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**Smoking rates climb among American teen-agers,
who find smoking increasingly acceptable and
seriously underestimate the risks.**

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EDITORS: For more information about the study, contact Lloyd D. Johnston, Ph.D., the principal investigator, at (313) 763-5043.

ANN ARBOR---Reporting on their 20th national survey of American high school seniors, and their fourth national survey of eighth- and tenth-grade students, scientists at the University of Michigan Survey Research Center conclude that cigarette smoking is rising among young Americans.

“For more than a decade we have been reporting that the smoking rate among American high school seniors was holding constant despite the accumulating evidence of smoking's lethal effects, despite the many new restrictions on cigarette smoking, and despite the fact that smoking has fallen considerably among adults,” states Lloyd D. Johnston, the principal investigator of the study.

Johnston and colleagues Jerald G. Bachman and Patrick M. O'Malley have directed the Monitoring the Future Study of licit and illicit drug use for over 20 years, under a series of research grants from the National Institute on Drug Abuse.

(more)

(7) Cigarettes---Page 2

“We are now in a period of clear and continuing increase in cigarette smoking among teens. Twelfth-graders showed an increase in smoking which began in 1992, while the eighth- and tenth-graders have shown a steady increase since first surveyed in 1991,” states Johnston. (See Figure 1) “This is extremely bad news for the health and longevity of the next generation.”

The proportional increase in smoking is greatest among the eighth-graders, who are 13- to 14-years-old. Their rate of current smoking---that is, smoking any cigarettes in the past 30 days---rose by 30 percent between 1991 and 1994, from 14.3 percent to 18.6 percent. Tenth-graders’ current smoking rate increased by more than two-tenths, from 20.8 percent to 25.4 percent over the same interval. Among high school seniors, the current smoking rate has been increasing since 1992, and has risen by one-eighth, from 27.8 percent to 31.2 percent in 1994. (See Figure 1 and Table 1.)

“While the daily smoking rates are at lower levels, the increases in them are of the same order of magnitude,” states Johnston, “and, of course, a great many of the lighter smokers at these young ages are on their way to becoming heavy smokers.” The daily smoking rates for eighth-, 10th- and 12th-grade students in 1994 are 9 percent, 15 percent, and 19 percent, respectively.

The investigators conclude that teen-agers greatly underestimate the dangers of smoking, with only about half of all eighth-graders believing that smokers run a great risk of harming themselves by smoking a pack or more daily. (See Figure 4.) At 13 to 14 years old, eighth-graders are at an age by which a great many of those who will eventually become smokers have already begun to smoke.

“From some of our earlier work we also know that teen-agers greatly overestimate their ability to stop smoking once they have begun,” Johnston observes, “so they are making decisions about whether or not to smoke at a very early age, with little or no appreciation of the likely consequences of those decisions.”

In fact, even before they finish high school, a majority (56 percent) of the half-pack-

(more)

a-day smokers say they tried to quit smoking and found they could not. Many of them have tried to quit on multiple occasions.

“We know that once a birth cohort establishes a particularly high or low rate of smoking in adolescence, relative to other birth cohorts, it continues to maintain a relatively high or low rate throughout the life cycle,” adds O’Malley, who has written on this subject using follow-up surveys of previous high school graduating classes. “Thus the higher rates that we are observing now are likely to remain high later in life for these children.”

The increases in smoking are very broad. They are found among boys and girls, those planning to go to college and those not (the latter tend to have much higher smoking rates), in all regions of the country, and in large cities as well as rural areas. (See Table 2.) The investigators also note that the increases are found at all socioeconomic levels and in all three of the largest racial/ethnic groups (whites, African-Americans and Hispanics). No segment of the population is being spared these increases, so all parents should be concerned, caution the investigators.

As to the likely causes of this recent upturn in smoking among American youth, the investigators point to several factors. “In addition to their unrealistically low perception of the dangers of smoking, there has been a clear weakening of peer norms against smoking,” Johnston points out. (See Figure 3 and Table 3.) “While the majority still say they disapprove of regular smoking, that proportion has been declining steadily since the early 1990s.

“In the larger context, of course, we still must explain why these smoking-related attitudes are changing, or in the case of perceived risk, why they are not changing,” Johnston says. The dangers teens associate with regular pack-a-day smoking have held fairly steady in recent years and even may have begun to decline in 1994. (See Figure 4 and Table 3.)

“For one thing, children are bombarded with images of the benefits of smoking by an industry advertising and promotion effort which approaches five billion dollars per year. Cigarette smoking is continually associated with social success, sexual attractiveness, a

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healthy demeanor, exciting sporting activities, a cool and tough image for the boys, a slender body and liberated spirit for the girls, autonomy and independence for both sexes, and so on,” says Johnston. “What else could an American adolescent want?

“And, in case the younger children don't get the point, they now have a cartoon character with which to identify. Past research has shown that he is widely known to them.

“Further, many movies and television programs portray smoking as more common and socially acceptable than it in fact is among the general population,” Johnston adds, “and it is my impression that smoking by the characters in movies and television dramas has become even more frequent. But, even if it just held steady, it would present an unrealistic portrayal, because among adults both the use of cigarettes and the acceptability of smoking have been declining substantially.”

Price is still another factor which may have contributed to the increase in smoking by young people, according to the investigators. The tobacco companies cut prices on major brands beginning in early 1993. In addition, the many new promotional prizes in effect reduce the price of the product and serve to reward use.

The investigators find that cigarettes are almost universally available to teen-agers. Three-quarters of eighth-graders and 90 percent of 10th-graders say that cigarettes are “fairly easy” or “very easy” for them to get. The investigators do not even bother to ask 12th-graders the question, believing that virtually all of them would report easy access to cigarettes. (See Table 3.) There is no evidence that availability has changed much, however. “We have never made a serious effort to control children's access to cigarettes, which itself sends a message that adults don't care much if they smoke,” observes Johnston.

The recent increase in cigarette smoking coincides with a sharp increase in marijuana use among American teens, as reported by the same study, and the investigators observe that the increase in smoking may in fact be contributing to the rise in marijuana use.

“Cigarette smoking and marijuana smoking are very highly correlated, with cigarette

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smoking usually coming first,” notes Johnston. “When you think about it, in order to smoke marijuana, youngsters must learn to take smoke into their lungs, which is not a normal behavior for any species. Cigarette smoking provides excellent training for just that.”

The implication of this increase in adolescent smoking for the country’s future rates of disease, early death, disrupted families, worker productivity, and health care costs cannot be overestimated, say the investigators. “As we and many others have observed previously, cigarettes will kill far more of today’s children than all other drugs combined, including alcohol. But because these consequences do not emerge for a few decades, we seem to be much less concerned about them. If cigarette smoking killed quickly, like drunk driving does, the country would be treating the current rates of adolescent smoking as an extreme emergency.”

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The study, titled “Monitoring the Future,” was also widely known as the National High School Senior Survey. It has been conducted under a series of research grants from the National Institute on Drug Abuse. Surveys have been carried out each year since 1975 by the University of Michigan Survey Research Center. In 1994, the seniors comprised about 16,000 seniors in 139 public and private high schools nationwide, selected to be representative of all seniors in the continental United States. They completed self-administered questionnaires given to them in their classrooms by U-M personnel. Beginning in 1991, similar surveys of nationally representative samples of eighth- and 10th-graders have been conducted annually. The 1994 eighth-grade sample contained about 18,000 students in 150 schools, and the 10th-grade sample contained 16,000 students in 130 schools. In all, approximately 50,000 students in about 420 public and private secondary schools are now surveyed annually.

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[cig]

TABLE 1

Long-Term Trends in Prevalence of Cigarettes for Eighth, Tenth, and Twelfth Graders

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
Lifetime																				
8th Grade																	44.0	45.2	45.3	46.1
10th Grade																	55.1	53.5	56.3	56.9
12th Grade	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	61.8	61.9	62.0
Thirty-Day																				
8th Grade																	14.3	15.5	16.7	18.6
10th Grade																	20.8	21.5	24.7	25.4
12th Grade	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	27.8	29.9	31.2
Daily																				
8th Grade																	7.2	7.0	8.3	8.8
10th Grade																	12.6	12.3	14.2	14.6
12th Grade	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	17.2	19.0	19.4
1/2 pack+/day																				
8th Grade																	3.1	2.9	3.5	3.6
10th Grade																	6.5	6.0	7.0	7.6
12th Grade	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	10.0	10.9	11.2
Approximate Ns:																				
8th Grade																	17500	18600	18300	17300
10th Grade																	14800	14800	15300	15800
12th Grade	9400	15400	17100	17800	15500	15900	17500	17700	16300	15900	16000	15200	16300	16300	16700	15200	15000	15800	16300	15400

NOTE: Level of significance of difference between the two years indicated: s = .05, ss = .01, sss = .001.

SOURCE: The Monitoring the Future Study, The University of Michigan.

TABLE 2
Cigarettes: Trends in Thirty-Day Prevalence
by Subgroups for Eighth, Tenth, and Twelfth Graders

	Percent Who Smoked in Last 30 Days								
	8th Grade			10th Grade			12th Grade		
	1991	1994	'91-'94 change	1991	1994	'91-'94 change	1991	1994	'91-'94 change
<i>Approximate N =</i>	17500	17300		14800	15800		15000	15400	
Total	14.3	18.6	+4.3sss	20.8	25.4	+4.6sss	28.3	31.2	+2.9ss
Sex:									
Male	15.5	19.3	+3.8sss	20.8	26.6	+5.8sss	29.0	32.9	+3.9ss
Female	13.1	17.9	+4.8sss	20.7	23.9	+3.2ss	27.5	29.2	+1.7
College Plans:									
None or under 4 yrs.	29.2	36.6	+7.4sss	36.5	42.2	+5.7ss	38.1	40.9	+2.8
Complete 4 yrs.	11.8	16.1	+4.3sss	17.3	21.7	+4.4sss	24.2	28.0	+3.8sss
Region:									
Northeast	13.7	17.8	+4.1ss	22.4	24.5	+2.1	30.5	33.2	+2.7
North Central	15.5	18.5	+3.0s	22.9	28.8	+5.9sss	34.6	36.2	+1.6
South	15.7	19.5	+3.8ss	21.2	25.7	+4.5ss	25.4	30.7	+5.3sss
West	10.0	18.0	+8.0sss	16.7	20.1	+3.4s	23.2	24.0	+0.8
Population Density:									
Large MSA	12.8	14.7	+1.9	19.7	23.5	+3.8ss	26.2	29.3	+3.1s
Other MSA	14.9	20.4	+5.5sss	20.3	25.4	+5.1sss	29.3	30.7	+1.4
Non-MSA	14.8	17.8	+3.0ss	22.7	26.7	+4.0ss	28.6	33.8	+5.2sss

NOTES: Level of significance of difference between the two indicated years: s = .05, ss = .01, sss = .001.

SOURCE: The Monitoring the Future Study, The University of Michigan.

TABLE 3

Trends in Availability and Attitudes About Smoking One or More Packs of Cigarettes per Day, for Eighth, Tenth, and Twelfth Graders

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	'93-'94 change
Perceived Risk^a																					
8th Grade																	51.6	50.8	52.7	50.8	-1.9
10th Grade																	60.3	59.3	60.7	59.0	-1.7
12th Grade	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	69.2	69.5	67.6	-1.9
Disapproval^b																					
8th Grade																	82.8	82.3	80.6	78.4	-2.2 _{ss}
10th Grade																	79.4	77.8	76.5	73.9	-2.6 _{sss}
12th Grade	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	73.5	70.6	69.8	-0.8
Availability^c																					
8th Grade																		77.8	75.5	76.1	+0.6
10th Grade																		89.1	89.4	90.3	+0.9
12th Grade																					
Approximate Ns^d:																					
8th Grade																		17500	18600	18300	17300
10th Grade																		14800	14800	15300	15800
12th Grade	1900	3100	3400	3600	3100	3200	3500	3500	3300	3200	3200	3000	3300	3300	2800	2500	2500	2600	2700	2600	

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

SOURCE: The Monitoring the Future Study, The University of Michigan.

^aThe question text was: How much do you think people risk harming themselves (physically or in other ways), if they smoke one or more packs of cigarettes per day? Answer alternatives were: (1) No risk, (2) Slight risk, (3) Moderate risk, (4) Great risk, and (5) Can't say, drug unfamiliar. The percent saying "great risk" is shown.

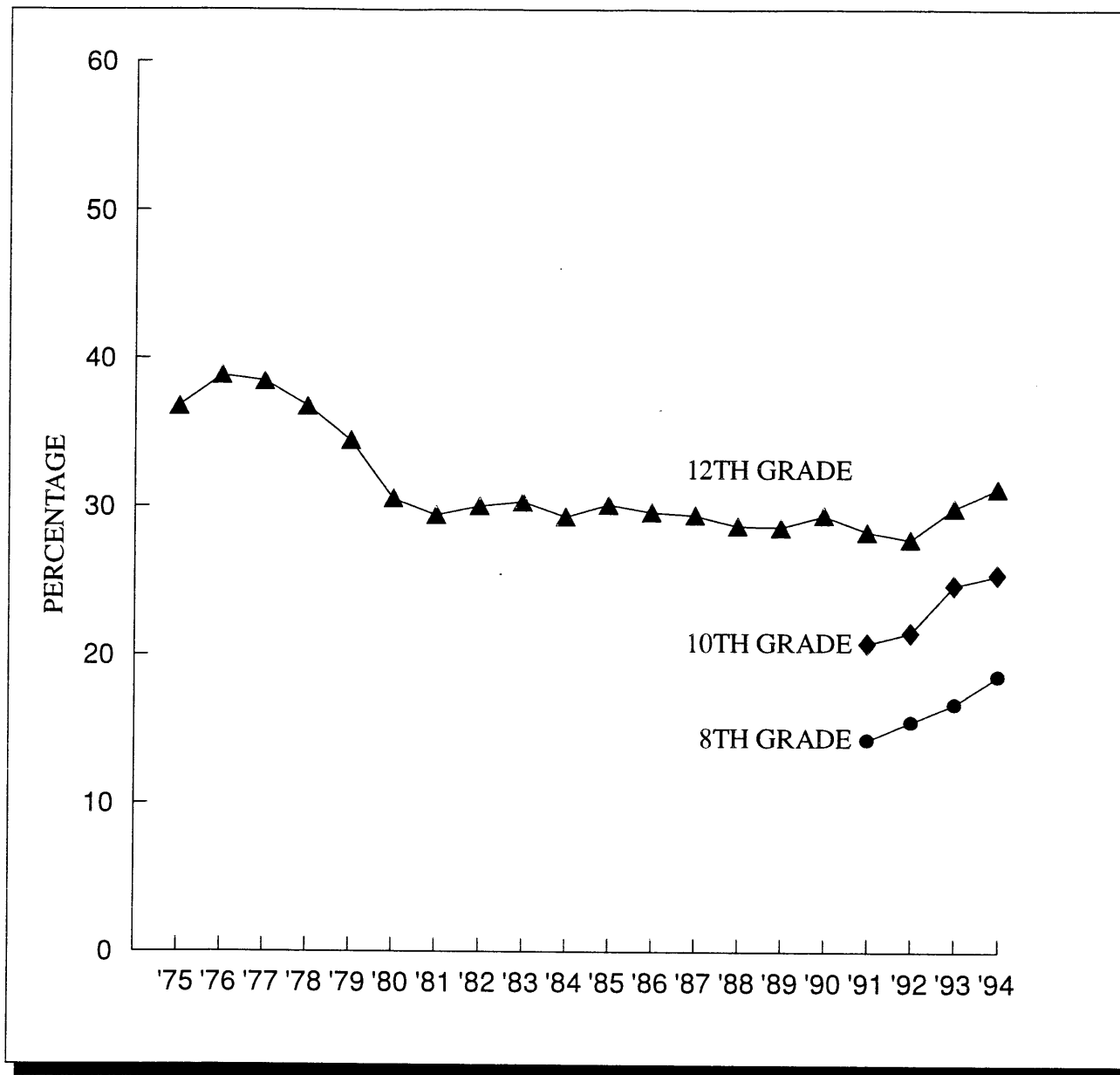
^bThe question text was: Do you disapprove of people smoking one or more packs of cigarettes per day? For 12th graders the question asked about people who are "18 or older." Answer alternatives were: (1) Don't disapprove, (2) Disapprove, and (3) Strongly disapprove. For 8th and 10th graders: there was another category - "Can't say, drug unfamiliar" - which was included in the calculation of these percentages. The percent saying they "disapprove" or "strongly disapprove" is shown.

^cThe question text was: How difficult do you think it would be for you to get cigarettes, if you wanted some? Answer alternatives were: (1) Probably impossible, (2) Very difficult, (3) Fairly difficult, (4) Fairly easy, (5) Very easy. For 8th and 10th grades, there was another category - "Can't say, drug unfamiliar" - which was included in the calculation of these percentages. For 12th graders: question not asked. The percent saying cigarettes are "fairly easy" or "very easy" to get is shown.

^dFor 8th and 10th graders: N for Availability in 1992 is one-half of N indicated.

FIGURE 1

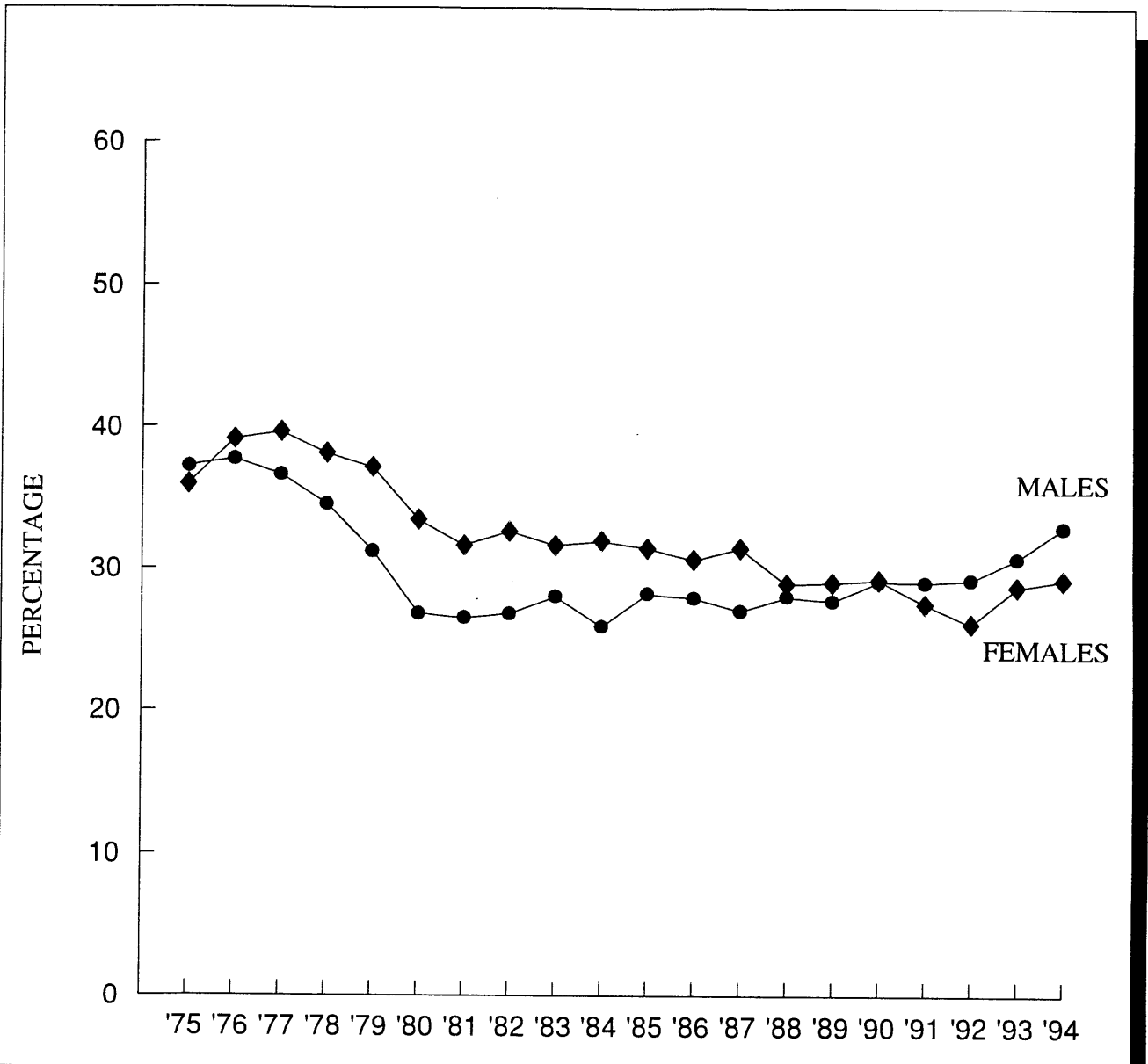
**Trends in Thirty-Day Prevalence of Cigarette Smoking
for Eighth, Tenth, and Twelfth Graders**



Source: The Monitoring the Future Study, The University of Michigan. See Table 1 for exact numbers.

FIGURE 2

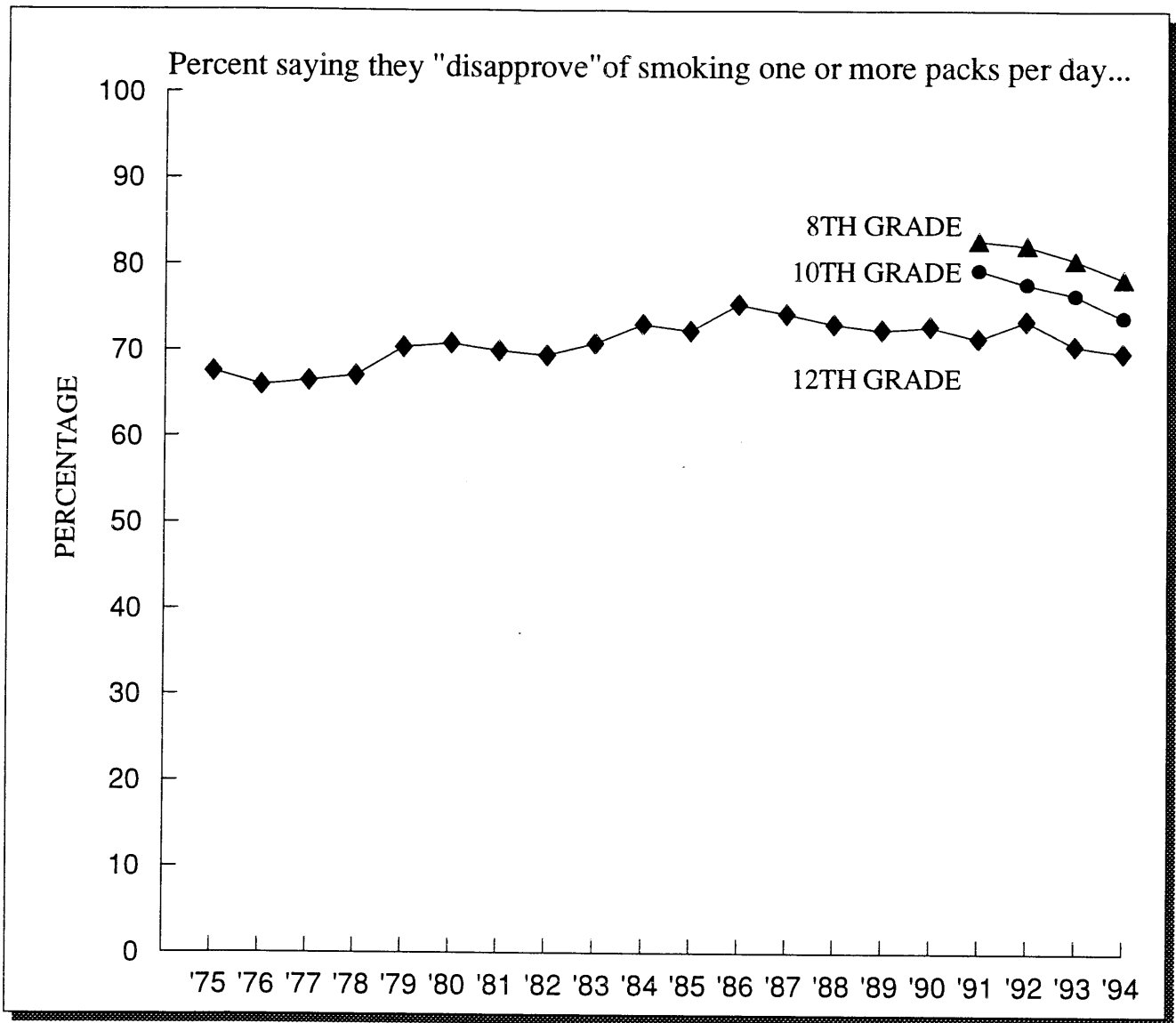
**Trends in Thirty-Day Prevalence of Cigarette Use, by Gender
Twelfth Graders**



Source: The Monitoring the Future Study, The University of Michigan. See Table 2 for exact numbers for selected years.

FIGURE 3

**Trends in Disapproval of Smoking
for Eighth, Tenth, and Twelfth Graders**



Source: The Monitoring the Future Study, The University of Michigan. See Table 3 for exact numbers.