

## Drug Use and Life Style Among College Undergraduates: A 30-Year Longitudinal Study

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**Objective:** The authors examined trends in the prevalence of substance use and its relationship to attributes of life style among college students over a 30-year period.

**Method:** They distributed anonymous questionnaires to 796 seniors at a large New England college in 1999, using methods

essentially identical to those of their previous studies at the same college in 1969, 1978, and 1989.

**Results:** Most forms of drug use rose to a peak in 1978 then fell over the next 21 years, except for use of 3,4-methylenedioxy-methamphetamine ("ecstasy"). On several variables, college substance users differed more sharply from nonusers in 1999 than in previous decades.

**Conclusions:** Although the study was limited to students at a single institution, its findings suggest that college drug use is generally declining and that users have increasingly diverged from nonusers in their values and life style.

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Many studies have investigated the prevalence of drug use among college students, but few have examined trends in prevalence at a single institution over many years. We report here the results of a study performed at the same college in 1969 (1), 1978 (2), 1989 (3), and 1999.

### Method

Using methods virtually identical to those used in our previous studies (1–3), we distributed an anonymous questionnaire that covered drug use and attributes of college life to all seniors at a large New England college in September 1999. As in previous years (1–3), we found that data from questionnaire respondents (N=796) closely matched the college's statistics for the entire senior class (N=approximately 1,600) on place of residence, grade point averages, and SAT scores (questionnaire text and validation data are available on request from Dr. Pope). We first assessed the students' reported rates of use of each class of drugs, then we compared nonusers (those reporting no lifetime use of any illicit drug) with users (those reporting any illicit drug use), and finally, we performed several a posteriori analyses comparing the 1999 students with the students from previous decades.

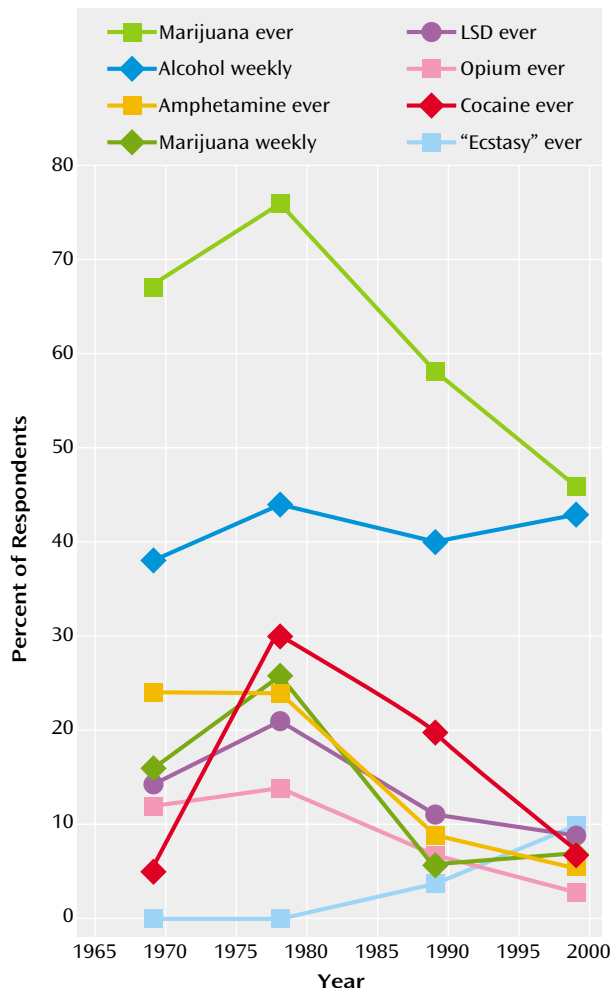
We assessed the significance of differences between groups by using Fisher's exact test for analysis of unordered categorical variables and a nonparametric trend test for analysis of two-by-*k* ordered categories (4). We used Stata 6.0 (5) for all analyses. Since

many measures were likely correlated with one another, it was difficult to calculate an appropriate Bonferroni correction for the effect of multiple comparisons; therefore significance levels are presented without correction. For the purposes of discussion of the results, we set the alpha level at 0.01 as a compromise to the Bonferroni correction. Nevertheless, readers should recognize that some differences may reflect chance observations.

### Results

The percentage of students reporting alcohol use once or more per week remained remarkably stable over the 30-year time span, whereas the proportion who had ever tried various illicit drugs tended to peak in 1978 and fell sharply over the next 20 years—with the striking exception of 3,4-methylenedioxymethamphetamine (MDMA) or "ecstasy" (Figure 1). In 1969, 1978, and 1989, we found no significant differences between users and nonusers on most of the state variables tested. But in 1999 the same comparisons produced several significant differences. For example, mean grades, on a scale from 1 (best) to 5 (worst), differed significantly between users and nonusers in all academic years (exact trend tests—freshmen: 2.02 versus 2.20,  $p=0.005$ ,  $N=693$ ; sophomores: 1.97 versus 2.16,  $p=0.002$ ,  $N=$

**FIGURE 1. Rates of Reported Drug Use Among Seniors at a Large New England College in 1969, 1978, 1989, and 1999<sup>a</sup>**



<sup>a</sup> All rates represent reported lifetime prevalence (having ever used the drug), except for "Marijuana weekly" and "Alcohol weekly," which represent use at least once per week. 1969: N=517, 1978: N=710, 1989: N=369, 1999: N=796.

704; and juniors: 1.82 versus 1.98,  $p=0.005$ ,  $N=693$ ). The users reported that they spent less time than the nonusers, on a scale from 1 (less than 1 hour per week) to 4 (many hours per week), on extracurricular college activities, such as sports, organizations, and clubs ( $p=0.001$ ,  $N=794$ , exact trend test).

Only two state variables distinguished the drug users from the nonusers in all 4 study years: "visits to a psychiatrist" and "heterosexual activity." In 1999, 65 (15.3%) of 424 nonusers versus 91 (24.7%) of 369 users reported having seen a psychiatrist at least once ( $p=0.001$ , Fisher's exact test), but only five (5.5%) of the 91 users who saw a psychiatrist attributed their problem to drugs. In 1999, 185 (43.7%) of 423 nonusers reported any lifetime experience of heterosexual intercourse, as opposed to 286 (77.7%) of 368 users ( $p<0.0001$ , Fisher's exact test). Although the proportion of students reporting visits to a psychiatrist remained similar across the 30 years of the study (1–3), the

proportion of all respondents (male or female, drug user or nonuser) reporting any heterosexual intercourse fluctuated from 69.5% (356 of 512) in 1969 to 77.9% (518 of 665) in 1978, 71.8% (250 of 348) in 1989, and 59.5% (471 of 791) in 1999. The decline in rates between 1989 and 1999 is significant ( $p=0.001$ , Fisher's exact test).

Homosexual activity was also more commonly reported by drug users in 1999; 25 (6.8%) of 366 users reporting at least one homosexual experience to orgasm since coming to college, compared to 13 (3.0%) of the 427 nonusers, although the significance of this comparison ( $p=0.02$ , Fisher's exact test) did not reach our proposed alpha of 0.01.

## Discussion

In a 30-year longitudinal study at a large college, we found that weekly use of alcohol has remained stable, whereas use of most illicit drugs rose to a peak in 1978 and declined thereafter. The exception to this pattern is the rise in use of MDMA or "ecstasy," which has now become the second most frequently tried illicit drug after marijuana. In earlier decades, drug users differed from nonusers only on visits to a psychiatrist and level of heterosexual activity. In 1999, however, the differences between the users and nonusers widened: in addition to the two variables just mentioned, the 1999 users differed significantly from the nonusers in grades for all three previous academic years, time spent in extracurricular activities, and (at a level approaching Bonferroni-corrected significance) rates of homosexual experiences. These findings suggest that drug users—who for the first time represent a minority of the student population at this institution—have become a more distinct group, whose values and life style have begun to diverge somewhat more from those of the rest of the student body.

Our study is limited by the fact that it was conducted at a single institution. Thus, it is difficult to determine whether the findings are representative of American college students as a whole. We are aware of only two similar longitudinal studies of drug use at other colleges (6, 7), but neither provides data beyond the mid-1980s (personal communications: T.L. Dezelzsky, 2000, and D.M. Gallant, 2000). Perhaps the most closely comparable data are from the Monitoring the Future Study (8), which has been conducted annually among college students nationally from 1980 to the present. Although the Monitoring the Future Study examined primarily the prevalence of drug use and not the associated attributes of life style, its findings were strikingly concordant with ours. Specifically, in the Monitoring the Future Study, the lifetime prevalence of the use of marijuana or hashish among college students fell from a peak of 65.0% in 1980 to 49.9% in 1998—similar to our findings of 76.3% in 1978 and 46.1% in 1999. For the same years, the lifetime prevalence of cocaine use fell from 22.0% to 8.1% in the Monitoring the Future Study and from 29.8% to 6.9% in our college group. Use of MDMA or

“ecstasy” rose from 3.8% in 1989 to 4.6% in 1997 and 6.8% in 1998 in the Monitoring the Future Study; our rates were 4.1% in 1989 and 10.1% in 1999.

Our study may have been influenced by selection or information bias. However, the instrument was anonymous; its contents were not revealed before students received it, and only about 3% (about 25 of approximately 800) of those who actually received a questionnaire failed to complete it. Furthermore, the students’ mean responses on several questionnaire items matched closely the college’s own statistics for the class as a whole. Finally, even if selection or information bias did occur, it was probably similar in magnitude to that in previous years of the study, since the methods were essentially identical on each occasion. Therefore, the trends documented in this study are likely valid and invite comparison with longitudinal data from other college populations.

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