

Oct. 4, 2007

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Early school success protects against teen and young adult drug use

ANN ARBOR, Mich.---Adolescents who do well in school are less likely to smoke, drink or do drugs. But which comes first: drug use or school failure?

A new book by researchers at the University of Michigan Institute for Social Research (ISR) provides an answer. Patterns of educational success or failure are well established for most adolescents by the time they reach the end of eighth grade, while drug use has only begun to emerge by that time.

When more opportunities for substance use do emerge, students already doing well in school are less likely to engage in such behaviors, whereas those doing poorly are more likely to do so, the researchers say.

“Grade point averages at the end of 8th grade are strongly linked to smoking at that time, and strongly predictive of later smoking,” said ISR social psychologist Jerald G. Bachman. “For example, practically none of the students with an A average were daily smokers at age 14, versus more than a quarter of the students with grades of D or lower. By age 22, half of those who had been D students had become daily smokers, compared with about a quarter of those who had been A students in eighth grade.”

The researchers tracked a national sample of more than 3,000 young people over an eight-year interval extending from mid-adolescence—average age 14—to young adulthood—average age 22. This is a period when some young people drop out of high school, others graduate and many go on to college. It is also a period when many experiment with cigarettes, alcohol, and illicit drugs, and some become regular users. “The beauty of tracking individuals through this crucial period of maturation is that we can see which events come first, and thus gain important evidence about what causes what,” Bachman said.

Bachman is the lead author of “The Education–Drug Use Connection: How Successes and Failures in School Relate to Adolescent Smoking, Drinking, Drug Use, and Delinquency,” published in September by Lawrence Erlbaum Associates/Taylor & Francis. His coauthors are U-M social scientists Patrick M. O’Malley, John E. Schulenberg, Lloyd D. Johnston, Peter Freedman-Doan, and Emily E. Messersmith.

The book reports a new set of findings from the ISR Monitoring the Future project, which has been studying drug use among youth and young adults for more than 30 years. The new findings are based on a special nationwide sample of adolescents who were first surveyed as eighth graders in 1991, 1992, and 1993, and who then completed a series of follow-up surveys at two-year intervals.

The researchers found that the strongest and most long-lasting effects of early educational success or failure are not on drinking or illicit drug use, but on cigarette use.

Smoking rates are also strongly linked with later educational attainment. By age 22, half of all high school dropouts were daily smokers, compared with only one in five of those with three or more years of college. Other long-term research from the Monitoring the Future project shows that even as late as age 40, adults with three or more years of college were about one third as likely to be daily smokers as those with only a high school diploma.

The researchers also found that earlier educational experiences such as poor grades, suspension or expulsion from school predicted the use of illegal drugs such as marijuana or cocaine.

But the effects of educational setbacks on marijuana or cocaine use were less and not as long-lasting as the impact on cigarette use.

“By the time adults reached age 40, for example, fewer than 10 percent reported any marijuana use in the past 30 days, cocaine use was far lower, and neither substance showed much difference related to educational attainment,” Bachman said.

The findings for alcohol use, and occasional heavy drinking, showed yet another pattern. Like cigarette use, alcohol use emerges fairly early. It involves larger proportions of adolescents, but usually far less intensive use.

“At ages 14 and 16, drinking is most likely among students not doing well in school. But by age 20 the college students surpass their less-educated age-mates in their use of alcohol—especially in occasions of heavy drinking,” the authors report.

Earlier Monitoring the Future research showed that heavy drinking by college students is clearly linked to their lifestyle while in college. College students are more likely to live away from their parents’ homes, and they are also more likely to delay getting married and having children than those the same age who are not in college.

“But by the time they reach their 30s, college-educated adults are actually a little less likely than average to drink heavily,” Bachman said.

Summarizing their full range of findings, the authors report that “adolescents who have not made a very good adjustment to school are disposed to become involved in a variety of problem behaviors including delinquency, smoking, drinking, and illicit drug use.”

But of all these adolescent problem behaviors, cigarette use is by far the most stubbornly resistant to change.

Bachman does not find that surprising.

“By the end of high school, the typical smoker engages in the behavior multiple times during each day—a level of involvement far exceeding what is typical for the other forms of substance use—and that helps set the stage for what often becomes a lifetime of dependence,” he said. “Unfortunately, smoking can substantially shorten that lifetime.”

The researchers examined a range of other factors that could affect both educational success and substance use. Among the most important are parents’ level of education, parents’ involvement in homework, and the presence of two parents in the home. These factors all influence how well a student does in school, and they also influence—both directly and indirectly—whether a student uses drugs.

The researchers also looked at background factors such as race and ethnicity, as well as whether students came from rural or urban areas. Although these factors showed some relationships with substance use and educational attainment, those relationships seemed largely separate from the education–drug use connections reported in the book.

In addition, the authors examined delinquency reported at average ages 14, 16, and 18, and found that it was part of “a syndrome of problem behavior or general deviance.” They thus included the delinquency measures as key factors in their analysis of the education–drug use connection.

The authors outlined the policy implications of their research in these terms: “There are many good reasons for encouraging adolescents and preadolescents to do well in school, and to help them to do well. The long-term economic and cultural benefits of a good education are widely recognized and appreciated. The findings of this research suggest an additional class of benefits: Early educational success provides considerable protection against a wide range of problem behaviors, including delinquency, smoking, drinking, and illicit drug use.”

As for whether most adolescent substance use has much impact on educational success and eventual educational attainment, the authors say instead that, “...educational failures tend to come early in the sequence of problem behaviors, followed by adolescent delinquency, smoking, drinking, and illicit drug use. In general, substance use appears to be largely a symptom, rather than a cause, of poor academic adjustment, though one can easily imagine specific examples to the contrary.”

“It is probably wishful thinking to suppose that reducing adolescent substance use will lead to substantial increases in educational success. Rather, whatever can be done to improve the educational successes of children and adolescents will likely have a very valuable additional benefit—reducing their substance abuse.”

The authors are careful to add that “we do not view these findings as any reason for slackening efforts to reduce adolescent substance use. There are already more than enough good reasons for discouraging such use, even if we look no further than the potential health consequences. What our findings do suggest is this: One particularly

important way to reduce or prevent adolescents' involvement in substance use is to help them succeed in school—and to do so well before they reach adolescence.”

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The project described was supported by Grant Number R01DA016575 from the National Institute on Drug Abuse. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Drug Abuse or the National Institutes of Health.

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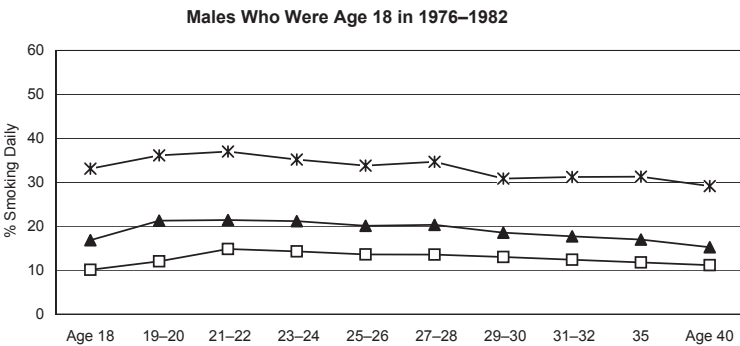
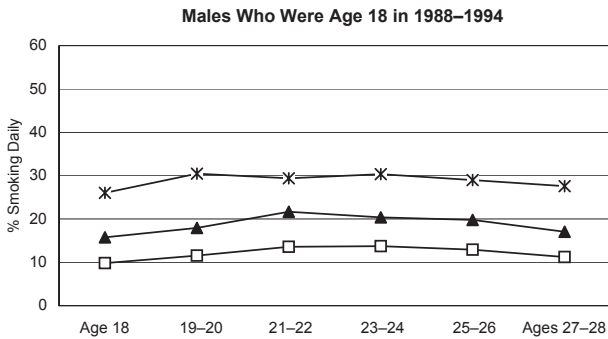
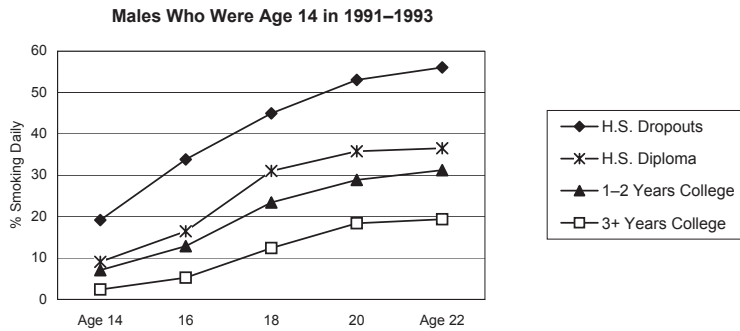
For more information on the book: <http://www.addictionarena.com/books/The-Education-Drug-Use-Connection-isbn9780805861716>.

Monitoring the Future Study www.monitoringthefuture.org

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This figure indicates that the more educationally successful a young man is at age 22, the less likely he was, or is, or will become, a regular smoker. This pattern of findings is robust across three sets of cohorts spanning ages 14 to 40 and covering the last quarter century—a period during which overall smoking rates changed and levels of educational attainment rose substantially.



Percent Reporting Any Daily Smoking in the Last 30 Days by Educational Attainment: Males

Class Years 1991–1993

Weighted N % in Subgroups					1362 100.0	Pearson Product Moment Correlation*
	H.S. Dropouts	H.S. Diploma	1-2 Years College	3+ Years College		
Age 14	19.2	9.1	7.1	2.4	7.9	-0.20
16	33.8	16.5	12.9	5.3	14.5	-0.26
18	44.9	31.0	23.4	12.4	25.2	-0.25
20	53.0	35.8	28.9	18.4	31.0	-0.25
Age 22	56.1	36.5	31.2	19.4	32.6	-0.25

Class Years 1988–1994

Weighted N % in Subgroups					2897 100.0	Pearson Product Moment Correlation*
	H.S. Dropouts	H.S. Diploma	1-2 Years College	3+ Years College		
Age 18	26.0	26.0	15.8	9.8	16.4	-0.19
19-20	30.5	30.5	17.9	11.6	19.0	-0.19
21-22	29.4	29.4	21.7	13.6	20.8	-0.17
23-24	30.3	30.3	20.4	13.7	20.7	-0.18
25-26	29.0	29.0	19.8	12.9	19.8	-0.17
Ages 27-28	27.6	27.6	17.1	11.2	17.8	-0.18

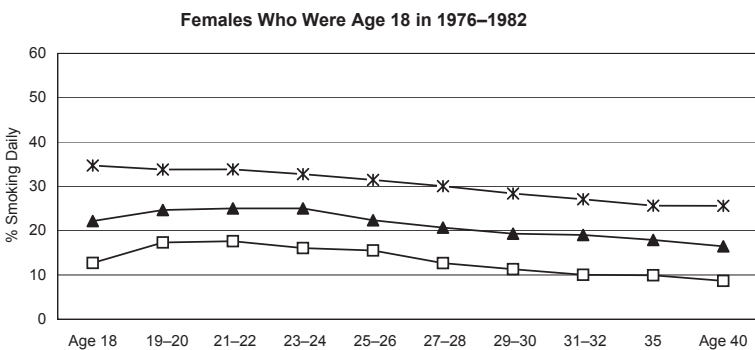
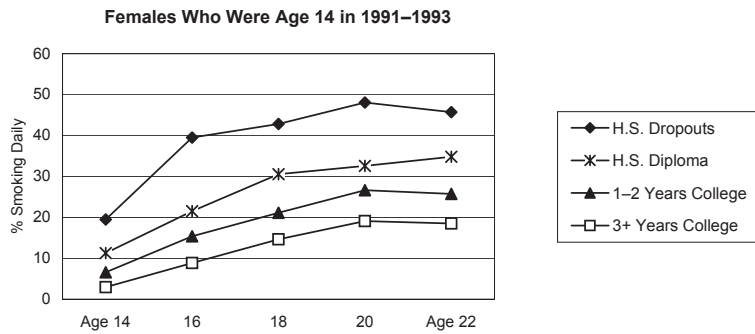
Class Years 1976–1982

Weighted N % in Subgroups					2895 100.0	Pearson Product Moment Correlation*
	H.S. Dropouts	H.S. Diploma	1-2 Years College	3+ Years College		
Age 18	33.1	33.1	16.9	10.1	21.0	-0.23
19-20	36.1	36.1	21.3	12.1	24.2	-0.23
21-22	37.0	37.0	21.4	14.8	25.3	-0.22
23-24	35.2	35.2	21.2	14.3	24.4	-0.20
25-26	33.8	33.8	20.1	13.6	23.4	-0.20
27-28	34.7	34.7	20.3	13.6	23.7	-0.21
29-30	30.8	30.8	18.6	13.0	21.6	-0.20
31-32	31.2	31.2	17.7	12.4	21.2	-0.21
35	31.3	31.3	17.0	11.8	20.8	-0.21
Age 40	29.1	29.1	15.2	11.2	19.2	-0.21

Percentage reporting any daily smoking in the last 30 days by academic attainment at modal ages 21-22: males.

*Correlation between academic attainment and the full scale of the substance use variable.

This figure indicates that the more educationally successful a young woman is at age 22, the less likely she was, or is, or will become, a regular smoker. This pattern of findings is robust across three sets of cohorts spanning ages 14 to 40 and covering the last quarter century—a period during which overall smoking rates changed and levels of educational attainment rose substantially.



Percent Reporting Any Daily Smoking in the Last 30 Days by Educational Attainment: Females

Class Years 1991–1993						Pearson Product Moment Correlation*
Weighted N	210	399	454	675	1738	
% in Subgroups	12.1	23.0	26.1	38.8	100.0	
	H.S. Dropouts	H.S. Diploma	1–2 Years College	3+ Years College	Total	
Age 14	19.5	11.3	6.6	3.0	7.8	-0.23
16	39.5	21.6	15.4	8.9	17.2	-0.27
18	42.9	30.6	21.1	14.7	23.4	-0.25
20	48.1	32.6	26.7	19.1	27.7	-0.21
Age 22	45.7	34.8	25.8	18.5	27.4	-0.21

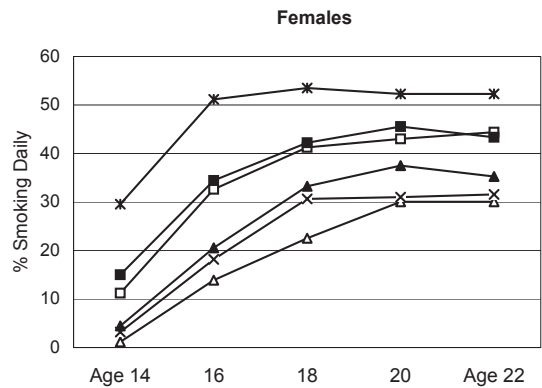
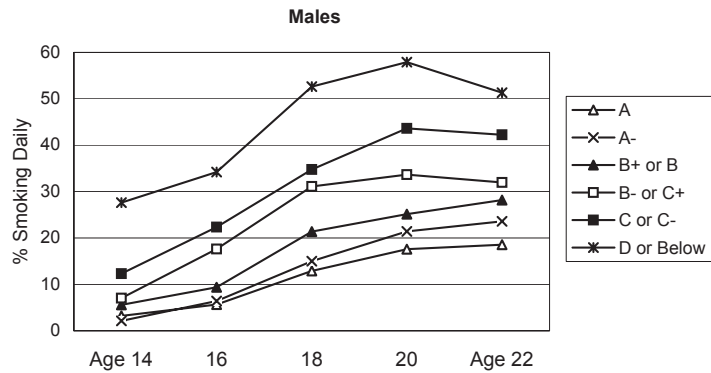
Class Years 1988–1994						Pearson Product Moment Correlation*
Weighted N	924	1518	1612	4054		
% in Subgroups	22.8	37.4	39.8	100.0		
	H.S. Dropouts	H.S. Diploma	1–2 Years College	3+ Years College	Total	
Age 18	28.6	16.4	11.1	17.1	-0.19	
19–20	27.8	19.1	13.1	18.7	-0.16	
21–22	29.1	18.4	14.2	19.2	-0.15	
23–24	27.6	18.5	12.8	18.3	-0.15	
25–26	27.2	16.1	10.4	16.4	-0.18	
Ages 27–28	28.8	16.1	9.4	16.4	-0.20	

Class Years 1976–1982						Pearson Product Moment Correlation*
Weighted N	1362	1441	928	3731		
% in Subgroups	36.5	38.6	24.9	100.0		
	H.S. Dropouts	H.S. Diploma	1–2 Years College	3+ Years College	Total	
Age 18	34.7	22.2	12.7	24.4	-0.21	
19–20	33.8	24.7	17.3	26.2	-0.16	
21–22	33.8	25.0	17.6	26.4	-0.16	
23–24	32.8	25.0	16.1	25.6	-0.16	
25–26	31.4	22.3	15.5	24.0	-0.16	
27–28	30.0	20.7	12.7	22.1	-0.17	
29–30	28.4	19.3	11.3	20.6	-0.17	
31–32	27.1	19.0	10.0	19.7	-0.17	
35	25.6	17.9	9.9	18.7	-0.17	
Age 40	25.6	16.5	8.7	17.9	-0.18	

Percentage reporting any daily smoking in the last 30 days by academic attainment at modal ages 21–22: females.

*Correlation between academic attainment and the full scale of the substance use variable.

This figure shows smoking rates for another set of subgroups, this time separated according to self-reported grade point average (GPA) at the end of 8th grade. The relationships show a striking parallel to those for the educational attainment subgroups; the A students were far less likely to be or become daily smokers, compared with the C or lower students.



Percentage reporting any daily smoking in the last 30 days by eighth-grade GPA: age 14 in 1991–1993.

Percent Reporting Any Daily Smoking in the Last 30 Days by 8th-Grade GPA: Class Years 1991–1993

MALES

Any Daily Smoking in the Last 30 Days

	A	A-	B+ or B	B- or C+	C or C-	D or Below	Pearson*	eta
Age 14	3.2	2.1	5.6	7.1	12.3	27.6	-0.18	0.22
16	5.6	6.4	9.4	17.6	22.3	34.2	-0.21	0.22
18	12.9	15.0	21.4	31.1	34.8	52.6	-0.22	0.23
20	17.6	21.4	25.1	33.7	43.6	57.9	-0.22	0.23
Age 22	18.5	23.6	28.2	31.9	42.2	51.3	-0.17	0.18

FEMALES

Any Daily Smoking in the Last 30 Days

	A	A-	B+ or B	B- or C+	C or C-	D or Below	Pearson*	eta
Age 14	1.2	3.2	4.5	11.2	15.0	29.5	-0.21	0.23
16	13.9	18.2	20.5	32.6	34.4	51.2	-0.21	0.23
18	22.5	30.6	33.3	41.3	42.2	53.5	-0.17	0.19
20	30.1	31.0	37.5	43.0	45.6	52.3	-0.16	0.17
Age 22	30.1	31.6	35.3	44.4	43.3	52.3	-0.14	0.15

*Correlations between 8th-grade GPA and the full scale of the substance use variable.