4.4	4.1	3.3	3.1	3.3	2.7	2.0	-0.7 s
Gender:																			
Male	6.9	6.5	7.8	8.2	8.7	9.9	8.9	8.1	7.8	6.7	6.0	4.1	4.3	3.5	2.9	3.1	2.9	2.4	-0.5
Female	6.0	5.1	6.2	6.7	7.7	9.0	8.2	7.8	7.3	5.6	5.1	4.6	3.8	2.9	3.2	3.3	2.5	1.7	-0.8 s
College Plans:																			
None or under 4 years	15.9	15.3	18.5	18.5	20.9	22.4	22.0	20.6	18.9	16.0	16.0	11.5	12.3	10.8	9.4	12.0	8.1	7.8	-0.3
Complete 4 years	4.4	4.0	4.6	5.2	6.1	7.1	6.3	5.6	5.7	4.5	3.8	3.1	2.8	2.2	2.2	2.1	2.0	1.3	-0.7 ss
Region:																			
Northeast	7.8	5.9	8.5	7.8	7.7	9.1	8.8	10.0	9.1	6.0	5.0	3.7	4.6	3.6	3.4	3.2	2.5	1.2	-1.3 s
Midwest	7.1	7.3	7.7	8.3	9.5	10.9	9.3	9.1	9.9	8.1	6.0	4.8	5.0	3.0	3.3	4.5	4.2	3.3	-0.9
South	7.2	5.5	7.1	8.7	10.3	11.0	10.2	8.9	7.8	7.1	6.5	5.5	4.5	4.3	3.7	3.6	2.8	2.6	-0.2
West	4.0	5.0	4.3	4.2	3.4	5.0	4.4	3.0	3.0	2.2	3.3	2.5	2.3	1.8	1.7	1.3	1.3	0.7	-0.6
Population Density:																			
Large MSA	6.9	5.2	5.9	5.8	6.0	7.6	6.6	5.8	6.0	5.7	4.8	3.0	2.3	1.9	2.3	1.8	2.0	1.1	-0.9 s
Other MSA	5.8	5.8	6.7	8.5	9.2	9.5	8.0	7.7	7.6	5.6	5.0	4.7	4.0	3.3	2.6	3.0	2.7	2.2	-0.5
Non-MSA	7.6	6.9	8.7	7.8	9.2	11.5	12.0	11.0	9.4	7.8	7.5	5.7	7.3	5.2	5.4	6.3	4.0	3.1	-0.9
Parental Education: <sup>a</sup>																			
1.0-2.0 (Low)	9.9	10.7	10.8	8.1	12.0	12.1	10.8	9.0	11.3	10.7	7.6	7.4	8.6	6.6	4.6	7.1	4.9	3.4	-1.5
2.5-3.0	8.9	6.9	8.5	10.1	12.2	13.1	11.4	11.6	10.4	8.5	8.3	7.0	6.3	5.3	4.9	5.6	4.5	3.2	-1.3
3.5-4.0	5.8	5.4	7.3	8.0	8.6	10.2	8.8	7.4	7.4	5.9	5.3	4.0	4.2	3.8	3.2	3.1	2.6	2.4	-0.3
4.5-5.0	4.7	4.7	4.3	5.4	5.0	6.2	6.5	5.9	5.5	4.3	3.9	2.4	2.2	1.4	1.8	1.5	1.6	1.1	-0.5
5.5-6.0 (High)	4.5	3.7	3.9	4.0	4.0	5.7	4.8	5.4	4.5	3.6	2.6	2.0	1.4	1.0	1.6	1.6	1.2	0.7	-0.5
Race (2-year average): <sup>b</sup>																			
White	—	7.4	7.7	8.6	9.3	10.5	11.0	10.4	9.9	8.5	7.1	6.2	5.5	4.7	3.9	3.8	3.8	3.2	-0.6
African American	—	0.8	0.6	1.2	1.8	1.6	1.7	1.8	1.5	1.9	1.7	1.2	1.0	1.0	1.2	1.3	1.2	0.9	-0.2
Hispanic	—	3.0	3.0	2.6	3.4	4.3	3.3	3.0	3.1	2.9	2.7	2.2	1.8	1.5	1.9	2.0	1.0	0.9	-0.1

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-97**  
**Cigarettes: Trends in 30-Day Prevalence of Use of Half Pack a Day or More**  
**by Subgroups in Grade 12**

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Percentage who used half pack a day or more in last 30 days																	
Approximate wt. N =	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Total	17.9	19.2	19.4	18.8	16.5	14.3	13.5	14.2	13.8	12.3	12.5	11.4	11.4	10.6	11.2	11.3	10.7
Gender:																	
Male	19.6	19.9	19.7	18.9	15.4	13.5	12.8	13.1	13.1	11.0	12.3	10.7	10.1	11.1	11.2	11.6	11.6
Female	16.1	18.0	18.9	18.0	17.1	14.7	13.8	14.7	13.6	12.8	12.0	11.6	12.5	9.7	10.7	10.8	9.5
College Plans:																	
None or under 4 years	—	25.5	26.9	25.5	23.3	21.2	20.8	21.0	20.9	19.6	20.7	19.2	19.5	18.4	18.6	19.2	18.7
Complete 4 years	—	11.9	11.2	11.1	9.8	8.2	7.5	7.8	7.6	6.5	6.5	6.4	7.2	6.8	7.5	7.5	7.1
Region:																	
Northeast	22.0	22.5	24.2	23.6	19.8	17.0	16.6	15.6	16.6	17.4	17.0	15.6	16.5	13.1	13.6	13.8	12.9
Midwest	18.8	20.3	20.3	19.8	17.4	15.4	16.0	17.3	17.1	13.0	14.9	12.3	12.3	11.5	14.2	13.7	14.1
South	16.8	19.0	18.5	17.0	16.1	14.5	12.0	13.3	12.4	11.3	9.7	10.0	9.4	10.1	9.7	9.4	8.9
West	11.3	12.4	11.5	12.2	10.8	8.3	7.3	7.1	6.4	7.4	7.6	6.5	8.1	7.7	6.9	8.3	7.2
Population Density:																	
Large MSA	21.7	20.1	20.4	19.7	16.2	14.8	15.4	15.9	14.1	14.8	14.4	12.2	13.1	10.8	10.1	11.2	10.2
Other MSA	17.4	18.9	18.8	17.9	16.5	13.8	12.4	12.9	13.5	11.4	11.0	9.6	10.0	10.4	11.2	11.0	10.7
Non-MSA	15.9	19.0	19.5	19.3	16.7	14.7	13.6	14.2	14.0	11.5	12.9	13.3	12.5	10.7	12.1	12.1	11.1
Parental Education: <sup>a</sup>																	
1.0–2.0 (Low)	18.6	21.3	20.0	19.2	19.5	16.3	16.0	17.1	17.1	16.4	16.1	15.6	13.8	11.2	11.5	10.2	12.5
2.5–3.0	17.7	21.4	22.2	21.0	17.6	16.8	15.6	15.9	15.2	14.8	14.2	13.3	13.9	12.4	13.5	13.4	12.4
3.5–4.0	13.9	17.4	18.3	16.9	15.2	12.8	12.5	13.3	11.9	10.5	12.0	11.0	10.5	10.3	10.7	11.6	10.7
4.5–5.0	15.9	15.9	14.8	15.4	12.6	10.3	10.1	10.1	10.5	8.0	9.5	6.8	8.9	8.6	9.2	10.2	7.9
5.5–6.0 (High)	9.1	15.9	14.6	14.5	13.6	9.8	8.8	9.3	9.3	7.9	5.4	7.4	8.4	8.3	8.4	7.9	9.0
Race (2-year average): <sup>b</sup>																	
White	—	—	20.3	20.2	18.6	16.4	15.0	15.1	15.2	14.2	13.6	13.1	12.9	12.9	12.9	13.3	13.1
African American	—	—	10.7	9.7	9.1	7.1	5.8	5.4	4.9	4.1	3.9	3.6	2.9	2.3	1.9	1.8	1.8
Hispanic	—	—	11.3	9.0	6.4	5.6	6.1	5.6	5.9	6.1	5.3	5.0	4.1	3.5	4.2	4.2	4.0

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

(Table continued on next page.)

**TABLE D-97 (cont.)**  
**Cigarettes: Trends in 30-Day Prevalence of Use of Half Pack a Day or More**  
**by Subgroups in Grade 12**

		Percentage who used half pack a day or more in last 30 days														2007– 2008 change		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Approximate wtd. N =		15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
Total		10.0	10.9	11.2	12.4	13.0	14.3	12.6	13.2	11.3	10.3	9.1	8.4	8.0	6.9	5.9	5.7	5.4
Gender:																		
Male		10.4	11.6	12.7	13.2	13.6	15.5	13.5	14.5	11.4	10.2	10.0	9.5	8.0	8.0	6.2	6.4	6.1
Female		9.2	9.9	9.5	11.1	12.0	12.6	11.1	11.5	10.8	10.2	7.9	6.6	7.5	5.3	5.2	4.7	4.6
College Plans:																		
None or under 4 years		19.1	18.7	19.6	22.6	23.1	23.5	23.7	23.2	20.3	19.3	17.5	17.2	16.0	15.2	13.0	12.5	11.9
Complete 4 years		6.5	8.1	8.2	8.9	10.0	11.0	8.9	10.1	8.1	7.6	6.7	5.5	5.6	4.6	3.9	4.0	3.8
Region:																		
Northeast		11.1	14.7	12.2	13.4	17.0	19.4	13.6	13.4	13.6	12.3	10.9	8.7	9.0	7.5	7.9	6.1	5.5
Midwest		11.0	12.5	15.3	14.2	15.1	16.9	16.8	15.0	13.7	14.8	13.6	10.1	8.8	8.7	6.7	7.2	6.6
South		10.2	10.4	10.8	12.6	12.0	12.3	11.8	13.9	10.6	7.6	8.6	8.9	8.9	7.6	6.0	6.4	6.5
West		6.8	6.0	5.9	8.4	6.5	8.2	7.5	9.0	7.5	6.6	3.1	5.0	4.1	3.1	2.9	2.5	2.6
Population Density:																		
Large MSA		9.9	9.1	10.2	12.3	11.6	12.8	11.0	9.6	8.2	9.4	7.6	5.4	6.0	5.2	4.8	4.2	3.4
Other MSA		8.4	11.2	10.5	11.1	12.8	14.3	11.7	12.6	11.6	9.4	8.7	8.4	8.2	6.3	5.0	5.3	5.3
Non-MSA		13.1	11.7	13.7	14.7	14.4	16.0	16.5	18.0	14.5	13.3	11.9	12.2	10.0	10.4	9.2	8.8	8.2
Parental Education: <sup>a</sup>																		
1.0–2.0 (Low)		11.0	10.7	9.5	13.5	13.6	11.9	12.5	15.0	16.1	10.8	7.4	8.7	8.6	6.8	5.4	7.5	6.8
2.5–3.0		12.7	12.5	13.7	15.1	14.8	16.4	14.9	16.6	13.8	12.5	12.0	10.5	10.9	10.0	8.4	7.6	6.9
3.5–4.0		9.6	10.4	11.0	12.7	12.3	13.9	13.8	13.1	10.7	10.6	10.3	8.7	8.2	7.2	5.8	5.6	6.0
4.5–5.0		8.1	10.0	10.4	9.8	12.6	14.5	10.3	10.7	9.3	9.2	6.8	5.7	6.1	5.1	4.6	4.7	3.7
5.5–6.0 (High)		5.7	8.3	8.8	9.1	10.8	11.2	7.4	9.5	7.1	6.2	5.4	4.9	4.7	3.2	3.3	2.7	3.5
Race (2-year average): <sup>b</sup>																		
White		12.3	12.8	13.7	14.2	15.2	16.9	16.9	15.9	15.1	13.6	12.4	10.9	10.0	9.1	7.9	7.1	7.1
African American		1.8	1.5	1.7	2.2	2.5	2.8	2.5	2.4	2.6	2.4	2.1	1.7	1.6	1.8	2.1	2.4	2.2
Hispanic		4.6	4.5	4.0	4.1	5.3	5.8	5.2	5.8	7.0	5.3	3.8	3.0	2.9	2.9	2.6	2.5	2.1

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-98**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Use by Subgroups in Grade 8**

	Percentage who used in last 30 days																2007–	2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	6.9	7.0	6.6	7.7	7.1	7.1	5.5	4.8	4.5	4.2	4.0	3.3	4.1	4.1	3.3	3.7	3.2	3.5	+0.3	
Gender:																				
Male	12.7	12.5	10.9	12.8	11.8	11.4	9.9	8.1	6.9	6.7	6.9	5.4	6.7	6.4	5.3	5.3	4.7	5.5	+0.8	
Female	1.4	2.0	2.7	2.4	2.9	2.9	1.5	1.5	2.1	1.8	1.4	1.3	1.8	1.7	1.5	2.1	1.7	1.5	-0.2	
College Plans:																				
None or under 4 years	12.7	17.1	15.5	16.7	15.4	16.4	12.6	13.9	13.2	11.4	14.6	10.2	12.8	12.3	10.8	11.3	8.9	12.7	+3.8	
Complete 4 years	6.1	5.5	5.3	6.5	6.0	5.6	4.6	3.8	3.5	3.4	2.9	2.6	3.3	3.2	2.4	2.9	2.7	2.7	0.0	
Region:																				
Northeast	5.0	4.9	3.4	6.1	5.4	4.9	3.2	2.7	2.5	2.7	3.7	2.7	3.1	3.4	1.4	2.9	1.5	2.5	+0.9	
Midwest	7.1	7.5	7.2	7.1	7.6	8.3	6.8	4.3	5.3	4.8	4.0	3.9	3.5	4.2	3.2	4.0	2.9	3.4	+0.5	
South	9.5	9.3	8.0	9.9	8.7	8.1	6.7	6.9	5.9	5.8	5.4	4.1	5.9	5.5	5.3	4.6	4.1	5.2	+1.1	
West	3.5	4.4	6.3	6.0	5.0	5.9	4.1	3.9	2.9	1.9	2.1	1.5	2.5	2.0	1.4	2.2	2.8	1.8	-1.0	
Population Density:																				
Large MSA	4.8	4.2	3.3	4.6	4.1	4.2	3.6	2.9	1.8	2.4	2.4	1.5	2.6	1.9	1.3	1.9	1.9	2.8	+0.8	
Other MSA	6.2	6.9	6.8	6.4	6.7	7.1	4.7	4.1	3.9	3.9	3.5	2.9	3.7	3.6	2.8	3.1	3.1	3.1	0.0	
Non-MSA	10.4	10.3	9.9	13.0	11.2	10.6	9.0	8.5	8.9	7.0	7.0	6.2	6.9	7.7	7.0	7.1	5.3	5.4	+0.1	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	11.4	7.8	9.4	8.9	10.6	6.3	8.3	5.4	6.6	7.4	5.0	4.5	6.8	6.9	5.7	5.9	4.9	5.4	+0.5	
2.5–3.0	8.4	8.5	7.5	8.4	9.9	8.8	6.0	5.1	5.7	5.2	5.4	5.1	5.1	6.0	4.9	3.9	3.7	5.1	+1.3	
3.5–4.0	6.7	7.0	7.5	8.7	7.0	7.2	6.5	5.9	4.5	4.5	3.7	3.2	4.1	3.5	3.1	3.7	3.1	3.8	+0.6	
4.5–5.0	4.8	7.0	5.2	6.1	5.0	6.8	4.8	4.4	3.3	2.9	2.5	2.4	3.1	3.2	2.4	3.1	2.5	2.4	-0.1	
5.5–6.0 (High)	6.1	4.6	4.9	6.8	5.8	5.9	3.7	3.9	3.1	3.0	4.2	2.5	2.7	2.9	1.8	3.4	2.3	2.3	+0.1	
Race (2-year average): <sup>b</sup>																				
White	—	8.3	8.0	8.1	8.9	8.8	7.6	6.1	5.4	5.2	4.8	4.1	3.9	4.4	4.2	3.7	3.8	3.9	+0.1	
African American	—	1.8	2.7	3.2	2.6	2.2	2.6	2.3	2.3	2.7	2.2	1.6	2.7	3.0	2.0	2.1	2.3	2.4	+0.1	
Hispanic	—	4.2	4.0	5.0	5.7	5.2	4.6	4.5	4.6	3.7	3.3	4.0	4.7	4.0	2.6	3.1	2.9	2.4	-0.5	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996 and on two of four forms beginning in 1997;  $N$  is one half of  $N$  indicated in Table D-107.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-99**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Use by Subgroups in Grade 10**

	Percentage who used in last 30 days																2007–	2008		
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100		
Total	10.0	9.6	10.4	10.5	9.7	8.6	8.9	7.5	6.5	6.1	6.9	6.1	5.3	4.9	5.6	5.7	6.1	5.0	-1.1	
Gender:																				
Male	18.7	18.1	19.3	19.2	17.2	15.0	14.9	13.8	12.2	11.4	12.7	9.9	9.6	9.0	9.7	10.2	10.2	8.2	-2.1	s
Female	1.3	1.8	2.0	2.1	2.1	2.3	2.7	1.7	1.3	1.3	1.6	2.1	1.3	1.0	1.6	1.2	2.0	2.0	0.0	
College Plans:																				
None or under 4 years	16.9	17.5	20.2	19.9	20.3	16.3	18.5	17.8	13.2	13.9	16.0	13.6	13.0	12.2	13.3	14.9	14.0	14.6	+0.6	
Complete 4 years	8.4	8.0	8.4	8.5	7.8	7.2	7.2	5.7	5.4	4.8	5.4	4.8	4.1	3.9	4.5	4.5	5.0	3.8	-1.2	
Region:																				
Northeast	8.6	5.3	8.0	9.0	7.6	6.8	9.3	6.5	5.2	4.6	4.9	4.7	4.5	5.1	4.6	4.5	5.9	3.3	-2.6	
Midwest	11.0	9.6	10.0	10.0	11.0	9.5	7.1	7.9	8.1	6.2	7.0	4.8	4.9	3.7	5.7	7.5	6.3	7.2	+0.9	
South	11.6	11.4	11.8	11.7	10.9	10.2	10.2	9.5	7.9	7.7	9.6	8.3	7.5	7.3	7.0	6.0	8.3	6.5	-1.8	
West	7.8	10.9	11.1	10.9	7.7	6.0	8.2	4.6	4.0	4.5	3.0	5.1	3.5	3.0	4.5	4.1	3.3	2.2	-1.1	
Population Density:																				
Large MSA	5.9	6.4	6.5	6.2	5.9	5.5	4.2	3.7	4.6	5.6	4.1	4.5	3.7	3.0	3.2	3.9	4.1	3.4	-0.7	
Other MSA	9.2	9.3	10.1	10.9	9.2	8.4	8.3	5.7	5.3	4.3	5.7	6.1	4.8	4.3	5.3	5.3	5.8	4.4	-1.5	
Non-MSA	14.7	13.3	14.1	13.9	15.0	12.2	14.7	15.1	11.3	9.8	12.5	8.2	9.2	9.0	9.4	9.6	9.9	8.7	-1.1	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	6.6	10.1	10.9	9.4	9.6	8.1	9.0	6.8	7.2	7.4	6.9	6.7	7.4	3.7	4.4	7.4	6.1	5.0	-1.1	
2.5–3.0	12.1	11.0	12.2	12.5	10.4	9.7	9.4	8.2	7.0	6.4	8.9	8.1	5.0	5.8	6.7	7.1	6.9	6.5	-0.4	
3.5–4.0	10.6	10.5	10.9	10.2	10.9	8.3	10.3	8.6	7.3	6.3	7.1	5.5	4.9	5.2	6.0	5.7	6.4	5.4	-1.0	
4.5–5.0	9.3	7.6	9.9	9.8	9.8	8.5	7.2	6.9	6.1	6.2	5.7	5.4	5.7	4.4	5.6	4.9	6.1	4.6	-1.5	
5.5–6.0 (High)	8.6	8.1	7.0	8.9	6.0	7.7	8.3	5.2	4.8	4.0	4.8	5.2	4.3	4.4	3.8	5.3	4.8	2.9	-1.8	
Race (2-year average): <sup>b</sup>																				
White	—	11.4	12.0	12.5	12.0	11.0	10.4	10.0	8.7	7.5	7.5	7.8	6.9	6.1	6.6	6.9	7.3	7.3	0.0	
African American	—	2.9	2.3	2.3	2.5	2.5	2.8	2.3	1.6	2.0	3.2	2.6	2.5	2.7	2.5	3.2	3.3	2.8	-0.5	
Hispanic	—	6.2	6.1	4.3	3.6	4.0	4.6	4.8	4.8	4.5	4.0	4.0	4.1	3.3	3.1	3.4	2.7	2.6	-0.1	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996 and on two of four forms beginning in 1997;  $N$  is one half of  $N$  indicated in Table D-108.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-100**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 30 days																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>a</sup>	1991 <sup>a</sup>
Approximate wtd. N =	—	—	—	—	—	—	—	—	—	—	—	15,200	16,300	16,300	16,700	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	11.5	11.3	10.3	8.4	—	—
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	22.3	22.8	19.9	15.9	—	—
Female	—	—	—	—	—	—	—	—	—	—	—	1.6	0.7	1.7	1.2	—	—
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	14.5	15.5	13.1	9.6	—	—
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	9.8	9.0	8.8	7.7	—	—
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	9.5	7.3	5.9	5.0	—	—
Midwest	—	—	—	—	—	—	—	—	—	—	—	13.5	11.3	10.8	8.3	—	—
South	—	—	—	—	—	—	—	—	—	—	—	12.2	13.7	12.1	9.8	—	—
West	—	—	—	—	—	—	—	—	—	—	—	9.3	11.7	10.9	9.1	—	—
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	9.0	6.4	7.7	6.8	—	—
Other MSA	—	—	—	—	—	—	—	—	—	—	—	8.9	10.5	8.5	7.6	—	—
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	17.1	17.5	16.1	11.7	—	—
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	8.6	11.7	10.7	5.3	—	—
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	14.4	11.5	10.7	7.0	—	—
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	11.5	12.1	10.6	9.0	—	—
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	10.4	11.7	11.8	10.2	—	—
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	7.7	8.1	7.2	8.4	—	—
Race (2-year average): <sup>c</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	12.9	12.0	10.6	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	2.1	4.5	4.5	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	4.4	5.2	5.1	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

“—” indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of six forms; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

**TABLE D-100 (cont.)**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Use by Subgroups in Grade 12**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
	Percentage who used in last 30 days																	
<i>Approximate wtd. N =</i>																		
	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	11.4	10.7	11.1	12.2	9.8	9.7	8.8	8.4	7.6	7.8	6.5	6.7	6.7	7.6	6.1	6.6	6.5	-0.1
Gender:																		
Male	20.8	19.7	20.3	23.6	19.5	18.7	15.6	15.5	14.4	14.2	12.2	12.5	12.2	12.7	11.0	11.9	11.8	0.0
Female	2.0	2.3	2.6	1.8	1.1	1.2	1.5	1.3	1.3	1.6	1.2	1.0	1.6	1.9	1.5	1.2	1.0	-0.3
College Plans:																		
None or under 4 years	18.0	14.9	15.8	18.7	17.6	16.9	14.3	10.5	15.8	13.0	10.8	12.8	11.9	15.2	13.4	11.7	12.4	+0.6
Complete 4 years	9.4	9.4	9.3	9.9	7.6	7.4	7.1	7.6	5.4	6.1	4.8	4.8	4.9	5.4	4.1	5.3	5.0	-0.3
Region:																		
Northeast	8.2	9.6	12.0	9.6	8.4	6.9	2.6	4.3	5.3	5.4	5.3	6.3	5.1	8.0	5.3	5.3	7.5	+2.2
Midwest	12.3	13.6	14.7	16.7	12.6	13.4	11.8	8.9	11.1	9.9	7.8	5.7	7.4	10.5	7.0	9.1	7.2	-1.9
South	12.5	11.1	9.7	11.9	9.2	9.0	10.5	10.7	7.3	8.5	7.9	8.4	8.4	7.5	7.5	7.9	6.1	-1.8
West	11.1	7.0	8.5	8.6	8.5	9.1	7.3	7.0	6.3	6.2	3.9	6.0	4.3	4.0	3.4	2.8	5.6	+2.8
Population Density:																		
Large MSA	5.9	7.1	7.5	12.5	8.6	6.5	4.7	4.9	4.2	4.4	3.4	3.4	3.8	4.3	4.8	3.9	2.6	-1.4
Other MSA	11.1	9.9	11.3	9.5	7.4	7.4	7.7	8.5	7.9	8.0	5.7	6.9	5.6	7.8	4.6	6.8	6.2	-0.6
Non-MSA	16.9	15.0	14.7	16.7	15.3	17.9	16.1	11.7	11.4	11.5	11.9	10.4	12.1	11.3	10.9	10.1	11.8	+1.7
Parental Education: <sup>b</sup>																		
1.0–2.0 (Low)	14.9	7.0	12.3	9.8	6.3	5.8	6.1	5.4	4.3	6.3	4.1	9.3	6.1	5.3	4.9	5.3	3.4	-2.0
2.5–3.0	12.4	11.6	12.9	11.5	10.4	10.7	9.0	9.1	9.9	7.5	5.6	5.9	8.8	9.7	8.0	9.8	7.2	-2.6
3.5–4.0	12.4	10.8	9.8	12.8	9.1	10.4	9.8	8.8	8.9	8.6	7.4	6.5	4.6	7.8	6.4	5.3	6.8	+1.6
4.5–5.0	8.0	13.3	11.1	12.8	11.4	9.1	9.6	8.5	6.2	6.2	7.3	7.6	7.9	8.0	6.1	6.6	6.5	-0.1
5.5–6.0 (High)	10.6	7.8	10.2	11.6	8.1	9.9	7.4	7.9	5.7	10.3	4.6	6.2	5.4	3.7	3.5	5.8	6.3	+0.5
Race (2-year average): <sup>c</sup>																		
White	—	13.8	13.8	13.8	13.0	12.2	11.8	11.0	10.5	10.3	9.7	8.5	8.2	8.7	8.8	8.3	8.6	+0.3
African American	—	2.0	1.9	2.1	2.7	2.2	1.4	1.5	1.5	1.2	1.0	1.0	0.6	0.3	0.5	1.8	2.0	+0.2
Hispanic	—	6.0	5.4	7.6	8.1	5.3	4.3	3.9	3.8	3.2	2.6	3.1	3.9	4.9	3.8	2.7	2.3	-0.3

<sup>a</sup>Prevalence of smokeless tobacco use was not asked of 12th graders in 1990 and 1991. Prior to 1990 the prevalence-of-use question on smokeless tobacco was located near the end of one 12th-grade questionnaire form, whereas after 1991 the question was placed earlier and in a different form. This shift could explain the discontinuities between the corresponding data.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-101**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 8**

	Percentage who used daily in last 30 days													2007–	2008					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
<i>Approximate wtd. N =</i>	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	1.6	1.8	1.5	1.9	1.2	1.5	1.0	1.0	0.9	0.9	1.2	0.8	0.8	1.0	0.7	0.7	0.8	0.8	-0.1	
Gender:																				
Male	3.1	3.4	2.9	3.2	2.2	2.9	1.7	1.8	1.6	1.5	2.5	1.5	1.4	1.7	1.2	1.1	1.6	1.2	-0.4	
Female	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.3	0.1	0.4	+0.2	
College Plans:																				
None or under 4 years	4.1	5.6	4.4	5.4	3.5	5.1	3.6	6.1	3.8	2.7	4.5	4.5	4.0	3.8	2.4	4.0	3.2	5.0	+1.8	
Complete 4 years	1.2	1.2	1.1	1.4	0.9	1.0	0.6	0.5	0.5	0.7	0.9	0.5	0.5	0.7	0.5	0.4	0.6	0.4	-0.2	
Region:																				
Northeast	1.2	0.9	0.6	0.8	0.6	0.8	0.6	0.4	0.1	0.4	0.7	0.6	0.8	1.0	0.1	0.6	0.2	0.9	+0.7	
Midwest	1.5	1.6	1.6	1.4	1.1	2.0	1.2	1.3	0.9	1.3	1.1	1.1	0.6	0.6	0.3	0.5	0.5	0.4	-0.1	
South	2.4	3.0	2.2	3.3	1.8	2.0	1.5	1.3	1.6	1.3	2.1	1.0	1.3	1.7	1.4	1.1	1.5	1.3	-0.2	
West	0.6	0.8	1.0	0.9	0.8	0.8	0.2	0.7	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.4	0.4	0.3	-0.1	
Population Density:																				
Large MSA	0.5	0.6	0.7	0.7	0.4	0.4	0.5	0.4	0.3	0.2	0.3	0.4	0.7	0.4	*	0.3	0.4	0.4	0.0	
Other MSA	1.2	1.9	1.5	1.0	0.9	1.2	0.8	0.6	0.8	0.8	0.8	0.6	0.6	0.6	0.5	0.6	0.7	0.7	-0.1	
Non-MSA	3.3	2.8	2.5	4.6	2.6	3.4	1.6	2.6	1.8	2.0	2.9	1.8	1.5	2.6	1.9	1.6	1.7	1.5	-0.2	
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)	2.8	3.5	2.0	3.0	2.2	1.5	3.2	2.6	0.9	1.4	1.8	2.2	1.8	2.8	1.4	1.3	1.9	1.5	-0.4	
2.5–3.0	2.2	2.6	1.9	2.7	1.7	3.1	1.1	1.5	1.6	1.4	2.1	1.0	1.0	1.1	0.5	0.9	1.0	1.3	+0.3	
3.5–4.0	1.4	1.2	1.8	1.9	1.2	1.7	0.9	1.3	0.8	1.3	0.3	1.0	0.8	0.8	0.8	0.7	0.8	0.8	0.0	
4.5–5.0	0.8	1.3	1.1	1.1	0.9	0.3	0.8	0.5	0.5	0.4	0.5	0.3	0.2	0.7	0.8	0.6	0.6	0.3	-0.3	
5.5–6.0 (High)	1.0	0.9	0.6	0.7	0.8	0.8	0.4	0.5	0.4	0.4	1.7	0.9	1.1	0.8	0.4	0.5	0.5	0.6	+0.2	
Race (2-year average): <sup>b</sup>																				
White	—	2.0	2.0	2.0	1.9	1.7	1.5	1.2	1.1	1.1	1.2	1.0	0.7	0.9	0.9	0.7	0.9	0.9	0.0	
African American	—	0.3	0.4	0.7	0.6	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.2	0.5	0.5	0.7	+0.3	
Hispanic	—	0.8	0.9	0.9	0.7	1.1	0.9	0.8	1.0	0.8	0.8	0.8	0.9	0.9	0.4	0.5	0.5	0.4	-0.1	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available. "—" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996 and on two of four forms beginning in 1997; N is one half of N indicated in Table D-107.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-102**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 10**

	Percentage who used daily in last 30 days																	2007–	2008
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Approximate wtd. N =																			
Total	3.3	3.0	3.3	3.0	2.7	2.2	2.2	2.2	1.5	1.9	2.2	1.7	1.8	1.6	1.9	1.7	1.6	1.4	-0.2
Gender:																			
Male	6.3	6.3	6.4	5.9	5.2	4.2	4.0	4.3	3.2	3.9	4.5	3.0	3.7	3.0	3.4	3.3	2.9	2.6	-0.2
Female	0.2	0.1	0.3	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.3	0.2	0.1	0.2	0.3	*	0.3	0.3	0.0
College Plans:																			
None or under 4 years	7.6	8.5	8.8	6.5	7.8	5.4	6.3	6.4	3.6	5.9	6.6	4.6	4.8	5.0	5.4	6.8	4.4	6.2	+1.8
Complete 4 years	2.3	1.9	2.2	2.2	1.9	1.6	1.5	1.5	1.2	1.2	1.5	1.0	1.3	1.1	1.3	1.0	1.2	0.8	-0.3
Region:																			
Northeast	1.8	1.0	1.7	3.0	2.0	1.3	1.5	1.2	1.2	0.9	1.1	0.8	1.6	2.1	1.3	0.8	1.4	0.5	-0.9
Midwest	3.1	2.9	2.5	2.4	2.5	2.1	1.4	2.1	2.0	2.1	2.1	1.3	1.3	0.8	1.7	2.2	1.6	2.4	+0.8
South	4.7	4.5	5.2	3.3	4.1	3.3	3.5	3.8	2.0	2.8	3.6	2.6	3.0	2.6	2.8	2.3	2.6	2.1	-0.5
West	2.7	2.9	3.1	3.6	1.1	1.0	1.7	0.8	0.7	1.0	0.9	1.1	0.8	0.6	1.2	0.9	0.4	0.2	-0.2
Population Density:																			
Large MSA	1.5	1.6	1.1	1.0	1.5	0.6	0.8	1.0	0.8	1.6	0.8	1.3	1.2	0.8	0.8	1.1	1.0	0.7	-0.3
Other MSA	3.1	2.8	3.2	3.5	2.3	2.3	1.7	1.5	1.0	1.0	1.7	1.4	1.5	1.3	1.4	1.4	1.5	1.1	-0.4
Non-MSA	5.0	4.9	5.3	4.2	4.9	3.6	4.6	5.0	3.5	3.8	5.0	2.6	3.5	3.4	4.2	3.2	2.6	3.2	+0.6
Parental Education: <sup>a</sup>																			
1.0–2.0 (Low)	2.5	3.9	4.1	3.2	3.6	1.7	3.8	2.6	1.7	2.4	3.8	1.7	1.7	1.5	2.0	3.6	2.0	1.0	-1.0
2.5–3.0	4.8	5.0	4.3	3.8	3.4	3.4	2.0	2.8	1.7	2.3	3.2	1.2	2.1	1.8	2.6	2.9	2.1	1.7	-0.4
3.5–4.0	3.3	2.8	3.1	3.0	2.8	1.4	2.4	2.7	1.6	1.6	1.5	2.0	1.9	2.4	2.0	1.3	1.6	1.9	+0.3
4.5–5.0	2.5	1.7	2.5	2.7	2.9	2.3	1.7	1.8	1.6	1.9	1.9	1.5	1.7	0.7	1.7	1.1	1.4	1.3	0.0
5.5–6.0 (High)	2.5	1.6	2.7	1.7	1.0	1.4	1.9	0.7	0.8	0.8	1.9	1.3	1.4	0.9	1.2	1.3	1.1	0.1	-1.1 s
Race (2-year average): <sup>b</sup>																			
White	—	3.8	3.9	3.8	3.3	2.9	2.5	2.7	2.4	2.1	2.4	2.3	2.1	2.1	2.1	2.2	2.1	2.1	0.0
African American	—	0.5	0.4	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.9	0.8	0.4	0.6	0.8	0.8	0.6	0.4	-0.2
Hispanic	—	1.1	1.0	0.8	1.2	1.2	1.3	1.3	0.8	0.8	1.0	0.5	0.4	0.9	1.0	0.7	0.3	0.2	-0.1

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

“—” indicates data not available. “” indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of two forms in 1991–1996 and on two of four forms beginning in 1997; N is one half of N indicated in Table D-108.

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-103**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 12**

	Percentage who used daily in last 30 days																
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>a</sup>	1991 <sup>a</sup>
Approximate wtd. N =	—	—	—	—	—	—	—	—	—	—	—	15,200	16,300	16,300	16,700	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	4.7	5.1	4.3	3.3	—	—
Gender:																	
Male	—	—	—	—	—	—	—	—	—	—	—	10.0	10.7	8.6	6.8	—	—
Female	—	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.5	0.0	—	—
College Plans:																	
None or under 4 years	—	—	—	—	—	—	—	—	—	—	—	7.1	7.8	5.8	4.2	—	—
Complete 4 years	—	—	—	—	—	—	—	—	—	—	—	3.3	3.7	3.5	2.7	—	—
Region:																	
Northeast	—	—	—	—	—	—	—	—	—	—	—	4.6	2.1	2.3	1.3	—	—
Midwest	—	—	—	—	—	—	—	—	—	—	—	4.5	4.5	3.5	2.2	—	—
South	—	—	—	—	—	—	—	—	—	—	—	6.1	7.4	6.3	4.2	—	—
West	—	—	—	—	—	—	—	—	—	—	—	2.9	5.5	4.0	4.9	—	—
Population Density:																	
Large MSA	—	—	—	—	—	—	—	—	—	—	—	3.4	3.3	3.0	3.0	—	—
Other MSA	—	—	—	—	—	—	—	—	—	—	—	3.3	4.3	2.5	2.8	—	—
Non-MSA	—	—	—	—	—	—	—	—	—	—	—	7.8	8.5	8.9	4.6	—	—
Parental Education: <sup>b</sup>																	
1.0–2.0 (Low)	—	—	—	—	—	—	—	—	—	—	—	1.9	5.6	5.3	1.8	—	—
2.5–3.0	—	—	—	—	—	—	—	—	—	—	—	7.6	6.9	3.2	3.9	—	—
3.5–4.0	—	—	—	—	—	—	—	—	—	—	—	3.5	4.7	5.4	3.1	—	—
4.5–5.0	—	—	—	—	—	—	—	—	—	—	—	3.9	5.0	4.7	4.6	—	—
5.5–6.0 (High)	—	—	—	—	—	—	—	—	—	—	—	3.3	2.1	3.5	1.2	—	—
Race (2-year average): <sup>c</sup>																	
White	—	—	—	—	—	—	—	—	—	—	—	—	5.8	5.4	4.5	—	—
African American	—	—	—	—	—	—	—	—	—	—	—	—	0.6	1.0	0.5	—	—
Hispanic	—	—	—	—	—	—	—	—	—	—	—	—	0.8	2.1	2.1	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001. "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of six forms; N is one sixth of N indicated in Table D-109.

**Caution: Limited sample sizes (see "Notes" above). Use caution in interpreting subgroup trends.**

(Table continued on next page.)

**TABLE D-103 (cont.)**  
**Smokeless Tobacco: Trends in 30-Day Prevalence of Daily Use by Subgroups in Grade 12**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007– 2008 change
	Percentage who used daily in last 30 days																	
Approximate wtd. N =	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	
Total	4.3	3.3	3.9	3.6	3.3	4.4	3.2	2.9	3.2	2.8	2.0	2.2	2.8	2.5	2.2	2.8	2.7	-0.1
Gender:																		
Male	7.8	6.4	7.2	7.2	7.1	8.6	6.0	5.7	6.5	5.6	4.3	4.6	5.6	4.7	4.3	5.6	5.6	0.0
Female	0.5	0.4	0.3	0.1	0.1	0.2	0.0	0.0	0.4	0.3	0.0	0.0	0.2	0.2	0.1	0.2	0.0	-0.2
College Plans:																		
None or under 4 years	7.4	4.3	6.6	6.5	6.8	9.1	6.5	3.4	7.9	4.7	2.4	5.3	5.0	7.1	6.1	5.3	6.6	+1.3
Complete 4 years	3.3	3.1	2.8	2.7	2.6	2.7	2.3	2.6	2.0	2.1	1.4	1.4	2.0	1.5	1.2	2.1	1.9	-0.3
Region:																		
Northeast	1.8	1.9	4.5	2.2	3.2	3.5	0.5	1.0	1.3	1.5	1.6	2.7	1.9	2.1	1.9	1.9	1.8	-0.1
Midwest	4.0	4.4	4.7	4.9	4.1	7.0	4.0	3.4	5.0	2.8	2.2	1.1	3.0	3.8	2.1	3.9	3.1	-0.7
South	5.4	4.0	3.5	4.2	3.1	3.6	4.6	4.0	4.0	3.8	2.4	2.6	3.7	2.7	3.0	4.2	2.7	-1.5
West	5.1	1.7	3.2	1.6	2.9	3.0	1.8	1.9	1.6	2.6	1.3	2.2	1.7	1.0	1.0	0.1	3.0	+2.9
Population Density:																		
Large MSA	2.0	1.7	2.0	2.1	2.6	3.3	0.9	0.5	0.9	1.4	0.4	0.5	0.8	1.0	1.4	1.6	0.5	-1.1
Other MSA	4.2	3.0	3.6	3.2	1.9	3.3	2.4	3.1	3.7	2.6	2.0	2.2	2.2	2.4	1.6	2.4	2.1	-0.3
Non-MSA	6.5	5.2	6.7	5.8	6.7	7.7	7.6	4.9	5.3	5.0	3.8	4.2	6.2	4.8	4.4	5.8	6.8	+1.0
Parental Education: <sup>b</sup>																		
1.0–2.0 (Low)	6.7	3.9	6.6	2.7	2.2	1.3	2.2	2.1	2.9	4.0	2.2	4.9	3.0	2.2	1.3	2.5	0.7	-1.8
2.5–3.0	4.8	3.5	3.8	4.7	3.6	5.8	5.2	3.7	4.2	3.2	1.7	1.4	4.2	3.5	3.3	3.8	3.4	-0.3
3.5–4.0	5.2	3.3	3.3	2.9	3.6	3.7	2.6	3.5	3.9	2.8	2.1	2.0	2.0	3.7	1.7	2.7	2.9	+0.2
4.5–5.0	2.4	3.7	3.9	3.5	4.6	3.9	3.0	1.9	2.1	2.7	2.4	2.8	2.6	1.8	2.6	3.1	2.7	-0.4
5.5–6.0 (High)	2.6	1.8	2.7	2.7	1.1	5.0	2.5	2.1	2.5	2.5	0.2	1.8	1.9	0.4	1.3	1.8	2.2	+0.4
Race (2-year average): <sup>c</sup>																		
White	—	4.8	4.7	4.6	4.1	5.0	5.2	4.3	4.3	4.4	3.5	2.9	3.2	3.5	3.4	3.4	3.8	+0.4
African American	—	0.3	0.7	0.6	0.3	0.2	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.2	0.8	0.9	0.0
Hispanic	—	1.6	0.7	1.2	2.2	1.9	0.8	0.4	0.9	0.6	0.3	0.7	1.1	0.7	0.4	0.7	0.6	0.0

<sup>a</sup>Prevalence of smokeless tobacco use was not asked of 12th graders in 1990 and 1991. Prior to 1990 the prevalence-of-use question on smokeless tobacco was located near the end of one 12th-grade questionnaire form, whereas after 1991 the question was placed earlier and in a different form. This shift could explain the discontinuities between the corresponding data.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-104**  
**Steroids: Trends in Annual Prevalence of Use by Subgroups in Grade 8**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2007-2008		
	Percentage who used in last 12 months																			
	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700	change	
Approximate wtd. N =	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700		
Total	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4	1.1	1.1	0.9	0.8	0.9	+0.1	
Gender:																				
Male	1.8	1.7	1.4	1.8	1.3	1.1	1.3	1.6	2.5	2.2	2.3	1.8	1.8	1.3	1.2	1.2	1.1	1.2	1.1	0.0
Female	0.3	0.5	0.3	0.6	0.8	0.7	0.7	0.7	0.9	1.0	1.0	1.2	1.1	1.0	0.9	0.6	0.4	0.5	+0.1	
College Plans:																				
None or under 4 years	2.2	2.4	2.2	2.5	2.2	1.5	2.4	2.8	4.0	3.6	3.1	3.6	2.7	3.2	2.4	2.4	2.7	2.3	-0.4	
Complete 4 years	0.8	0.9	0.7	1.0	0.9	0.8	0.8	1.0	1.4	1.5	1.5	1.3	1.3	0.9	0.9	0.7	0.6	0.8	+0.2	
Region:																				
Northeast	0.7	1.1	0.6	1.0	1.0	1.1	1.0	1.1	1.6	1.7	1.8	1.2	1.1	0.8	0.6	0.6	0.5	0.8	+0.2	
Midwest	1.1	1.2	1.0	1.0	1.1	0.8	1.0	1.2	1.6	1.8	1.7	1.6	1.7	1.2	1.1	0.8	0.7	0.9	+0.2	
South	1.2	1.1	1.0	1.6	1.1	0.9	0.9	1.4	1.9	1.8	1.9	1.9	1.6	1.3	1.3	1.1	1.0	1.1	+0.2	
West	0.7	0.9	0.7	1.0	1.0	0.8	1.1	0.9	1.4	1.3	0.9	1.2	1.2	1.0	1.0	0.7	0.8	0.6	-0.1	
Population Density:																				
Large MSA	0.8	1.0	0.8	0.9	0.9	0.8	0.9	1.0	1.3	1.6	1.6	1.1	1.0	1.0	0.8	0.8	0.7	0.8	+0.1	
Other MSA	1.2	1.2	0.9	1.2	1.2	0.9	0.9	1.2	1.9	1.5	1.7	1.6	1.5	1.1	1.1	0.8	0.8	0.9	+0.1	
Non-MSA	1.0	0.9	0.9	1.5	0.9	0.9	1.2	1.4	1.7	2.0	1.6	2.1	1.8	1.3	1.3	1.2	1.0	1.0	0.0	
Parental Education: <sup>a</sup>																				
1.0-2.0 (Low)	1.8	1.2	1.2	1.6	1.3	0.9	1.4	1.7	2.2	2.5	2.0	1.8	1.3	1.5	2.1	1.0	1.7	1.7	0.0	
2.5-3.0	1.1	1.2	0.8	1.6	1.3	0.7	0.9	1.1	1.9	2.1	1.6	1.7	1.9	1.4	1.0	0.9	0.9	1.0	0.0	
3.5-4.0	1.0	1.0	1.1	1.3	0.8	0.9	1.2	1.4	1.6	1.3	1.9	1.9	1.6	1.0	1.1	1.0	0.8	1.0	+0.2	
4.5-5.0	0.7	0.9	0.8	0.8	0.8	1.2	0.9	1.1	1.4	1.6	1.5	1.0	1.3	1.2	1.1	0.7	0.4	0.7	+0.3	
5.5-6.0 (High)	1.0	1.3	0.6	0.9	1.5	0.9	1.2	1.1	2.0	1.6	1.7	1.6	1.0	0.7	0.7	1.1	0.8	0.8	0.0	
Race (2-year average): <sup>b</sup>																				
White	—	1.1	1.0	1.0	1.1	0.9	0.9	1.1	1.5	1.9	1.8	1.7	1.6	1.3	1.0	0.9	0.8	0.8	0.0	
African American	—	0.7	0.6	0.8	0.9	0.7	0.6	0.7	0.8	0.7	0.8	1.2	1.2	0.9	0.9	0.8	0.8	0.7	-0.1	
Hispanic	—	1.2	1.1	1.1	1.3	1.5	1.4	1.4	1.8	1.8	1.5	1.5	1.7	1.7	1.2	0.9	0.7	0.7	0.0	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

See Table D-107 for the number of subgroup cases. See appendix B for definition of variables in table.

<sup>a</sup>In 2006 and 2008, the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording changes.

<sup>b</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>c</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-105**  
**Steroids: Trends in Annual Prevalence of Use by Subgroups in Grade 10**

		Percentage who used in last 12 months															2007–	2008		
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
		14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100	
Approximate wtd. N =		1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7	1.5	1.3	1.2	1.1	0.9	-0.1
Total		1.9	1.9	1.7	1.9	2.0	1.7	1.8	1.9	2.8	3.6	3.3	3.2	2.3	2.3	1.8	1.9	1.7	1.4	-0.3
Gender:		0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.7	0.8	1.0	1.2	1.1	0.9	0.7	0.5	0.4	0.5	0.0
Male		1.7	1.3	1.9	2.1	2.1	2.1	2.4	1.9	2.6	3.6	3.2	3.0	2.7	2.9	1.9	2.3	1.9	2.6	+0.7
Female		0.9	1.0	0.8	0.9	1.1	1.0	1.0	1.1	1.6	1.9	1.9	2.1	1.5	1.4	1.2	1.1	0.9	0.7	-0.2
College Plans:		1.2	0.9	1.0	1.0	1.1	1.0	0.9	1.4	2.0	1.8	1.9	2.0	1.9	1.4	1.5	0.9	1.1	0.8	-0.3
None or under 4 years		1.0	1.1	1.2	1.1	1.2	1.4	1.2	1.1	1.8	2.1	1.5	1.8	1.9	1.4	1.2	1.2	1.2	1.0	-0.1
Complete 4 years		1.0	1.2	1.0	1.3	1.3	1.4	1.4	1.4	1.7	2.5	2.5	2.5	1.5	1.9	1.5	1.6	1.3	1.0	-0.3
Region:		1.0	1.2	0.8	1.1	1.3	0.6	1.3	0.9	1.4	2.1	2.3	2.4	1.4	1.4	0.9	0.9	0.7	0.8	+0.1
Northeast		1.5	0.9	0.8	0.8	0.8	0.8	1.0	0.8	1.2	2.3	1.9	2.1	1.4	1.2	0.9	1.0	0.8	0.7	-0.2
Midwest		1.0	1.0	0.9	1.1	1.4	1.2	1.2	1.3	1.9	2.0	2.0	2.3	1.5	1.5	1.4	1.3	1.1	1.0	-0.1
South		0.8	1.4	1.4	1.5	1.4	1.5	1.5	1.5	2.0	2.5	2.4	2.1	2.6	2.1	1.5	1.4	1.3	1.1	-0.2
West		0.7	0.9	1.5	1.8	1.2	1.7	1.7	1.3	1.2	2.3	1.6	1.6	1.9	1.5	1.8	1.4	1.0	1.5	+0.5
Population Density:		1.3	1.1	1.0	0.9	1.1	0.7	1.1	1.1	1.7	2.2	2.1	2.0	1.9	1.8	1.2	1.5	1.4	1.0	-0.4
Large MSA		1.0	1.2	1.1	0.8	1.6	1.2	1.4	1.7	2.0	2.0	2.3	2.8	1.9	1.7	1.0	1.3	1.0	0.9	-0.1
Other MSA		0.9	1.0	0.8	1.4	1.1	1.2	1.0	0.9	1.5	2.4	2.0	2.0	1.6	1.5	1.5	0.9	1.1	0.8	-0.3
Non-MSA		1.2	1.4	1.1	1.1	1.0	1.1	1.1	1.1	2.4	2.2	2.1	3.0	1.3	1.2	1.3	1.4	0.9	1.0	+0.1
Parental Education: <sup>a</sup>																				
1.0–2.0 (Low)		—	1.0	1.0	1.0	1.2	1.3	1.3	1.3	1.5	2.1	2.3	2.4	2.3	1.8	1.6	1.3	1.2	1.0	-0.2
2.5–3.0		—	0.7	0.8	0.8	0.7	0.7	0.5	0.5	0.7	1.2	1.6	1.2	0.8	0.7	0.9	1.1	0.9	0.8	0.0
3.5–4.0		—	1.2	1.4	1.3	0.9	1.1	1.2	1.2	1.5	1.8	2.1	2.1	1.8	1.6	1.3	1.0	0.7	1.1	+0.4
4.5–5.0																				
5.5–6.0 (High)																				
Race (2-year average): <sup>b</sup>																				
White																				
African American																				
Hispanic																				

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . "—" indicates data not available.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-108 for the number of subgroup cases. See appendix B for definition of variables in table.

In 2006 and 2008, the question text was changed slightly in half of the questionnaire forms. An examination of the data did not show any effect from the wording changes.

<sup>a</sup>Parental education is an average score of mother's education and father's education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-106**  
**Steroids: Trends in Annual Prevalence of Use by Subgroups in Grade 12**

	Percentage who used in last 12 months																	2007–						
	1975–	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	
Approximate wtd. N =	—	16,700	15,200	15,000	15,000	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000	14,000	
Total	—	1.9	1.7	1.4	1.1	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1	2.5	1.5	1.8	1.4	1.5	1.5	+0.1
Gender:																								
Male	—	2.8	2.6	2.4	2.1	2.1	2.5	2.1	2.4	2.2	2.5	2.8	3.1	2.5	3.8	3.8	3.2	3.3	2.6	2.7	2.3	2.5	2.5	+0.3
Female	—	0.9	0.3	0.2	0.1	0.1	0.1	0.5	0.6	0.4	0.5	0.3	0.6	0.9	1.1	1.3	1.1	1.7	0.4	0.7	0.6	0.4	0.4	-0.2
College Plans:																								
None or under 4 years	—	2.3	2.2	2.1	2.1	2.0	2.0	1.9	2.0	2.3	2.3	2.1	3.6	2.0	4.6	4.1	2.6	2.8	2.1	2.7	2.1	3.1	3.1	+1.0
Complete 4 years	—	1.6	1.3	1.2	0.8	0.9	0.9	1.1	1.2	1.1	1.2	1.4	1.3	1.6	1.8	2.0	2.0	2.4	1.2	1.5	1.3	1.1	1.1	-0.2
Region:																								
Northeast	—	2.0	1.3	1.2	0.6	0.6	1.5	1.5	1.6	1.3	2.1	0.9	1.3	1.9	4.5	2.1	3.0	3.8	1.6	2.0	1.6	2.2	2.2	+0.6
Midwest	—	1.5	1.3	1.4	1.4	0.8	0.8	2.2	1.5	2.1	2.1	2.3	1.6	2.3	1.7	2.8	1.8	2.4	1.6	1.5	1.3	1.7	1.7	+0.3
South	—	2.1	2.2	1.7	0.6	0.6	1.6	1.0	1.7	1.3	0.5	1.6	2.6	1.5	2.1	2.5	1.8	2.2	1.6	2.0	2.0	1.4	1.4	-0.5
West	—	1.9	1.7	1.0	2.3	1.1	0.8	1.0	0.3	1.6	1.7	1.2	1.1	1.1	2.1	2.4	2.2	2.0	1.0	1.5	0.5	0.9	0.9	+0.4
Population Density:																								
Large MSA	—	1.6	1.3	1.1	1.0	0.7	1.1	1.4	1.4	1.3	0.8	2.1	1.3	1.7	1.9	2.0	2.1	2.6	1.4	1.6	1.0	0.9	0.9	-0.2
Other MSA	—	2.3	1.5	1.4	1.4	0.9	1.5	1.3	1.3	1.3	1.7	1.5	2.0	2.0	2.9	3.0	2.1	2.9	1.4	1.6	1.5	1.4	1.4	-0.1
Non-MSA	—	1.1	2.4	1.6	0.8	2.2	1.3	2.1	1.5	1.5	1.6	1.6	1.9	1.2	2.0	2.1	2.3	1.8	1.7	2.2	1.9	2.4	2.4	+0.4
Parental Education: <sup>a</sup>																								
1.0–2.0 (Low)	—	0.6	1.1	2.0	2.1	1.1	1.1	2.8	1.1	1.5	3.4	3.0	1.5	1.3	2.1	3.6	2.9	4.9	2.1	2.8	3.0	2.1	2.1	-0.9
2.5–3.0	—	2.1	2.0	0.6	0.9	1.3	1.7	1.3	1.9	1.4	1.4	0.8	1.6	1.6	3.2	3.0	1.3	2.9	1.3	1.8	1.6	1.6	1.6	0.0
3.5–4.0	—	2.6	2.3	1.6	1.3	1.5	1.1	1.1	1.3	1.1	1.1	1.1	2.5	1.9	1.9	2.8	2.7	2.5	1.7	1.7	1.1	1.3	1.3	+0.2
4.5–5.0	—	1.3	1.1	1.6	0.9	1.3	0.6	2.0	1.1	1.2	1.9	2.2	1.4	1.9	1.9	2.3	2.3	1.8	1.3	1.3	1.1	1.4	1.4	+0.2
5.5–6.0 (High)	—	2.1	1.0	0.5	0.8	0.8	1.2	1.4	1.1	1.3	1.5	1.1	2.4	2.2	1.0	1.4	1.4	2.4	1.2	1.5	1.5	1.5	1.5	0.0
Race (2-year average): <sup>b</sup>																								
White	—	—	—	1.6	1.3	1.3	1.2	1.1	1.4	1.3	1.2	1.5	1.7	1.8	2.1	2.5	2.4	2.4	2.1	1.6	1.5	1.5	1.5	0.0
African American	—	—	—	1.8	1.2	0.5	1.1	1.8	1.2	1.4	1.5	0.9	0.7	1.0	1.2	1.0	1.1	1.3	1.6	1.7	1.6	1.4	1.4	-0.1
Hispanic	—	—	—	2.3	3.3	1.8	0.9	1.7	1.3	0.6	1.6	2.4	2.9	2.4	2.1	2.2	1.8	2.4	2.0	2.3	2.3	1.3	1.3	-1.0

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ . “—” indicates data not available. Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding. See Table D-109 for the number of subgroup cases. See appendix B for definition of variables in table.

Data based on one of six forms in 1989–1990;  $N$  is one sixth of  $N$  indicated in Table D-109. Data based on two of six forms in 1991–2005;  $N$  is two sixths of  $N$  indicated in Table D-109. Data based on three of six forms beginning in 2006;  $N$  is three sixths of  $N$  indicated in Table D-109. In 2006, the question text was changed slightly in one of the questionnaire forms. In 2008, the question text was changed slightly in two of the questionnaire forms. An examination of the data did not show any effect from the wording changes.

**Caution: Limited sample sizes (see “Notes” above). Use caution in interpreting subgroup trends.**

<sup>a</sup>Parental education is an average score of mother’s education and father’s education. See appendix B for details.

<sup>b</sup>To derive percentages for each racial subgroup, data for the specified year and the previous year have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-107**  
**Approximate Weighted Ns by Subgroups in Grade 8**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	17,500	18,600	18,300	17,300	17,500	17,800	18,600	18,100	16,700	16,700	16,200	15,100	16,500	17,000	16,800	16,500	16,100	15,700
Gender:																		
Male	8,600	8,800	8,600	8,300	8,100	8,400	8,600	8,600	7,800	7,900	7,500	7,000	7,600	8,100	8,000	7,800	7,800	7,600
Female	8,600	9,300	9,200	8,600	8,700	8,800	9,300	8,900	8,400	8,300	8,300	7,600	8,400	8,500	8,400	8,200	7,900	7,600
College Plans:																		
None or under 4 years	2,300	2,400	2,100	2,000	1,900	2,200	1,900	1,800	1,700	1,600	1,600	1,300	1,600	1,600	1,600	1,500	1,300	1,200
Complete 4 years	14,600	15,400	15,400	14,700	14,800	14,800	15,800	15,600	14,500	14,500	14,100	13,400	14,500	15,000	14,800	14,600	14,400	14,000
Region:																		
Northeast	3,000	3,700	3,900	3,400	3,100	3,200	3,400	3,300	3,000	2,800	2,900	2,800	3,200	3,200	3,200	2,900	2,400	2,600
Midwest	5,300	5,300	4,700	4,200	4,300	4,600	4,100	4,300	4,200	4,300	4,000	4,000	4,100	4,000	3,700	3,500	3,600	3,400
South	6,300	6,200	6,400	6,300	6,600	6,300	7,200	6,600	6,100	6,300	5,900	5,400	6,300	6,300	6,300	6,300	6,400	5,600
West	2,900	3,400	3,300	3,400	3,500	3,700	3,900	3,900	3,400	3,300	3,400	2,900	2,900	3,500	3,600	3,800	3,700	4,100
Population Density:																		
Large MSA	4,500	5,700	5,500	4,400	5,200	5,200	5,000	4,800	4,800	4,900	4,700	4,500	4,900	5,000	5,400	5,400	5,000	5,100
Other MSA	8,400	8,300	8,800	8,300	7,800	8,400	9,000	8,800	7,900	7,900	7,500	6,900	7,700	7,900	7,400	7,300	7,800	7,500
Non-MSA	4,600	4,600	4,000	4,600	4,500	4,200	4,600	4,500	4,000	3,900	4,000	3,700	3,900	4,100	4,000	3,800	3,300	3,100
Parental Education:																		
1.0–2.0 (Low)	1,400	1,700	1,700	1,600	1,500	1,500	1,500	1,300	1,300	1,300	1,300	1,100	1,100	1,200	1,400	1,400	1,400	1,300
2.5–3.0	4,400	4,600	4,500	4,100	3,900	4,300	4,000	3,900	3,800	3,700	3,400	3,200	3,400	3,400	3,400	3,300	3,100	2,800
3.5–4.0	4,100	4,300	4,300	4,200	4,000	4,100	4,300	4,100	3,800	3,900	4,000	3,500	3,700	4,000	3,700	3,800	3,700	3,500
4.5–5.0	4,100	4,100	4,100	3,900	3,900	3,900	4,500	4,500	4,000	3,900	3,900	3,800	4,200	4,300	4,200	4,000	3,900	4,100
5.5–6.0 (High)	2,200	2,300	2,300	2,200	2,300	2,200	2,600	2,700	2,200	2,200	2,100	2,100	2,400	2,500	2,600	2,300	2,300	2,300
Race (2-year average): <sup>a</sup>																		
White	—	21,900	22,000	20,900	19,800	20,200	21,400	21,300	19,800	18,900	18,600	17,600	18,400	20,400	20,500	19,500	18,300	17,300
African American	—	4,200	4,800	5,500	5,600	5,300	4,700	4,900	5,000	4,800	4,500	4,500	4,400	3,900	3,800	4,000	3,900	4,000
Hispanic	—	3,400	3,600	4,000	4,000	4,000	4,200	4,100	4,100	4,000	4,100	3,900	3,400	3,200	3,600	4,700	5,400	5,100

Source. The Monitoring the Future study, the University of Michigan.

Notes. "—" indicates data not available. See appendix B for definition of variables in table.

**Caution:** The Ns in this table are based on the entire sample at each grade level. Some drug use questions are asked only in some of the questionnaire forms rather than in all, in which case these Ns need to be adjusted appropriately. Look under "Notes" in each table to see if only a fraction of the sample was asked about that drug. If there is no such indication, that means the entire sample received the question.

<sup>a</sup>Ns for each racial subgroup represent the combination of the specified year and the previous year. Data have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-108**  
**Approximate Weighted N's by Subgroups in Grade 10**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	14,800	14,800	15,300	15,800	17,000	15,600	15,500	15,000	13,600	14,300	14,000	14,300	15,800	16,400	16,200	16,200	16,100	15,100
Gender:																		
Male	7,200	7,000	7,300	7,700	8,300	7,500	7,400	7,100	6,300	6,800	6,600	6,900	7,500	7,900	7,900	7,900	7,800	7,000
Female	7,400	7,400	7,800	7,900	8,400	7,800	7,800	7,700	7,000	7,200	7,100	7,100	8,000	8,300	8,000	8,000	7,900	7,700
College Plans:																		
None or under 4 years	2,600	2,400	2,500	2,700	2,500	2,300	2,200	2,200	1,900	1,900	1,900	2,000	2,100	1,900	1,800	1,800	1,800	1,600
Complete 4 years	11,900	12,000	12,400	12,800	14,200	13,000	13,000	12,500	11,500	12,100	11,900	12,100	13,400	14,300	14,100	14,100	14,000	13,200
Region:																		
Northeast	2,700	3,000	2,900	3,100	3,300	3,100	3,300	3,100	3,000	2,800	2,700	2,600	3,400	3,600	3,500	3,200	3,200	2,800
Midwest	3,700	3,800	4,800	4,700	4,400	3,900	3,900	3,600	3,100	3,700	4,100	3,700	4,000	4,600	4,500	4,300	3,900	3,600
South	4,900	5,000	4,900	5,200	6,100	5,600	5,500	5,200	4,700	5,000	5,000	5,100	4,900	4,900	5,000	5,300	5,100	4,800
West	3,500	3,000	2,700	2,800	3,200	3,000	2,800	3,100	2,800	2,800	2,200	2,900	3,500	3,300	3,200	3,400	3,900	3,900
Population Density:																		
Large MSA	3,400	3,700	3,500	4,100	4,700	4,300	4,300	4,300	3,700	4,000	3,900	4,300	4,900	5,000	4,900	5,100	5,200	4,700
Other MSA	7,400	7,300	7,600	7,500	8,200	7,500	7,300	7,000	6,700	6,700	6,700	6,800	7,800	7,800	7,600	7,900	7,600	7,300
Non-MSA	4,000	3,800	4,200	4,200	4,100	3,800	3,900	3,700	3,200	3,600	3,400	3,200	3,100	3,600	3,700	3,200	3,300	3,100
Parental Education:																		
1.0–2.0 (Low)	1,300	1,300	1,300	1,300	1,200	1,100	1,300	1,300	1,100	1,200	1,200	1,300	1,200	1,300	1,100	1,100	1,200	1,300
2.5–3.0	3,900	3,900	4,100	4,100	4,100	3,600	3,700	3,700	3,200	3,200	3,200	3,300	3,500	3,400	3,200	3,200	3,300	3,000
3.5–4.0	3,900	3,900	4,100	4,300	4,600	4,300	4,100	4,000	3,600	3,700	3,700	3,700	4,200	4,200	4,100	4,300	4,400	3,800
4.5–5.0	3,500	3,400	3,500	3,700	4,000	3,900	3,700	3,500	3,300	3,500	3,400	3,500	3,900	4,300	4,400	4,500	4,300	4,000
5.5–6.0 (High)	1,800	1,700	1,700	1,800	2,300	1,900	1,900	1,800	1,700	1,900	1,800	1,700	2,100	2,400	2,400	2,300	2,100	2,000
Race (2-year average): <sup>a</sup>																		
White	—	19,600	20,700	22,000	22,900	22,400	20,900	19,800	18,400	18,200	18,600	18,000	18,500	19,900	20,400	21,100	20,800	18,300
African American	—	3,900	3,600	3,300	3,300	3,100	3,200	3,600	3,600	3,100	2,800	3,400	4,600	4,600	4,300	3,900	3,400	3,600
Hispanic	—	2,600	2,700	2,800	2,900	3,000	3,200	3,500	3,200	3,100	3,400	3,600	3,600	3,500	3,500	3,300	3,800	4,500

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available. See appendix B for definition of variables in table.

**Caution: The Ns in this table are based on the entire sample at each grade level. Some drug use questions are asked only in some of the questionnaire forms rather than in all, in which case these Ns need to be adjusted appropriately. Look under "Notes" in each table to see if only a fraction of the sample was asked about that drug. If there is no such indication, that means the entire sample received the question.**

<sup>a</sup>Ns for each racial subgroup represent the combination of the specified year and the previous year. Data have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

**TABLE D-109**  
**Approximate Weighted Ns by Subgroups in Grade 12**

↑  
Cont.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300	16,700	15,200	15,000
Gender:																	
Male	4,300	6,900	7,100	8,500	7,500	7,500	8,400	8,500	7,800	7,600	7,600	7,100	7,700	7,700	8,000	7,700	7,400
Female	5,200	7,000	7,600	9,000	8,000	7,800	8,600	8,600	8,000	7,800	8,000	7,700	8,200	8,200	8,300	7,100	7,200
College Plans:																	
None or under 4 years	—	6,500	6,700	8,100	6,800	6,300	6,700	7,200	6,300	5,900	5,600	5,100	5,000	4,700	4,800	4,200	4,000
Complete 4 years	—	6,800	7,200	8,600	8,000	8,500	9,700	9,200	8,800	8,900	9,300	9,100	10,300	10,600	11,000	10,100	10,300
Region:																	
Northeast	2,200	3,400	3,700	4,400	3,800	3,600	4,100	4,600	3,900	3,200	3,700	3,600	3,500	3,200	3,200	3,300	2,800
Midwest	2,900	4,500	4,600	5,200	4,800	4,700	5,300	5,200	4,600	4,500	4,400	4,300	4,400	4,300	4,500	4,200	4,000
South	3,000	4,300	4,600	6,000	4,800	4,800	5,300	5,300	5,200	5,300	4,900	4,700	5,200	5,600	6,100	5,000	5,100
West	1,400	2,200	2,200	2,500	2,600	2,700	2,800	2,600	2,600	2,900	3,000	2,600	3,200	3,200	2,900	2,700	3,100
Population Density:																	
Large MSA	2,100	3,700	4,000	4,600	4,000	3,900	4,500	4,800	4,200	4,100	4,200	3,700	4,200	4,400	4,000	3,800	3,600
Other MSA	4,000	5,700	6,200	8,000	6,800	6,700	7,100	7,300	6,800	6,900	6,900	7,000	8,000	7,700	8,800	7,700	7,200
Non-MSA	3,400	5,000	4,900	5,500	5,200	5,200	5,900	5,600	5,300	4,900	4,900	4,500	4,100	4,200	3,900	3,700	4,200
Parental Education:																	
1.0–2.0 (Low)	1,700	2,200	2,600	3,100	2,500	2,300	2,400	2,700	2,200	1,900	1,800	1,800	1,700	1,600	1,700	1,600	1,500
2.5–3.0	3,000	4,300	5,400	6,200	5,600	5,300	5,800	5,900	5,500	5,100	5,100	4,600	4,500	4,500	4,600	4,300	4,100
3.5–4.0	1,600	2,500	3,200	4,000	3,600	3,600	4,200	4,200	3,900	4,000	4,000	3,800	4,300	4,400	4,500	4,100	4,200
4.5–5.0	1,100	1,600	2,200	2,800	2,600	2,700	3,100	2,900	2,800	2,900	3,000	2,900	3,400	3,500	3,500	3,100	3,100
5.5–6.0 (High)	440	710	1,100	1,200	1,200	1,300	1,500	1,300	1,200	1,400	1,500	1,500	1,800	1,900	1,700	1,600	1,500
Race (2-year average): <sup>a</sup>																	
White	—	—	23,400	26,500	27,500	25,600	26,300	27,300	26,200	24,700	24,200	23,600	23,800	24,200	24,000	23,400	21,900
African American	—	—	3,300	3,700	3,500	4,000	4,000	3,900	3,900	4,000	4,000	3,500	3,200	3,600	3,900	3,500	3,200
Hispanic	—	—	890	1,000	940	740	930	1,300	1,300	1,200	1,200	1,500	1,900	2,100	2,400	2,500	2,400

Source: The Monitoring the Future study, the University of Michigan.

Notes: “—” indicates data not available. See appendix B for definition of variables in table.

**Caution: The Ns in this table are based on the entire sample at each grade level. Some drug use questions are asked only in some of the questionnaire forms rather than in all, in which case these Ns need to be adjusted appropriately. Look under “Notes” in each table to see if only a fraction of the sample was asked about that drug. If there is no such indication, that means the entire sample received the question.**

<sup>a</sup>Ns for each racial subgroup represent the combination of the specified year and the previous year. Data have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

(Table continued on next page.)

**TABLE D-109 (cont.)**  
**Approximate Weighted N's by Subgroups in Grade 12**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	15,800	16,300	15,400	15,400	14,300	15,400	15,200	13,600	12,800	12,800	12,900	14,600	14,600	14,700	14,200	14,500	14,000
Gender:																	
Male	7,400	7,500	6,900	7,200	6,700	7,100	7,100	6,300	5,800	5,800	5,800	6,600	6,800	6,800	6,600	6,500	6,400
Female	7,900	8,200	8,000	7,800	7,100	7,700	7,500	6,700	6,400	6,500	6,600	7,400	7,200	7,300	7,100	7,400	6,900
College Plans:																	
None or under 4 years	3,700	3,700	3,400	3,300	2,600	3,200	3,100	2,800	2,600	2,500	2,400	2,800	2,800	2,600	2,500	2,400	2,300
Complete 4 years	11,200	11,600	11,100	11,200	10,800	11,000	11,100	10,200	9,300	9,600	9,700	11,100	11,000	11,300	11,000	11,300	10,800
Region:																	
Northeast	2,800	2,700	2,700	2,800	3,000	3,300	2,800	2,500	2,500	2,400	2,500	3,100	3,100	2,900	2,600	2,700	2,400
Midwest	4,400	4,600	4,000	4,300	3,800	4,100	3,800	3,600	3,100	3,700	3,300	3,600	3,800	3,600	3,500	3,200	3,500
South	5,600	5,800	5,700	5,400	5,100	5,300	5,700	4,900	4,500	4,100	4,300	4,900	5,000	5,200	5,200	5,500	5,000
West	3,000	3,200	3,000	2,900	2,400	2,700	2,900	2,600	2,700	2,600	2,800	3,000	2,700	3,000	2,900	3,100	3,100
Population Density:																	
Large MSA	3,600	3,700	4,300	4,400	3,400	4,100	4,300	3,800	3,800	3,800	4,000	4,600	4,200	4,300	4,700	4,700	3,700
Other MSA	8,200	7,800	7,100	7,000	7,000	7,500	7,500	6,200	5,800	5,800	5,900	6,500	6,800	7,000	6,200	6,600	7,100
Non-MSA	4,000	4,800	4,000	4,000	3,900	3,800	3,400	3,600	3,200	3,200	3,000	3,500	3,600	3,400	3,300	3,200	3,200
Parental Education:																	
1.0–2.0 (Low)	1,400	1,600	1,400	1,200	1,100	1,300	1,200	960	860	1,000	980	1,200	1,000	1,100	1,100	1,100	1,200
2.5–3.0	4,100	4,300	3,700	3,700	3,300	3,600	3,700	3,200	3,000	2,900	2,800	3,400	3,400	3,200	3,100	3,200	3,000
3.5–4.0	4,600	4,500	4,300	4,400	3,800	4,100	4,300	3,900	3,600	3,600	3,800	4,200	4,000	3,900	4,000	4,200	3,900
4.5–5.0	3,400	3,600	3,500	3,700	3,500	3,500	3,300	3,200	3,100	3,200	3,100	3,400	3,600	3,600	3,600	3,600	3,500
5.5–6.0 (High)	1,700	1,700	1,800	1,800	2,100	2,100	2,000	1,800	1,600	1,600	1,500	1,800	2,000	2,100	1,900	1,800	1,700
Race (2-year average): <sup>a</sup>																	
White	21,500	22,000	21,800	21,600	20,700	19,800	20,200	19,500	17,700	16,200	16,300	17,800	19,600	19,600	18,600	18,200	17,300
African American	3,900	4,200	3,600	3,300	3,200	3,600	3,700	3,400	3,300	3,100	2,900	3,000	3,200	3,000	3,000	3,200	3,500
Hispanic	2,600	2,900	3,100	2,700	2,600	2,800	3,000	2,500	2,200	2,600	3,100	3,100	2,800	2,900	3,500	3,700	4,000

Source: The Monitoring the Future study, the University of Michigan.

Notes: "—" indicates data not available. See appendix B for definition of variables in table.

**Caution: The Ns in this table are based on the entire sample at each grade level. Some drug use questions are asked only in some of the questionnaire forms rather than in all, in which case these Ns need to be adjusted appropriately. Look under "Notes" in each table to see if only a fraction of the sample was asked about that drug. If there is no such indication, that means the entire sample received the question.**

<sup>a</sup>Ns for each racial subgroup represent the combination of the specified year and the previous year. Data have been combined to increase subgroup sample sizes and thus provide more stable estimates. For the data beginning in 2005, see the race/ethnicity note at the end of appendix D.

## **A Note about the Two-Year-Average Race/Ethnicity Data for 2005 and 2006**

In the original race/ethnicity question, which was used from the inception of the study through 2004, respondents were asked to select the *one* race/ethnicity category that they thought best described them. In 2005 the race/ethnicity question was changed in half of the questionnaire forms to conform more closely with the Office of Management and Budget guidelines. For the revised Monitoring the Future question, respondents were given a list of race/ethnicity options and instructed to mark *all* of them that applied. An examination of the data showed a very low occurrence of respondents (about 6% in 2005) selecting more than one racial/ethnic group.

In 2005, to enable the combination of the data from the original question and the revised question, the following method was used. For the original version of the question, respondents were assigned to the racial/ethnic group specified in their response. For the revised 2005 questions, those checking only White and no other racial/ethnic group were categorized as White; those checking African American and no other racial/ethnic group were categorized as African American; and those checking one or more of the four Hispanic categories but no other racial/ethnic group were categorized as Hispanic.

The prevalence-of-use data presented in appendix D for the three largest racial/ethnic groups are based on two-year moving averages, so as to moderate random fluctuations. The 2005 race/ethnicity entries are, therefore, based on both the 2004 and 2005 data combined. Most of the entries for 2005 are based on 2004 and 2005 data derived from the original question combined with 2005 data derived from the new race/ethnicity question. In 2006 the race/ethnicity question was revised in the remaining forms. For the 2006 two-year moving averages, most of the entries are based on 2005 data derived from the original question combined with 2005 and 2006 data derived from the revised question. (Note that, because some drug use questions occur only in a few forms, there is some variation in the version of the race/ethnicity question upon which the 2005 data are based. Based on the analyses that we have examined, we do not think that these different permutations make any appreciable difference in the results.)

## Appendix E

### TRENDS IN SPECIFIC SUBCLASSES OF HALLUCINOGENS, AMPHETAMINES, TRANQUILIZERS, SEDATIVES, AND NARCOTIC DRUGS OTHER THAN HEROIN

In one of the six questionnaire forms administered to 12th graders, respondents who answer that they used *amphetamines* in the prior 12 months are then asked a small set of additional questions about that use. One question asks, “What amphetamines have you taken during the last year without a doctor’s orders? (Mark all that apply.)” A prespecified list of amphetamines (e.g., Benzedrine, Dexadrine, Methedrine, Ritalin, etc.) is provided, along with an additional category labeled “Other” and one labeled “Don’t know the name of some I have used.”<sup>122</sup>

For each of four other classes of drugs (*hallucinogens other than LSD*, *tranquilizers*, *sedatives* [*barbiturates*], and *narcotics other than heroin*), a parallel set of additional questions is asked of those who report using each drug class during the prior 12 months. As with other questions, respondents are asked to check the specific drugs that they used. All of these detailed drug questions are included in the same 12th-grade questionnaire form.

The answers to these five questions are provided here, covering the 32-year interval from 1976 to 2008. Because these questions are contained in only one of the six 12th-grade questionnaire forms (one of five in earlier years), the number of cases on which the estimates are based is lower than most prevalence estimates in this volume. The relevant numbers of cases are provided in the bottom row of each table; the reader is cautioned that in some years, when prevalence is particularly low, the case counts are low.

We provide one other caution to the reader in interpreting these results. For some of these drug classes, the absolute prevalence rates may be underestimates of true rates. This occurs because some users of a particular subclass may not realize that the substance (e.g., peyote) is actually a subclass of the more general class (in this case, hallucinogens other than LSD), even though the subclasses are listed in the introduction to the question set. Such respondents, therefore, may not indicate use on the general question, which means they would never get to the branching question about using the subclass drug. Thus, they would not be counted among the users.

In the relevant 12th-grade questionnaire form, we go to some length to state both the full list of common street names, as well as the proper names, for the drugs in the general class *before* asking about use of the general class of drugs. However, because several of the drugs in the subclass lists (PCP, methamphetamine, crystal methamphetamine, Ritalin, OxyContin, and Vicodin) have also been included on a different questionnaire form in recent years in “tripwire”

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<sup>122</sup>It should be noted that in this questionnaire form (Form 1), the original question lists all of the subclasses in advance as being included in the definition of the general class. For example, the question regarding amphetamine use reads, “They include the following drugs: Benzedrine, Dexedrine, Methedrine, Ritalin . . .” A list of common street names is also given to help define the drug class for the respondent. So, in theory, respondents know that they should be answering positively about having taken the general class of drug if they used any of the subclasses, even if they did not know in advance that the subclass belonged to the more general class.

questions,<sup>123</sup> we have been able to determine that they usually show higher prevalence rates when branching questions are not used. For example, the 2003 annual prevalence rate for PCP generated by a single question about PCP use asked of all 12th graders was 1.3%, whereas the rate generated when the drug was treated as a subcategory of hallucinogens other than LSD was only 0.9%. This may be an atypical case, however, because proper classification of PCP is quite ambiguous—it is actually an animal tranquilizer with hallucinogenic effects. (In fact, we suspected some years ago that students were not categorizing PCP as a hallucinogen other than LSD, even though it was given in the list of examples for that question. That suspicion was what originally led us to ask separate questions about its use.)

Despite the potential for underestimation of *prevalence* when using branching questions, we still think they are helpful for discerning long-term trends in use. To stay with the PCP example, both the tripwire questions about PCP use and the branching question that treats PCP as a subcategory of hallucinogens other than LSD have shown very similar trends since 1979, when both were first available for comparison. Both measures showed a substantial decline in PCP use from 1979 through the mid-1980s, followed by a period of stability in use at low levels, then a modest increase in use in the 1990s until 1996, when use leveled. (In 2001 both measures showed some decline.) Thus if we only had the results from the branching question available, we would have obtained quite an accurate picture of the trend story, even though we would have been underestimating the absolute prevalence rate to some degree.

We conclude that the data for the other specific drug classes should also provide a fair approximation of the trend stories. The majority of such prevalence data probably underestimates the true rates, however.

Another problem of which the reader should be aware is that the pharmaceutical products that constitute each of these classes of drugs (except hallucinogens) change over the years. Therefore, these lists of drugs need to be updated periodically as some drugs fall out of favor and others are introduced.

**Note on hallucinogens:** In 2001 we changed the question wording in the branching question about use of hallucinogens other than LSD, replacing the older term “psychedelics” with the more current term “hallucinogens”; perhaps more important, the term “shrooms” was added to the list of examples. (“Shrooms” is the street name that has come into favor in recent years for hallucinogenic mushrooms or psilocybin.) We believe that this methodological change had the effect of increasing prevalence rates; thus, the 2000–2001 change in Table E-1 for the various classes of hallucinogens other than LSD should not be mistaken for a real change in use.<sup>124</sup>

**Ritalin** has been one of the drugs listed under the general class of amphetamines. It is a medically indicated treatment for attention deficit hyperactivity disorder (ADHD), and the issue

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<sup>123</sup>A tripwire question is a single non-branching question that, for reasons of questionnaire space economy, asks only about frequency of use in the prior 12 months.

<sup>124</sup>“Shrooms” is a street name for the drug psilocybin, which is derived from a certain species of mushroom—thus the term “shrooms.” Clearly, many more students at present recognize this drug by the street name because the annual prevalence rate jumped from 1.4% in 2000 for “psilocybin” to 4.9% in 2001 for “shrooms or psilocybin.” The prevalence rate for this subclass of hallucinogen had changed little before the change in wording and actually declined some in the year following the change, suggesting that virtually all of the increase was due to the rewording.

of its diversion for other uses received increasing attention in the 1990s. For that reason, we added a separate tripwire question about its use in the 2001 survey. As with PCP, we find that the prevalence reported in response to a stand-alone question tends to be higher than that reported under a branching question. Annual prevalence in 2008 among 12th graders was 3.4% with the new question, compared to 1.5% with the branching question.

We believe that the trend results based on the branching question tell a reasonably accurate story about the pattern of change for Ritalin use, despite the difference in the absolute prevalence rate.

**Note on sedatives (barbiturates):** This class of drugs was originally referred to as “barbiturates,” because at the beginning of the study barbiturates predominated among the sedative medications. As more nonbarbiturate sedatives came into common use, we changed all relevant survey questions to refer to “sedatives.” There was also a major interruption in the time series, with the more detailed branching questions about sedative use being dropped after 1989 in order to make space for other questions, and in part because the prevalence of sedative use had become so low. The series was resumed in 2007 because the sedative problem had made a comeback. Some older sedatives (including Nembutal, Luminal, Desbutal, Amytal, and Adrenocol) were dropped from the list of specific drugs and some newer ones (including Ambien, Lunesta, and Sonata) were added.

**Note on tranquilizers:** In 2007, the list of drugs in the tranquilizer category was also updated. Five seldom-used drugs were dropped (Equanil, meprobamate, Atarax, Tranxene, and Vistaril) and three more commonly used drugs were added (Soma, Ativan, and Klonopin).

**Note on narcotics other than heroin:** Because there had been considerable public comment on the diversion of OxyContin and Vicodin, in 2002 we added tripwire questions for these drugs in questionnaire forms different from the one containing the detailed questions on narcotics other than heroin. Once again, the absolute prevalence levels obtained for these drugs turned out to be higher on these stand-alone questions, asked of all respondents on that questionnaire form, than those obtained from the branching questions. In 2008 the annual prevalence of OxyContin was estimated to be 4.7% in the tripwire question versus 3.7% in the branching question, while that of Vicodin was estimated to be 9.7% in the tripwire question versus only 5.7% in the branching question. Note also that another of the narcotic drugs introduced onto the list in 2002, Percocet, has shown an annual prevalence rate similar to that for OxyContin. In 2007, Ultram was added to the list, and Dilaudid was dropped.

**Note on amphetamines:** In 2007, Preludin and Dexamyl (amphetamines with substantially decreased usage rates) were deleted to make room for Adderall and Concerta (which had become increasingly popular).

**TABLE E-1**  
**Specific Hallucinogens other than LSD: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What hallucinogens other than LSD <sup>b</sup> have you taken during the last year?	Percentage of ALL SENIORS using drug indicated in last 12 months																		
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992		
Mescaline	5.1	5.0	5.0	4.1	4.8	3.7	3.5	2.7	3.0	2.3	2.1	1.6	0.8	0.9	0.6	0.6	0.6		
Peyote	1.8	1.4	1.5	1.1	1.1	0.9	0.6	0.6	0.6	0.5	0.4	0.5	0.3	0.4	0.9	0.1	0.5		
Psilocybin ("shrooms") <sup>b</sup>	1.7	1.0	1.3	1.0	1.5	1.6	0.9	0.7	0.7	0.6	0.9	0.6	0.9	0.3	0.7	0.3	0.2		
PCP	2.9	3.3	4.5	4.2	3.5	2.2	1.4	1.5	1.2	0.9	0.8	1.0	0.6	0.4	0.8	0.5	0.6		
Concentrated THC	5.6	5.7	5.3	4.6	2.6	2.1	1.5	1.4	0.9	1.1	0.8	1.0	0.7	0.4	0.4	0.4	0.2		
Other	3.3	3.7	3.4	3.9	2.9	2.7	1.9	1.5	1.5	1.3	0.9	0.9	0.7	0.9	0.9	0.6	1.0		
Don't know the names of some I have used	1.2	1.3	1.5	1.6	1.2	1.2	1.1	1.2	0.9	1.0	0.7	0.7	0.5	0.3	0.5	0.4	0.3		
<i>Approximate weighted N = 2,800 3,000 3,500 3,100 3,100 3,400 3,500 3,200 3,100 3,100 3,000 3,200 3,200 2,700 2,500 2,500 2,600</i>																			

Source. The Monitoring the Future study, the University of Michigan.

Notes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"†" indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2001, the question asking about the prevalence of use of specific hallucinogens other than LSD was changed in several ways: (1) the wording of the screening question was changed from "psychedelics other than LSD" to "hallucinogens other than LSD"; (2) in the list of examples given in the screening question, "psilocybin" was expanded to "shrooms or psilocybin"; and (3) the specific question about "psilocybin" was expanded to "shrooms or psilocybin." The inclusion of the term "shrooms" elicited a higher reported level of use in response to both the general category and the specific drug psilocybin. This question change likely explains some of the discontinuity in the 2000–2001 results.

(Table continued on next page.)



**TABLE E-1 (cont.)**  
**Specific Hallucinogens other than LSD: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What hallucinogens other than LSD <sup>b</sup> have you taken during the last year?	Percentage of ALL SENIORS using drug indicated in last 12 months														2007–		
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Mescaline	0.8	0.5	1.1	1.2	0.8	1.3	0.9	1.3	0.9	0.8	0.5	0.6	0.7	0.4	0.4	0.4	-0.1
Peyote	0.6	0.6	0.7	0.9	0.8	0.2	0.8	0.2	0.9	0.6	0.6	0.7	0.7	0.6	0.5	0.4	-0.1
Psilocybin ("shrooms") <sup>b</sup>	0.5	0.5	0.9	1.4	1.1	1.4	1.2	1.4 <sup>†</sup>	4.9	4.0	4.6	5.7	4.4	3.6	4.5	3.8	-0.7
PCP	0.7	0.9	1.2	1.1	0.9	0.8	1.1	1.2	0.9	1.0	0.9	1.0	0.7	0.6	0.7	0.5	-0.2
Concentrated THC	0.5	0.4	0.9	1.5	1.2	1.1	1.3	0.9	1.3	0.8	0.9	1.3	0.8	0.9	1.0	1.3	+0.3
Other	0.8	0.7	1.3	1.8	1.9	2.2	1.9	2.4	1.6	1.2	1.6	1.4	1.4	1.2	1.3	1.8	+0.5
Don't know the names of some I have used	0.4	0.6	0.8	0.8	1.2	1.2	1.0	0.8	0.9	0.4	0.4	0.7	0.6	0.6	0.4	0.4	0.0
<i>Approximate weighted N = 2,600 2,500 2,500 2,300 2,500 2,500 2,200 2,100 2,100 2,100 2,400 2,400 2,400 2,300 2,400 2,300</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes.

Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

<sup>†</sup> indicates some change in the question. See relevant footnote.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2001, the question asking about the prevalence of use of specific hallucinogens other than LSD was changed in several ways: (1) the wording of the screening question was changed from "psychedelics other than LSD" to "hallucinogens other than LSD"; (2) in the list of examples given in the screening question, "psilocybin" was expanded to "shrooms or psilocybin"; and (3) the specific question about "psilocybin" was expanded to "shrooms or psilocybin." The inclusion of the term "shrooms" elicited a higher reported level of use in response to both the general category and the specific drug psilocybin. This question change likely explains some of the discontinuity in the 2000–2001 results.

**TABLE E-2**  
**Specific Amphetamines: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What amphetamines have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months																			
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992			
Benzedrine	3.5	4.1	3.7	3.1	3.2	3.6	2.9	1.6	1.7	1.9	1.4	1.1	0.5	0.7	0.6	0.1	0.2			
Dexedrine	2.9	3.5	3.7	4.0	4.0	5.1	2.8	1.4	1.6	1.2	0.9	0.6	0.4	0.6	0.5	0.3	0.2			
Methedrine	3.4	4.2	3.9	4.7	4.4	5.6	4.7	3.2	3.0	2.9	2.0	1.5	1.2	0.7	0.5	0.3	0.4			
Ritalin	0.5	0.7	0.6	0.4	0.6	0.7	0.5	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.1	0.1			
Preludin <sup>b</sup>	0.6	1.0	1.1	1.3	1.1	1.7	0.8	0.6	0.5	0.4	0.3	0.1	0.2	0.3	0.1	0.1	0.1			
Dexamy <sup>b</sup>	1.3	1.5	1.1	1.3	1.3	1.1	1.2	0.6	0.9	0.6	0.8	0.5	0.4	0.3	0.2	0.1	0.2			
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
Concerta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
Methamphetamine	1.9	2.3	2.3	2.4	2.7	3.7	2.8	1.8	2.1	2.0	1.5	1.3	1.2	0.6	0.6	0.8	0.4			
Crystal methamphetamine (ice)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2	0.8	1.2	1.1		
Other	4.6	5.9	6.5	6.4	6.4	7.6	4.6	4.2	4.3	3.3	3.7	2.6	1.5	2.1	1.6	1.2	1.5			
Don't know the names of some I have used	6.8	7.2	6.8	7.5	8.7	11.1	9.2	8.4	8.1	7.0	5.3	4.4	3.3	2.9	2.9	2.3	1.9			
<i>Approximate weighted N = 2,700 2,900 3,400 3,100 3,000 3,400 3,400 3,200 3,100 3,100 3,000 3,200 3,200 2,700 2,500 2,500 2,600</i>																				

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"""" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2007 for the list of amphetamines, Preludin and Dexamy were replaced with Adderall and Concerta.

(Table continued on next page.)

↑  
Cont.

**TABLE E-2 (cont.)**  
**Specific Amphetamines: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

	Percentage of ALL SENIORS using drug indicated in last 12 months																2007- 2008 change
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
<i>What amphetamines have you taken during the last year without a doctor's orders?</i>																	
Benzedrine	0.3	0.6	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.6	0.2	0.8	0.4	0.2	0.5	0.4	0.0
Dexedrine	0.2	0.5	0.4	0.3	0.9	0.6	0.6	0.6	0.8	1.0	0.7	1.3	0.6	0.3	0.4	0.3	-0.1
Methedrine	0.4	0.5	0.3	0.3	0.5	0.3	0.3	0.3	0.5	0.2	0.2	0.4	0.6	0.2	0.2	0.0	-0.2
Ritalin	0.4	1.0	0.8	1.2	2.8	2.8	2.4	2.2	2.4	2.6	2.3	3.9	2.3	2.3	1.7	1.5	-0.2
Preludin <sup>b</sup>	0.1	0.3	0.1	0.5	0.2	0.3	0.2	*	0.2	0.1	0.1	0.2	0.2	0.1	—	—	—
Dexamy <sup>b</sup>	0.3	0.5	0.2	0.4	0.3	0.4	0.2	0.2	0.5	0.2	0.1	0.5	0.3	0.3	—	—	—
Adderall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.8	3.2	+0.4
Concerta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.9	+0.1
Methamphetamine	0.6	0.6	0.7	0.7	1.1	1.3	0.9	0.9	1.5	1.3	1.9	1.5	1.5	1.1	1.2	0.5	-0.6 s
Crystal methamphetamine (ice)	1.1	1.4	1.6	1.5	1.8	2.5	1.8	1.9	2.1	2.1	1.7	2.0	1.2	1.3	1.1	0.4	-0.7 s
Other	2.0	2.3	2.0	2.3	2.5	3.1	2.6	2.9	2.7	3.2	3.2	3.4	2.5	3.4	1.4	1.5	+0.1
Don't know the names of some I have used	2.2	2.1	2.6	2.3	2.8	3.1	2.5	2.1	2.2	2.3	2.3	2.9	1.7	1.6	1.4	1.2	-0.2
<i>Approximate weighted N = 2,600 2,500 2,500 2,300 2,500 2,500 2,200 2,100 2,000 2,100 2,400 2,400 2,400 2,300 2,400 2,300</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

"s" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2007 for the list of amphetamines, Preludin and Dexamy were replaced with Adderall and Concerta.

**TABLE E-3**  
**Specific Tranquilizers: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

Percentage of ALL SENIORS using drug indicated in last 12 months

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<i>What tranquilizers have you taken during the last year without a doctor's orders?</i>																	
Librium	2.6	2.9	2.4	2.1	1.8	2.0	0.9	1.2	0.5	0.8	0.7	0.7	0.3	0.2	0.2	0.2	0.1
Valium	5.3	6.9	6.0	5.9	5.3	5.5	3.5	3.2	2.9	3.5	2.8	2.9	2.2	1.7	1.6	1.2	1.6
Miltown <sup>b</sup>	0.2	0.3	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	*
Xanax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Equanil <sup>c</sup>	0.4	0.4	0.7	0.4	0.4	0.2	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.1	*
Meprobamate <sup>c</sup>	0.6	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	*	0.1	0.2	*	0.1
Soma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Serax	0.2	0.2	0.1	0.2	0.1	0.2	*	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.2	0.0	0.2
Atarax <sup>c</sup>	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.2	*	*	0.1	0.1	0.1
Tranxene <sup>c</sup>	0.2	0.3	0.3	0.5	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2
Vistaril <sup>c</sup>	0.1	0.2	0.4	0.3	0.3	0.3	0.1	0.1	0.2	0.4	0.2	0.1	0.0	*	0.3	0.0	*
Ativan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Klonopin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Don't know the names of some I have used	3.0	2.7	2.7	1.9	2.3	1.6	1.3	1.7	1.4	1.7	2.0	1.3	0.9	1.0	1.5	1.1	0.7
<i>Approximate weighted N = 2,700 2,900 3,400 3,100 3,000 3,300 3,400 3,200 3,100 3,100 3,100 3,000 3,100 3,200 2,700 2,500 2,400 2,600</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

"\*\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2001 for the list of tranquilizers, Miltown was replaced with Xanax.

<sup>c</sup>In 2007 for the list of tranquilizers, Equanil, meprobamate, Atarax, Tranxene, and Vistaril were replaced with Soma, Ativan, and Klonopin.

(Table continued on next page.)

↑  
Cont.

**TABLE E-3 (cont.)**  
**Specific Tranquilizers: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What tranquilizers have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months																2007-
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Librium	0.1	*	0.3	0.3	0.2	0.3	0.4	0.2	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.0
Valium	1.6	1.6	1.3	1.5	2.0	2.0	2.7	2.6	2.8	2.8	2.8	3.1	3.1	2.3	2.4	1.9	-0.4
Miltown <sup>b</sup>	0.0	0.0	0.0	0.1	*	*	0.2	0.1	—	—	—	—	—	—	—	—	—
Xanax	—	—	—	—	—	—	—	—	1.9	2.6	2.7	2.7	2.3	2.8	3.3	3.3	0.0
Equanil <sup>c</sup>	0.1	*	*	0.2	0.2	0.1	0.1	0.2	0.1	0.4	*	0.1	*	*	—	—	—
Meprobamate <sup>c</sup>	0.0	0.1	0.2	0.1	0.3	0.1	0.1	*	0.1	0.1	0.1	0.2	0.1	0.1	—	—	—
Soma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.3	1.4	+0.1
Serax	*	*	*	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	*	0.1	*	-0.1
Atarax <sup>c</sup>	0.1	0.0	*	*	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.2	—	—	—
Tranxene <sup>c</sup>	*	*	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	—	—	—
Vistaril <sup>f</sup>	*	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.2	0.3	—	—	—
Ativan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.4	+0.2
Klonopin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.2	1.3	+0.1
Other	—	—	—	—	—	—	—	—	—	1.9	1.4	2.4	1.4	1.4	1.3	1.4	+0.1
Don't know the names of some I have used	1.3	0.9	1.1	1.3	1.5	1.5	1.4	1.4	1.9	1.2	1.0	1.0	1.3	0.9	0.5	0.9	+0.4
<i>Approximate weighted N = 2,600 2,500 2,500 2,300 2,500 2,500 2,200 2,000 2,000 2,100 2,400 2,400 2,300 2,300 2,400 2,300</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"\*\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2001 for the list of tranquilizers, Miltown was replaced with Xanax.

<sup>c</sup>In 2007 for the list of tranquilizers, Equanil, meprobamate, Atarax, Tranxene, and Vistaril were replaced with Soma, Ativan, and Klonopin.

**TABLE E-4**  
**Specific Narcotics other than Heroin: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What narcotics other than heroin have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months																
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Methadone	0.6	0.4	0.9	0.9	0.8	0.7	0.4	0.6	0.5	0.5	0.5	0.3	0.1	*	0.5	*	0.3
Opium	2.7	2.4	2.6	3.0	2.8	2.4	1.6	1.2	1.5	1.4	1.5	1.3	0.9	0.9	0.7	0.8	0.5
Morphine	0.6	0.8	0.7	0.8	1.0	1.1	0.7	0.8	0.8	0.9	0.7	0.4	0.6	0.2	0.7	0.4	0.4
Codeine	2.5	2.3	3.0	3.4	3.8	4.2	2.6	2.5	3.3	3.3	3.0	2.5	2.2	1.7	2.2	1.8	2.5
Demerol	0.7	0.6	1.1	0.9	1.2	1.4	0.9	0.9	0.7	0.9	1.0	0.8	0.7	0.4	0.7	0.5	0.9
Paregoric <sup>b</sup>	0.4	0.3	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.1	0.1	*	0.1	0.1	0.1	0.2
Talwin <sup>b</sup>	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.2	0.3	0.1	0.1	0.1	*	*	0.1	0.0	0.0
Laudanum <sup>b</sup>	0.1	0.0	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	*	*	0.1	0.0	*
OxyContin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vicodin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Percocet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Percodan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dilaudid <sup>c</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ultram	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	0.5	0.5	1.4	0.8	0.7	0.6	0.5	0.6	0.4	0.6	0.5	0.4	0.4	0.5	0.5	0.2	0.5
Don't know the names of some I have used	1.1	1.0	0.6	0.9	0.8	0.6	0.7	0.3	0.6	0.6	0.4	0.3	0.5	0.2	0.5	0.3	0.1
<i>Approximate weighted N = 2,700 2,800 3,400 3,000 3,000 3,300 3,400 3,100 3,000 3,100 2,900 3,100 3,100 2,600 2,500 2,400 2,500</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes:  $s = .05$ ,  $ss = .01$ ,  $sss = .001$ .

"—" indicates data not available.

"\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2002 for the list of narcotics other than heroin, paregoric, Talwin, and laudanum were replaced with OxyContin, Vicodin, Percocet, Percodan, and Dilaudid.

<sup>c</sup>In 2007 for the list of narcotics other than heroin, Dilaudid was replaced with Ultram.

(Table continued on next page.)

**TABLE E-4 (cont.)**  
**Specific Narcotics other than Heroin: Trends in Annual Prevalence of Use for All Seniors<sup>a</sup>**

What narcotics other than heroin have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months														2007–		
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Methadone	0.2	0.1	0.1	*	0.4	0.3	0.8	0.7	0.7	0.9	0.4	0.9	0.8	1.2	0.8	0.9	0.0
Opium	0.4	0.6	1.0	1.1	1.8	2.0	1.7	2.1	2.1	2.1	2.4	2.2	1.6	1.2	1.0	1.0	0.0
Morphine	0.2	0.3	0.3	0.6	1.0	1.0	1.2	1.2	1.4	1.5	1.8	2.1	2.1	1.5	1.8	1.9	+0.1
Codeine	1.7	1.6	1.0	2.6	2.5	3.0	3.1	3.7	2.8	4.4	4.1	4.6	4.3	3.4	4.2	3.4	-0.8
Demerol	0.8	0.6	0.4	1.0	1.2	1.1	1.5	0.9	1.2	1.4	0.9	1.3	1.2	1.4	1.0	0.8	-0.2
Paregoric <sup>b</sup>	0.0	*	0.1	*	0.0	0.0	*	0.0	0.1	—	—	—	—	—	—	—	—
Talwin <sup>b</sup>	0.0	0.1	0.0	0.0	0.0	0.1	*	0.0	0.1	—	—	—	—	—	—	—	—
Laudanum <sup>b</sup>	*	*	0.1	*	0.1	0.0	0.1	0.1	*	—	—	—	—	—	—	—	—
OxyContin	—	—	—	—	—	—	—	—	—	1.6	2.0	2.8	3.2	2.8	3.0	3.7	+0.7
Vicodin	—	—	—	—	—	—	—	—	—	4.1	4.1	5.2	4.5	4.2	5.8	5.7	0.0
Percocet	—	—	—	—	—	—	—	—	—	1.9	3.1	2.9	2.5	2.2	3.2	2.9	-0.3
Percodan	—	—	—	—	—	—	—	—	—	0.6	0.7	0.6	0.6	0.3	0.5	0.1	-0.3
Dilaudid <sup>c</sup>	—	—	—	—	—	—	—	—	—	0.1	0.1	0.3	0.1	0.2	—	—	—
Ultram	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.4	0.3	-0.1
Other	0.3	0.6	0.3	0.7	0.6	1.2	1.6	1.4	0.9	1.6	1.8	1.7	1.6	2.0	1.5	1.5	0.0
Don't know the names of some I have used	0.5	0.4	0.3	0.4	0.5	0.8	0.6	0.6	0.5	0.7	0.4	0.5	0.4	1.1	0.7	0.8	+0.1
<i>Approximate weighted N = 2,600 2,500 2,400 2,300 2,400 2,400 2,200 2,000 2,000 2,100 2,400 2,300 2,300 2,300 2,400 2,300</i>																	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

"\*\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>In 2002 for the list of narcotics other than heroin, paregoric, Talwin, and laudanum were replaced with OxyContin, Vicodin, Percocet, Percodan, and Dilaudid.

<sup>c</sup>In 2007 for the list of narcotics other than heroin, Dilaudid was replaced with Ultram.

**TABLE E-5**  
**Specific Sedatives: Trends in Annual Prevalence of Use for All Seniors<sup>a,b</sup>**

What sedatives have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months																
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Phenobarbital	2.7	2.4	2.2	1.8	1.6	1.8	1.2	1.0	0.8	1.0	0.7	0.6	0.3	0.2	—	—	—
Seconal	3.2	2.9	2.4	2.0	1.1	1.3	1.3	0.8	0.7	0.8	0.5	0.4	0.3	0.0	—	—	—
Tuinal	1.8	1.7	0.8	1.3	0.9	0.9	0.4	0.4	0.4	0.3	0.5	0.2	0.2	*	—	—	—
Nembutal	0.9	1.0	0.9	0.8	0.7	0.7	0.5	0.3	0.2	0.4	0.4	0.3	0.1	0.1	—	—	—
Luminal	0.6	0.9	0.7	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.2	0.2	0.2	0.2	—	—	—
Desbutal	0.2	0.3	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.1	—	—	—
Amytal	0.6	0.8	0.5	0.3	0.4	0.5	0.4	0.4	0.2	0.4	0.4	0.2	0.3	0.1	—	—	—
Adrenocel	0.3	0.3	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	—	—	—
Ambien	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lunesta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sonata	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other	3.2	3.2	3.5	2.7	2.2	2.2	1.5	1.5	1.0	1.2	1.2	0.8	0.7	0.7	—	—	—
Don't know the names of some I have used	3.8	3.0	3.1	2.8	2.3	2.3	2.4	2.2	2.2	1.9	1.5	1.5	1.1	0.8	—	—	—
Approximate weighted N =	2,700	2,900	3,400	3,100	3,000	3,300	3,400	3,200	3,100	3,100	3,000	3,100	3,100	2,700	—	—	—

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

“—” indicates data not available.

\*\*\* indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>This question set was dropped in 1990, as sedative use had become quite low, to make room for other questions. Because of a rise in sedative use since then, it was reintroduced in 2007, and some new drugs were included in the listing.

(Table continued on next page.)



**TABLE E-5 (cont.)**  
**Specific Sedatives: Trends in Annual Prevalence of Use for All Seniors<sup>a,b</sup>**

What sedatives have you taken during the last year without a doctor's orders?	Percentage of ALL SENIORS using drug indicated in last 12 months													2007-2008			
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change
Phenobarbital	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.0
Seconal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	0.1	0.0
Tuinal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.1	*	0.0
Nembutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luminal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Desbutal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amytal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adrenocel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ambien	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.5	1.1	-0.5
Lunesta	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.8	0.8	0.0
Sonata	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.2	0.2	-0.1
Other	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.1	1.9	-0.3
Don't know the names of some I have used	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.7	0.8	+0.1
Approximate weighted N =	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,400	2,300	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between the two most recent classes: s = .05, ss = .01, sss = .001.

"—" indicates data not available.

"\*\*" indicates less than 0.05% but greater than 0%.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

<sup>a</sup>These are the estimated prevalence-of-use rates for the entire population of seniors, not just those who answered that they had used the more general class of drugs.

<sup>b</sup>This question set was dropped in 1990, as sedative use had become quite low, to make room for other questions. Because of a rise in sedative use since then, it was reintroduced in 2007, and some new drugs were included in the listing.



## Appendix F

### TRENDS IN DRUG USE FOR THREE GRADES COMBINED

This appendix presents tables and figures showing usage trends of the various drugs covered in this monograph, in which the data from grades 8, 10, and 12 have been combined. (Data for all three grades were first gathered in 1991, so they cover the interval 1991–2008.) These combined figures have been requested in the past, presumably for simplicity. However, by collapsing the three grades, some important distinctions are lost. For example, inflexions either up or down in use have sometimes occurred first among 8th graders and then radiated up the age spectrum; such cohort effects are masked by combining the data across age and grade. But for those seeking an easier way of summarizing trend results, the simplification may be useful at times.

Figures F-1 through F-9 show general shifts occurring for most of the drugs under study in MTF, both licit and illicit. These trends have been presented in more detail and discussed at length in chapter 5.

Tables F-1 through F-4 provide the numerical estimates that underlie the figures. The averages across grades in the use of each drug are calculated using a weighting procedure that takes into account the estimated number of students in the country enrolled in each of the three grade levels each year. The original sampling weights used at each grade level to correct for unequal probabilities of selection within grade have been retained.

These tables also show the absolute change in use between the most recent year and the recent peak level observed for each drug, along with the statistical significance of that change. The proportional change since that recent peak is also provided in the far right-hand column. Most of these changes are highly statistically significant, in part because the sample sizes resulting from combining the three grades are so large.

It should be noted that two important classes of drugs on which MTF routinely reports are not included in these figures, because usable data are only available from 12th graders—*narcotics other than heroin* (taken as a class) and *sedatives*. The 12th-grade trend data for these drugs may be found in chapter 5.

TABLE F-1

Trends in Lifetime Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined

	2007-2008																	Peak year-2008 change			
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	change	Absolute change	Proportional change (%) <sup>a</sup>
Any Illicit Drug	30.4	29.8	32.1	35.7	38.9	42.2	<b>43.3</b>	42.3	41.9	41.0	40.9	39.5	37.5	36.4	35.7	34.0	32.7	32.6	-0.1	-10.7 sss	-24.8
Any Illicit Drug other than Marijuana	19.7	19.7	21.2	22.0	23.6	<u>24.2</u>	24.0	23.1	22.7	<u>22.1</u> †	<b>23.2</b>	21.1	19.8	19.3	18.6	18.2	17.7	16.8	-0.9	-6.4 sss	-27.7
Any Illicit Drug including Inhalants	36.8	36.3	38.8	41.9	44.9	47.4	<b>48.2</b>	47.4	46.9	46.2	45.5	43.7	41.9	41.3	41.0	39.3	38.0	37.9	-0.1	-10.3 sss	-21.4
Marijuana/Hashish	22.7	21.1	23.4	27.8	31.6	35.6	<b>37.8</b>	36.5	36.4	35.3	35.3	34.0	32.4	31.4	30.8	28.9	27.9	27.9	-0.0	-9.9 sss	-26.2
Inhalants	17.0	16.9	18.2	18.6	<b>19.4</b>	19.1	18.6	18.1	17.5	16.4	15.3	13.6	13.4	13.7	14.1	13.7	13.5	13.1	-0.4	-6.3 sss	-32.7
Hallucinogens	6.1	6.3	7.0	7.7	8.9	10.0	<u>10.2</u>	9.5	9.0	8.5†	<b>9.2</b>	7.6	6.9	6.3	5.9	5.7	5.8	5.6	-0.1	-3.6 sss	-38.8
LSD	5.5	5.7	6.5	6.9	8.1	8.9	<b>9.1</b>	8.3	7.9	7.2	6.5	5.0	3.7	3.0	2.6	2.5	2.6	2.7	+0.1	-6.3 sss	-69.8
Hallucinogens other than LSD	2.4	2.5	2.7	3.6	3.9	4.8	<u>4.9</u>	4.8	4.4	4.5†	<b>6.7</b>	6.0	5.8	5.6	5.4	5.2	5.1	4.8	-0.3	-1.9 sss	-28.0
Ecstasy (MDMA)	—	—	—	—	—	4.9	5.2	4.5	5.3	7.2	<b>8.0</b>	6.9	5.4	4.7	4.0	4.3	4.5	4.1	-0.4	-3.9 sss	-48.4
Cocaine	4.6	4.0	4.1	4.5	5.1	6.0	6.6	7.0	<b>7.2</b>	6.5	5.9	5.7	5.3	5.5	5.5	5.3	5.2	4.8	-0.4	-2.4 sss	-33.6
Crack	2.0	1.9	2.0	2.5	2.8	3.2	3.4	<b>3.8</b>	<b>3.8</b>	3.5	3.2	3.2	2.9	2.9	2.8	2.6	2.5	2.2	-0.3	-1.6 sss	-42.2
Other cocaine	4.1	3.5	3.6	3.9	4.2	5.2	5.9	6.1	<b>6.3</b>	5.6	5.1	4.8	4.5	4.7	4.7	4.7	4.6	4.1	-0.5	-2.2 sss	-34.4
Heroin	1.1	1.3	1.3	1.6	1.9	2.1	2.1	<b>2.2</b>	<b>2.2</b>	2.1	1.7	1.7	1.5	1.5	1.5	1.4	1.4	1.3	-0.2	-1.0 sss	-43.2
With a needle	—	—	—	—	1.1	1.2	1.1	1.1	<b>1.3</b>	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	-0.1	-0.5 sss	-39.9
Without a needle	—	—	—	—	1.3	1.7	1.7	1.6	1.6	<b>1.8</b>	1.3	1.3	1.3	1.2	1.1	1.0	1.0	0.9	-0.1	-0.8 sss	-47.0
Amphetamines	12.9	12.5	13.8	14.3	15.2	<b>15.5</b>	15.2	14.5	14.0	13.5	13.9	13.1	11.8	11.2	10.3	10.1	9.5	8.6	-0.9 s	-6.9 sss	-44.3
Methamphetamine	—	—	—	—	—	—	—	—	<b>6.5</b>	6.2	5.8	5.3	5.0	4.5	3.9	3.4	2.5	2.5	+0.0	-4.0 sss	-61.9
Tranquilizers	5.5	5.3	5.4	5.5	5.8	6.5	6.6	6.9	<u>7.0</u>	<b>6.9</b> †	<b>7.9</b>	7.3	7.1	6.8	7.0	6.7	6.3	6.3	-0.4	-1.5 sss	-19.5
Alcohol	<u>80.1</u>	79.2†	68.4	68.4	68.2	68.4	<b>68.8</b>	67.4	66.4	66.6	65.5	62.7	61.7	60.5	58.6	57.0	56.3	55.1	-1.2	-13.7 sss	-19.9
Been drunk	<b>46.3</b>	44.9	44.6	44.3	44.5	45.1	45.7	44.0	43.7	44.0	43.4	40.5	38.9	39.4	38.4	37.6	36.6	35.1	-1.5 s	-11.2 sss	-24.1
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	<b>54.7</b>	<b>54.7</b>	53.1	51.3	49.3	-2.0 s	-5.3 sss	-9.8
Cigarettes	53.5	53.0	54.0	54.6	55.8	<b>57.8</b>	57.4	56.0	54.5	51.8	49.1	44.2	40.8	39.6	37.4	35.0	33.3	31.3	-2.0 sss	-26.5 sss	-45.9
Smokeless Tobacco	—	26.2	25.6	<b>26.3</b>	26.0	25.7	22.7	21.1	19.4	17.9	16.6	15.2	14.1	13.6	13.8	13.3	12.9	12.3	-0.6	-14.0 sss	-53.2
Steroids	1.9	1.8	1.8	2.1	2.1	1.8	2.1	2.3	2.8	3.0	<b>3.3</b>	3.0	3.0	2.5	2.1	2.0	1.8	1.6	-0.2	-1.7 sss	-50.5

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Values in **bold** equal peak levels since 1991.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

† indicates a change in the question text.

Underlined values equal peak level before wording change.

When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

<sup>a</sup>The proportional change is the percent by which the most recent year deviates from the peak year for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

**TABLE F-2**  
**Trends in Annual Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008		Peak year-2008	
	change																			Absolute	Proportional	
																				change	change (%) <sup>a</sup>	
Any Illicit Drug	20.2	19.7	23.2	27.6	31.0	33.6	<b>34.1</b>	32.2	31.9	31.4	31.8	30.2	28.4	27.6	27.1	25.8	24.8	24.9	+0.1	-9.1 sss	-26.8	
Any Illicit Drug other than Marijuana	12.0	12.0	13.6	14.6	16.4	<u>17.0</u>	16.8	15.8	15.6	15.3 <sup>†</sup>	<b>16.3</b>	14.6	13.7	13.5	13.1	12.7	12.4	11.9	-0.5	-4.5 sss	-27.3	
Any Illicit Drug including Inhalants	23.5	23.2	26.7	31.1	34.1	36.6	<b>36.7</b>	35.0	34.6	34.1	34.3	32.3	30.8	30.1	30.1	28.7	27.6	27.6	-0.0	-9.1 sss	-24.8	
Marijuana/Hashish	15.0	14.3	17.7	22.5	26.1	29.0	<b>30.1</b>	28.2	27.9	27.2	27.5	26.1	24.6	23.8	23.4	22.0	21.4	21.5	+0.2	-8.5 sss	-28.3	
Inhalants	7.6	7.8	8.9	9.6	<b>10.2</b>	9.9	9.1	8.5	7.9	7.7	6.9	6.1	6.2	6.7	7.0	6.9	6.4	6.4	-0.0	-3.8 sss	-37.3	
Hallucinogens	3.8	4.1	4.8	5.2	6.6	<u>7.2</u>	6.9	6.3	6.1	5.4 <sup>†</sup>	<b>6.0</b>	4.5	4.1	4.0	3.9	3.6	3.8	3.8	+0.1	-2.2 sss	-36.0	
LSD	3.4	3.8	4.3	4.7	5.9	<b>6.3</b>	6.0	5.3	5.3	4.5	4.1	2.4	1.6	1.6	1.5	1.4	1.7	1.9	+0.2	-4.5 sss	-70.6	
Hallucinogens other than LSD	1.3	1.4	1.7	2.2	2.7	<u>3.2</u>	<u>3.2</u>	3.1	2.9	2.8 <sup>†</sup>	<b>4.0</b>	3.7	3.6	3.6	3.4	3.3	3.3	3.2	-0.1	-0.9 sss	-21.7	
Ecstasy (MDMA)	—	—	—	—	—	—	3.1	3.4	2.9	3.7	5.3	<b>6.0</b>	4.9	3.1	2.6	2.4	2.7	3.0	2.9	-0.2	-3.2 sss	-52.6
Cocaine	2.2	2.1	2.3	2.8	3.3	4.0	4.3	<b>4.5</b>	4.5	3.9	3.5	3.7	3.3	3.5	3.5	3.5	3.4	2.9	-0.5 s	-1.5 sss	-34.2	
Crack	1.0	1.1	1.2	1.5	1.8	2.0	2.1	<b>2.4</b>	2.2	2.1	1.8	2.0	1.8	1.7	1.6	1.5	1.5	1.3	-0.2 s	-1.1 sss	-45.8	
Other cocaine	2.0	1.8	2.0	2.3	2.8	3.4	3.7	3.7	<b>4.0</b>	3.3	3.0	3.1	2.8	3.1	3.0	3.1	2.9	2.6	-0.4	-1.4 sss	-36.0	
Heroin	0.5	0.6	0.6	0.9	1.2	<b>1.3</b>	<b>1.3</b>	1.2	<b>1.3</b>	<b>1.3</b>	0.9	1.0	0.8	0.9	0.8	0.8	0.8	0.8	-0.0	-0.5 sss	-38.4	
With a needle	—	—	—	—	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-0.0	-0.2 ss	-30.9	
Without a needle	—	—	—	—	0.9	0.9	1.0	0.9	1.0	<b>1.1</b>	0.7	0.7	0.6	0.7	0.7	0.6	0.7	0.6	-0.1	-0.5 sss	-47.8	
OxyContin	—	—	—	—	—	—	—	—	—	—	—	2.7	3.2	3.3	3.4	<b>3.5</b>	<b>3.5</b>	3.4	-0.1	-0.1	-3.2	
Vicodin	—	—	—	—	—	—	—	—	—	—	—	6.0	<b>6.6</b>	5.8	5.7	6.3	6.2	6.1	-0.1	-0.4	-6.4	
Amphetamines	7.5	7.3	8.4	9.1	10.0	<b>10.4</b>	10.1	9.3	9.0	9.2	9.6	8.9	8.0	7.6	7.0	6.8	6.5	5.8	-0.7 s	-4.6 sss	-44.1	
Ritalin	—	—	—	—	—	—	—	—	—	—	<b>4.2</b>	3.8	3.5	3.6	3.3	3.5	2.8	2.6	-0.3	-1.6 sss	-38.3	
Methamphetamine	—	—	—	—	—	—	—	—	<b>4.1</b>	3.5	3.4	3.2	3.0	2.6	2.4	2.0	1.4	1.3	-0.1	-2.8 sss	-68.0	
Tranquilizers	2.8	2.8	2.9	3.1	3.7	4.1	4.1	4.4	4.4	<u>4.5</u> <sup>†</sup>	<b>5.5</b>	5.3	4.8	4.8	4.7	4.6	4.5	4.3	-0.2	-1.2 sss	-22.6	
Rohypnol	—	—	—	—	—	<u>1.1</u>	<u>1.1</u>	<u>1.1</u>	0.8	0.7	0.9 <sup>†</sup>	0.8	0.8	<b>0.9</b>	0.8	0.7	0.8	0.7	-0.1	-0.2	-24.4	
GHB	—	—	—	—	—	—	—	—	—	<b>1.4</b>	1.2	1.2	1.2	1.1	0.8	0.9	0.7	0.9	+0.2	-0.4 ss	-31.5	
Ketamine	—	—	—	—	—	—	—	—	—	<b>2.0</b>	1.9	<b>2.0</b>	1.7	1.3	1.0	1.1	1.0	1.2	+0.2	-0.8 sss	-39.4	
Alcohol	<u>67.4</u>	66.3 <sup>†</sup>	59.7	60.5	60.4	60.9	<b>61.4</b>	59.7	59.0	59.3	58.2	55.3	54.4	54.0	51.9	50.7	50.2	48.7	-1.4 s	-12.6 sss	-20.6	
Been drunk	35.8	34.3	34.3	35.0	35.9	36.7	<b>36.9</b>	35.5	36.0	35.9	35.0	32.1	31.2	32.5	30.8	30.7	29.7	28.1	-1.6 s	-8.8 sss	-23.8	
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	<b>44.5</b>	43.9	42.4	40.8	39.0	-1.8	-5.5 sss	-12.3	
Steroids	1.2	1.1	1.0	1.2	1.3	1.1	1.2	1.3	1.7	1.9	<b>2.0</b>	<b>2.0</b>	1.7	1.6	1.3	1.3	1.1	1.1	+0.0	-0.9 sss	-46.9	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between classes: s = .05, ss = .01, sss = .001.  
Values in **bold** equal peak levels since 1991.

“†” indicates a change in the question text.  
Underlined values equal peak level before wording change.

When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

<sup>a</sup>The proportional change is the percent by which the most recent year deviates from the peak year for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

**TABLE F-3**  
**Trends in 30-Day Prevalence of Use of Various Drugs for Grades 8, 10, and 12 Combined**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008		Peak year-2008 change	
																				Absolute change	Proportional change (%) <sup>a</sup>	
Any illicit Drug	10.9	10.5	13.3	16.8	18.6	<b>20.6</b>	20.5	19.5	19.5	19.2	19.4	18.2	17.3	16.2	15.8	14.9	14.8	14.6	-0.2	-6.0 sss	-29.0	
Any illicit Drug other than Marijuana	5.4	5.5	6.5	7.1	<u>8.4</u>	<u>8.4</u>	<u>8.4</u>	8.2	7.9	8.0†	<b>8.2</b>	7.7	7.1	7.0	6.7	6.4	6.4	5.9	-0.6 s	-2.3 sss	-28.2	
Any illicit Drug including Inhalants	13.0	12.5	15.4	18.9	20.7	<b>22.4</b>	22.2	21.1	21.1	21.0	20.8	19.5	18.6	17.5	17.5	16.5	16.5	16.1	-0.4	-6.2 sss	-27.9	
Marijuana/Hashish	8.3	7.7	10.2	13.9	15.6	17.7	<b>17.9</b>	16.9	16.9	16.3	16.6	15.3	14.8	13.6	13.4	12.5	12.4	12.5	+0.1	-5.5 sss	-30.5	
Inhalants	3.2	3.3	3.8	4.0	<b>4.3</b>	3.9	3.7	3.4	3.3	3.2	<b>2.8</b>	2.7	2.7	2.9	2.9	2.7	2.6	2.6	+0.0	-1.7 sss	-38.7	
Hallucinogens	1.5	1.6	1.9	2.2	<u>3.1</u>	2.7	3.0	2.8	2.5	2.0†	<b>2.3</b>	1.7	1.5	1.5	1.5	1.3	1.4	1.4	-0.0	-0.8 sss	-37.0	
LSD	1.3	1.5	1.6	1.9	<b>2.8</b>	2.1	2.4	2.3	2.0	1.4	1.5	0.7	0.6	0.6	0.6	0.6	0.6	0.7	+0.1	-2.0 sss	-73.0	
Hallucinogens other than LSD	0.5	0.5	0.7	1.0	<u>1.2</u>	<u>1.2</u>	<u>1.2</u>	<u>1.2</u>	1.1	1.1†	<b>1.4</b>	1.4	1.2	1.3	1.2	1.1	1.1	1.1	-0.1	-0.3 ss	-24.3	
Ecstasy (MDMA)	—	—	—	—	—	1.5	1.3	1.2	1.6	<b>2.4</b>	<b>2.4</b>	1.8	1.0	0.9	0.9	1.0	1.1	1.2	+0.1	-1.2 sss	-49.8	
Cocaine	0.8	0.9	0.9	1.2	1.5	1.7	1.8	<b>1.9</b>	<b>1.9</b>	1.7	1.5	1.6	1.4	1.6	1.6	1.6	1.4	1.3	-0.1	-0.6 sss	-32.9	
Crack	0.4	0.5	0.5	0.7	0.8	0.9	0.8	<b>1.0</b>	0.9	0.9	0.9	1.0	0.8	0.8	0.8	0.7	0.7	0.6	-0.1	-0.4 sss	-40.1	
Other cocaine	0.7	0.7	0.8	1.1	1.2	1.3	1.5	1.6	<b>1.7</b>	1.4	1.3	1.3	1.2	1.4	1.3	1.4	1.1	1.1	-0.0	-0.6 sss	-35.2	
Heroin	0.2	0.3	0.3	0.4	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	+0.0	-0.1 ss	-26.9	
With a needle	—	—	—	—	0.3	<b>0.4</b>	0.3	<b>0.4</b>	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-0.0	-0.1 s	-29.4	
Without a needle	—	—	—	—	0.4	0.4	<b>0.5</b>	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	-0.0	-0.2 sss	-48.2	
Amphetamines	3.0	3.3	3.9	4.0	4.5	<b>4.8</b>	4.5	4.3	4.2	4.5	4.7	4.4	3.9	3.6	3.3	3.0	3.2	2.6	-0.6 sss	-2.1 sss	-45.0	
Methamphetamine	—	—	—	—	—	—	—	—	—	<b>1.5</b>	1.4	<b>1.5</b>	1.4	1.1	0.9	0.7	0.5	0.7	+0.2	-0.8 sss	-54.7	
Tranquilizers	1.1	1.1	1.1	1.3	1.6	1.7	1.7	1.9	1.9	<u>2.1†</u>	2.3	<b>2.4</b>	2.2	2.1	2.1	2.1	2.0	1.9	-0.2	-0.5 sss	-22.1	
Alcohol	<u>39.8</u>	<u>38.4†</u>	36.3	37.6	37.8	<b>38.8</b>	38.6	37.4	37.2	36.6	35.5	33.3	33.2	32.9	31.4	31.0	30.1	28.1	-2.0 sss	-10.6 sss	-27.4	
Been drunk	19.2	17.8	18.2	19.3	20.3	20.4	<b>21.2</b>	20.4	20.6	20.3	19.7	17.4	17.7	18.1	17.0	17.4	16.5	14.9	-1.6 ss	-6.3 sss	-29.8	
Flavored alcoholic beverages	—	—	—	—	—	—	—	—	—	—	—	—	—	—	<b>23.0</b>	21.6	21.7	20.4	18.6	-1.8 ss	-19.4	
Cigarettes	20.7	21.2	23.4	24.7	26.6	<b>28.3</b>	<b>28.3</b>	27.0	25.2	22.6	20.2	17.7	16.6	16.1	15.3	14.4	13.6	12.6	-1.0 s	-15.7 sss	-55.5	
Smokeless Tobacco	—	9.2	9.1	<b>9.7</b>	9.6	8.5	8.0	7.0	6.3	5.8	6.1	5.2	5.3	5.1	5.3	5.1	5.2	4.9	-0.3	-4.8 sss	-49.8	
Steroids	0.6	0.6	0.6	0.7	0.6	0.5	0.7	0.7	0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.7	0.7	0.6	+0.0	-0.4 sss	-38.2	

Source. The Monitoring the Future study, the University of Michigan.

Notes. Level of significance of difference between classes: s = .05, ss = .01, sss = .001.

Values in **bold** equal peak levels since 1991.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

“†” indicates a change in the question text.

Underlined values equal peak level before wording change.

When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

<sup>a</sup>The proportional change is the percent by which the most recent year deviates from the peak year for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

**TABLE F-4**  
**Trends in Daily Prevalence of Use of Selected Drugs for Grades 8, 10, and 12 Combined**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2007–2008		Peak year–2008 change	
																				Absolute change	Proportional change (%) <sup>a</sup>	
Marijuana	0.9	0.9	1.2	2.1	2.7	3.2	3.4	3.4	3.5	3.5	<b>3.7</b>	3.5	3.4	3.0	2.9	2.8	2.7	2.8	+0.1	-0.8 sss	-22.9	
Alcohol	<u>1.7</u>	1.6†	2.0	1.8	1.9	2.0	2.1	<b>2.2</b>	2.0	1.7	2.0	1.9	1.7	1.5	1.5	1.5	1.6	1.4	-0.2	-0.8 sss	-35.2	
5+ drinks in a row in last 2 weeks <sup>b</sup>	20.0	19.0	19.5	20.3	21.1	<b>21.9</b>	<b>21.9</b>	21.5	21.7	21.2	20.4	18.9	18.6	18.8	17.5	17.4	17.2	15.5	-1.7 sss	-6.4 sss	-29.2	
Been drunk	0.4	0.4	0.5	0.6	0.7	0.7	<b>0.9</b>	0.8	<b>0.9</b>	0.8	0.7	0.6	0.7	0.7	0.6	0.7	0.6	0.6	-0.1	-0.3 sss	-37.4	
Cigarettes	12.4	11.9	13.5	14.0	15.5	16.8	<b>16.9</b>	15.4	15.0	13.4	11.6	10.2	9.3	9.0	8.0	7.6	7.1	6.4	-0.7 s	-10.5 sss	-62.0	
1/2 pack+/day	6.5	6.1	6.9	7.2	7.9	<b>8.7</b>	8.6	7.9	7.6	6.4	5.7	4.9	4.5	4.1	3.7	3.4	3.0	2.7	-0.3	-6.1 sss	-69.3	
Smokeless tobacco	—	<b>3.0</b>	2.7	2.9	2.5	2.3	2.5	2.1	1.7	1.9	2.0	1.4	1.6	1.7	1.6	1.5	1.6	1.6	-0.1	-1.4 sss	-47.6	

Source: The Monitoring the Future study, the University of Michigan.

Notes: Level of significance of difference between classes: s = .05, ss = .01, sss = .001.  
 Values in **bold** equal peak levels since 1991.

Any apparent inconsistency between the change estimate and the prevalence estimates for the two most recent years is due to rounding.

“†” indicates a change in the question text.

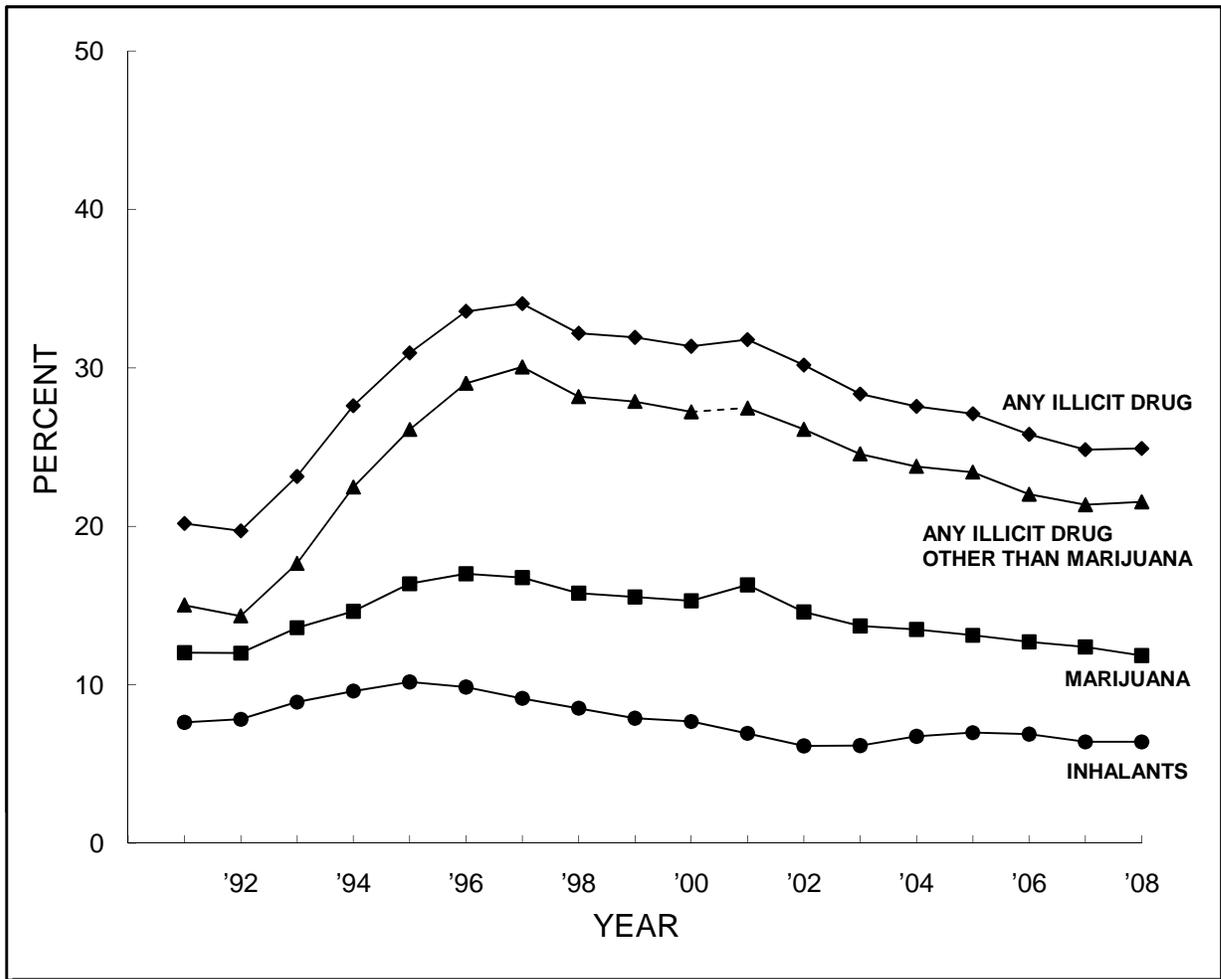
Underlined values equal peak level before wording change.

When a question change occurs, peak levels after that change are used to calculate the peak year to current year difference.

<sup>a</sup>The proportional change is the percent by which the most recent year deviates from the peak year for the drug in question. So, if a drug was at 20% prevalence in the peak year and declined to 10% prevalence in the most recent year, that would reflect a proportional decline of 50%.

<sup>b</sup>For 8th and 10th graders only: The 1991–2007 estimates for five or more drinks in a row differ slightly from some previous reports due to an error in the data editing process prior to 2008. The revised estimates average about 2 percentage points lower than the estimates previously reported. Those previous overestimates have been corrected in this table.

**FIGURE F-1**  
**Any Illicit Drug, Marijuana, and Inhalants: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**

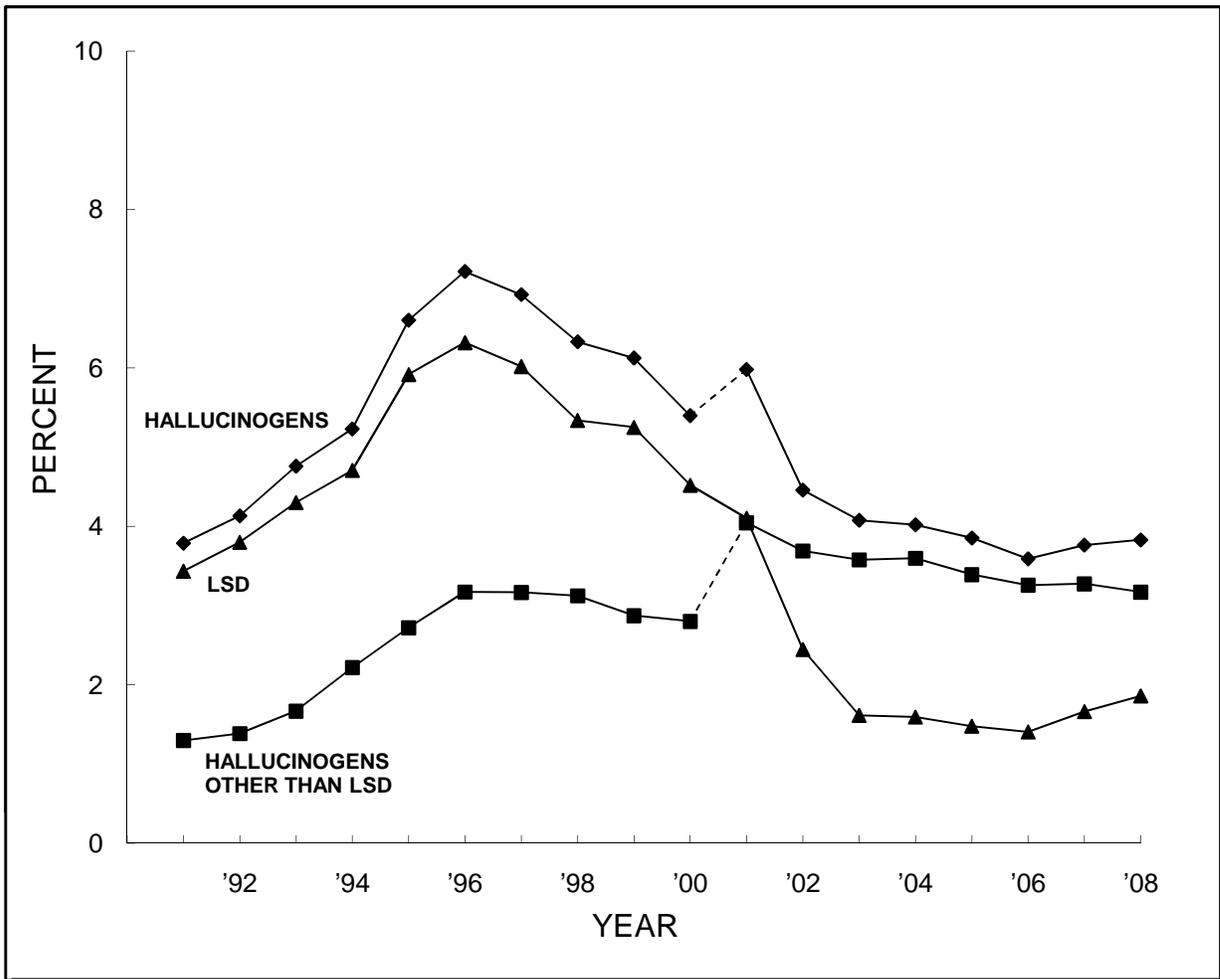


Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

Beginning in 2001, revised sets of questions on other hallucinogen and tranquilizer use were introduced. Data for "any illicit drug other than marijuana" are slightly affected by these changes. From 2001 on, data points are based on the revised questions.

**FIGURE F-2**  
**Hallucinogens: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**

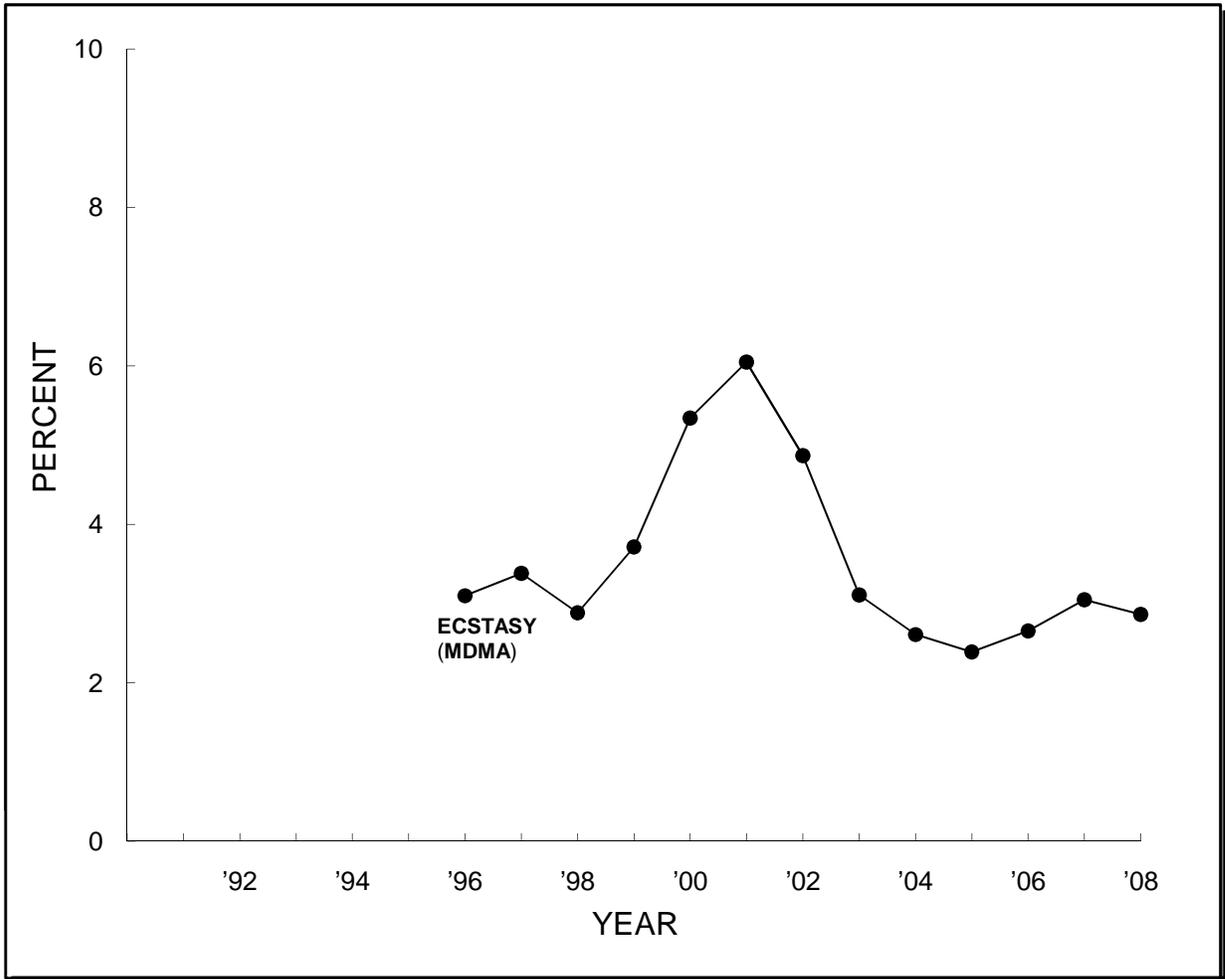


Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

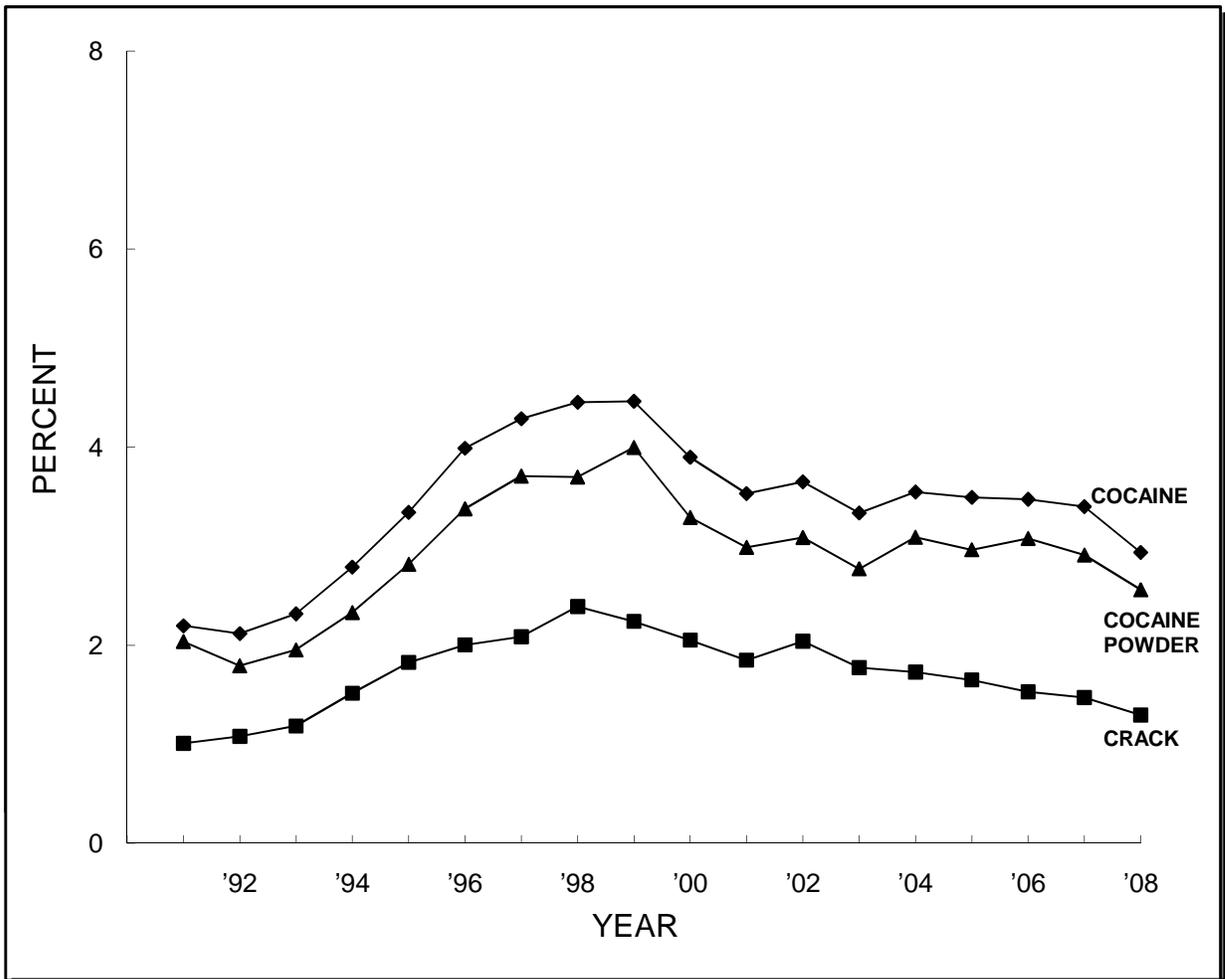
Beginning in 2001, a revised set of questions on other hallucinogens was introduced in which "shrooms" was added to the list of examples. Data for hallucinogens were also affected by this change. From 2001 on, data points are based on the revised questions.

**FIGURE F-3**  
**Ecstasy (MDMA): Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**



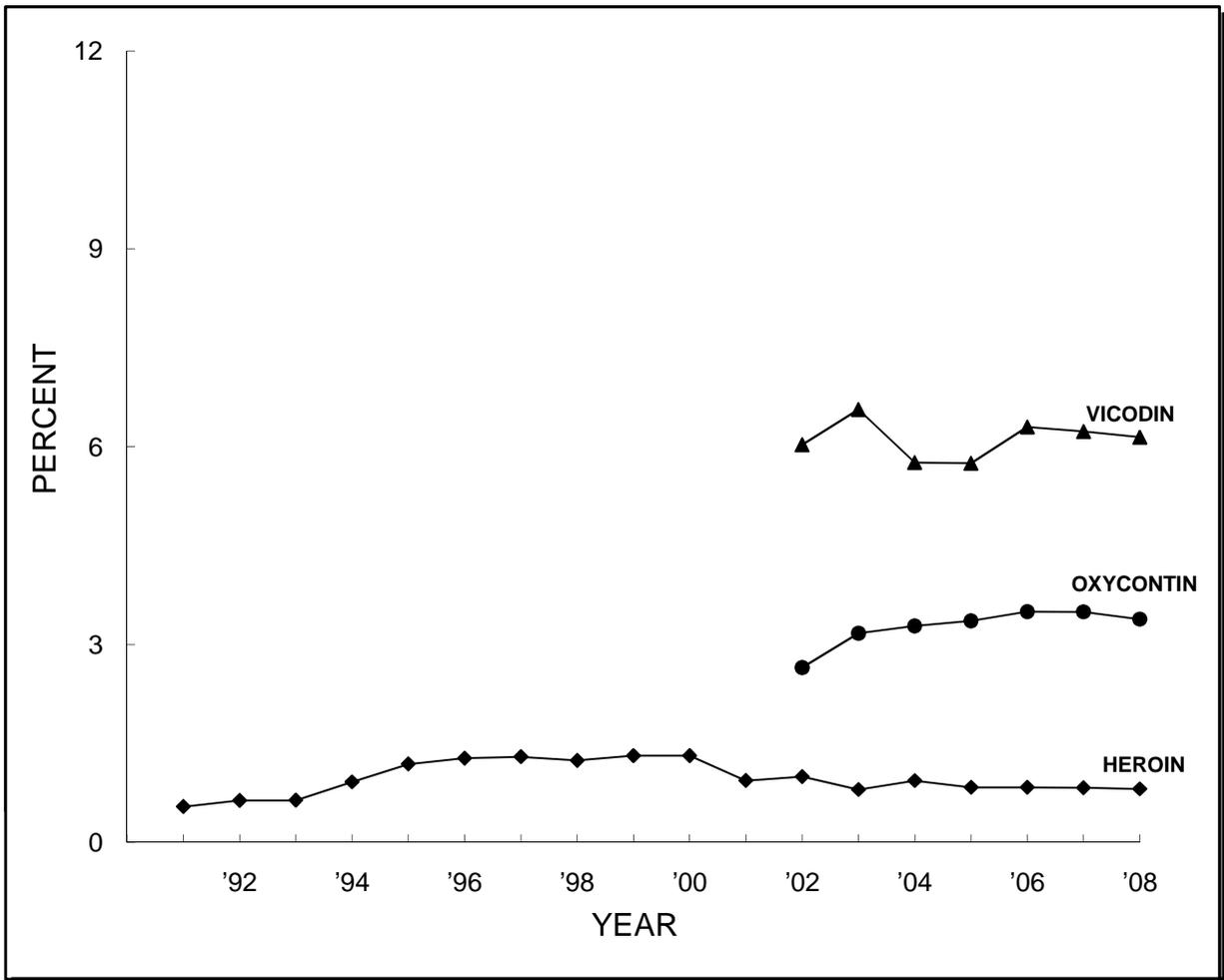
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE F-4**  
**Cocaine and Crack: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**



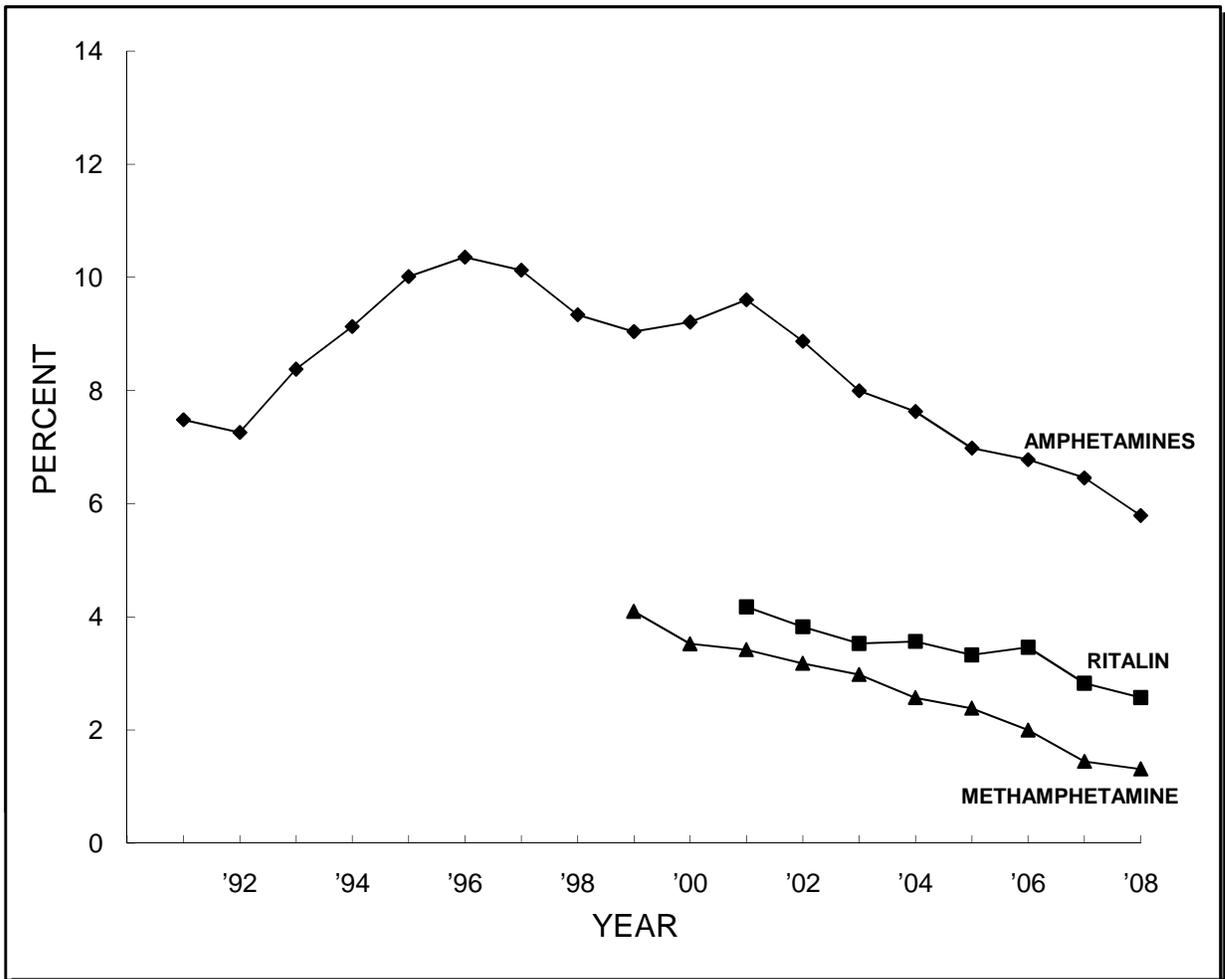
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE F-5**  
**Heroin and Narcotics other than Heroin: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**



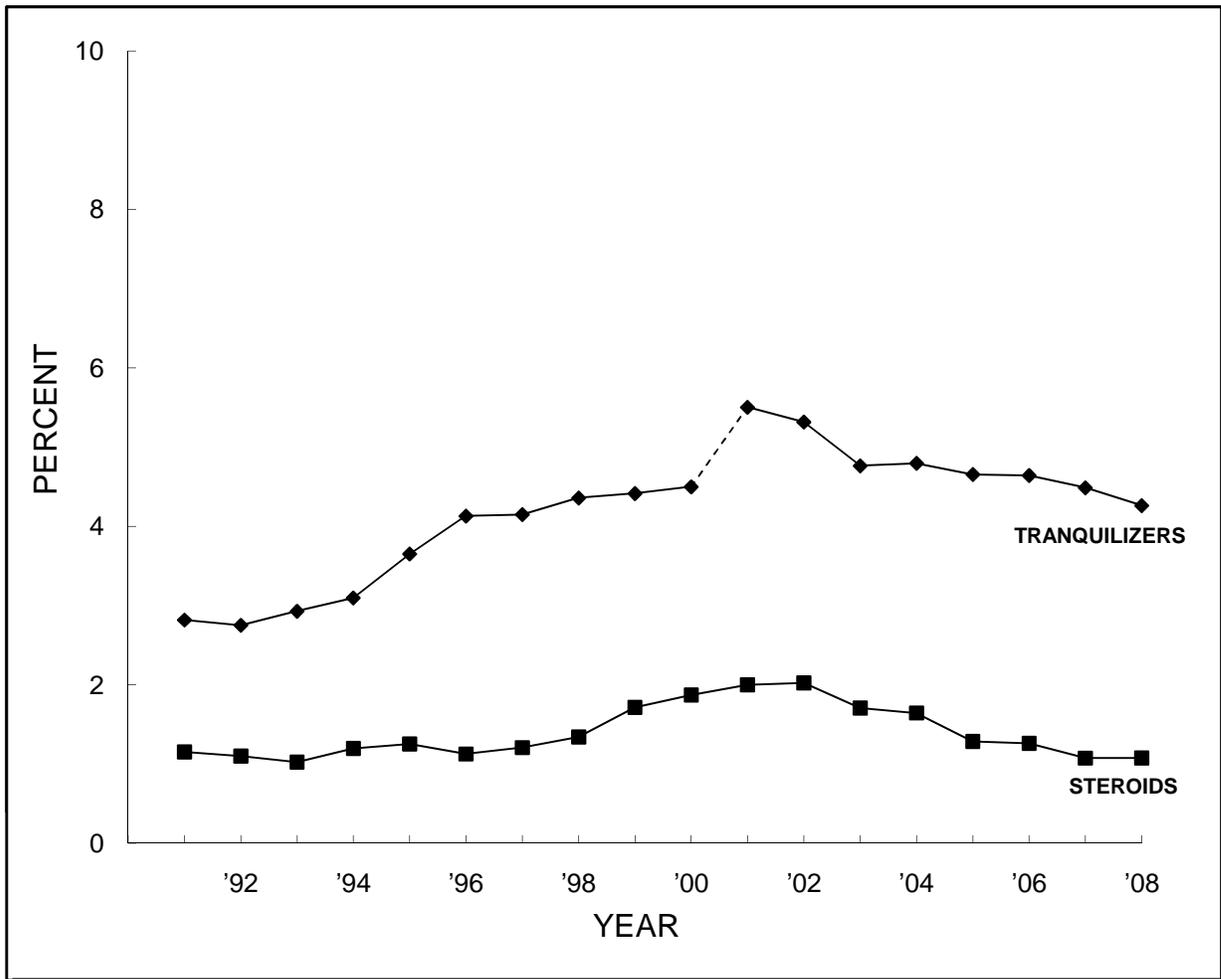
Source. The Monitoring the Future study, the University of Michigan.

**FIGURE F-6**  
**Stimulant Drugs: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**



Source. The Monitoring the Future study, the University of Michigan.

**FIGURE F-7**  
**Tranquilizers and Steroids: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**

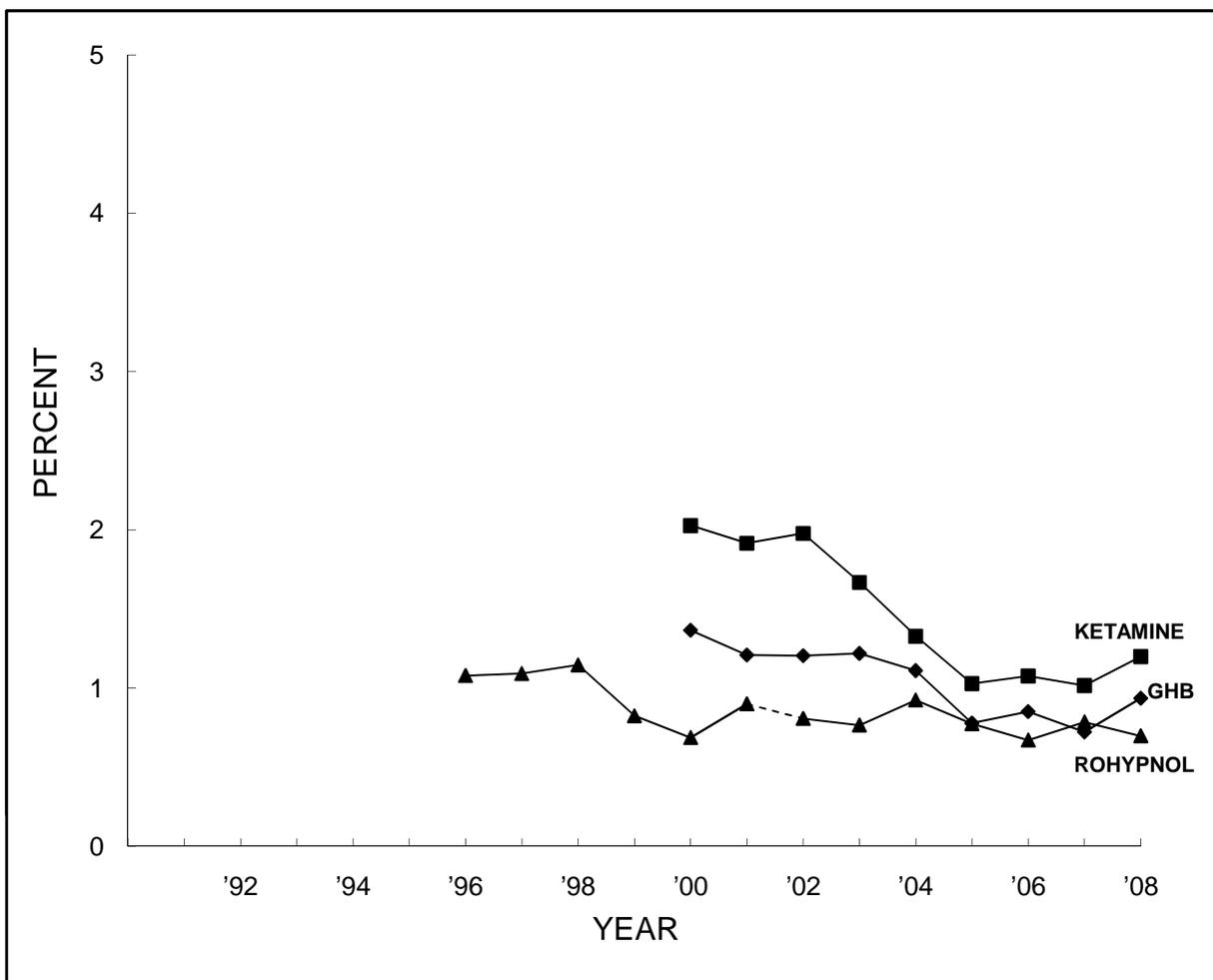


*Source.* The Monitoring the Future study, the University of Michigan.

*Notes.* A dashed line indicates a change in the question text between the years it connects.

Beginning in 2001, a revised set of questions on use of tranquilizers was introduced in which "Xanax" replaced "Miltown" in the list of examples. From 2001 on, data points are based on the revised questions.

**FIGURE F-8**  
**Club Drugs: Trends in Annual Prevalence**  
**for Grades 8, 10, and 12 Combined**

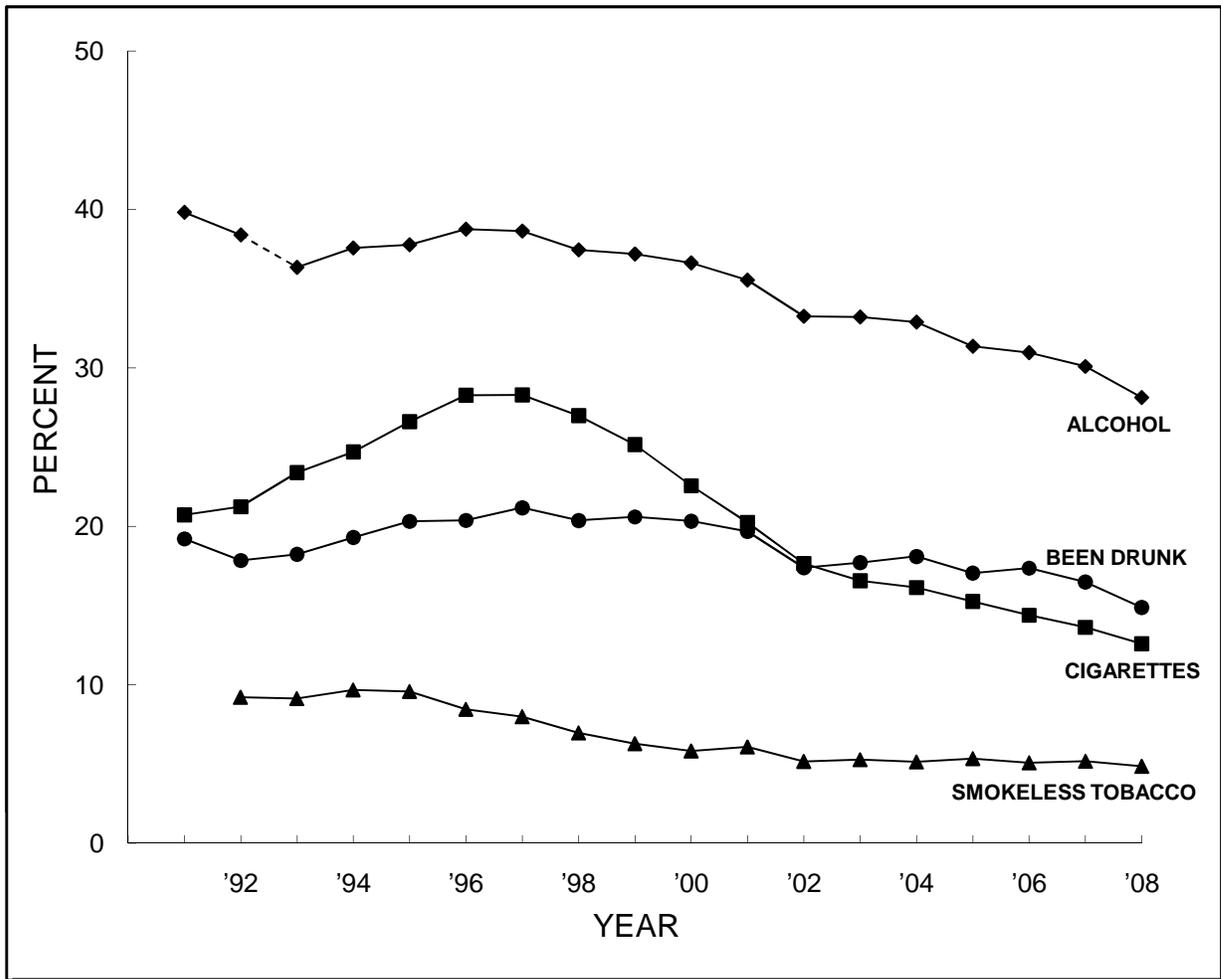


Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

Beginning in 2002, for 12th graders only, the lifetime and 30-day questions on Rohypnol were eliminated from the questionnaire. As a result, the 2001 and 2002 data are not entirely comparable because of the change in context of the question about annual use.

**FIGURE F-9**  
**Alcohol and Tobacco: Trends in 30-Day Prevalence**  
**for Grades 8, 10, and 12 Combined**



Source. The Monitoring the Future study, the University of Michigan.

Notes. A dashed line indicates a change in the question text between the years it connects.

Beginning in 1993, a revised set of questions on use of alcohol was introduced in which a drink was defined as "more than just a few sips." From 1993 on, data points are based on the revised questions.

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