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National Survey Results on Drug Use, 1975-2000

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MONITORING THE FUTURE
NATIONAL SURVEY RESULTS ON DRUG USE, 1975-2000

Volume I
Secondary School Students

by

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Chapter 1

INTRODUCTION

In the last third of the twentieth century we saw an epidemic of illicit drug use among American young people that is unparalleled in this country's history. Widespread alcohol and tobacco use among our youth also have become issues of increasing public concern and policy attention, given the consequences of these drugs for both young people and the rest of society. Since 1975, the Monitoring the Future project has provided the nation with an important window through which to view these problems and thus gain a better understanding of their changing nature and some of the dynamics that explain them. This series of annual monographs has been the primary vehicle for disseminating many of the epidemiological findings from the study. These monographs have grown substantially in coverage and size over the years.

This two-volume monograph reports the results of the twenty-sixth (2000) national survey of drug use and related attitudes and beliefs among American high school seniors, the twenty-first such survey of American college students, and the tenth such survey of eighth- and tenth-grade students. Results from the secondary school samples of eighth, tenth, and twelfth graders are contained in Volume I, while the results from college students and young adults are reported in Volume II. Volume I, dealing with secondary school students, is now preceded by an advance summary of its key findings, *Monitoring the Future National Results on Adolescent Drug Use: Overview of Key Findings, 2000*.¹ That report can be viewed on the Web at <http://www.monitoringthefuture.org> or obtained free of charge by contacting the authors at the Institute for Social Research, The University of Michigan, Ann Arbor, Michigan, 48106-1248.

All data presented here derive from the ongoing national research and reporting program entitled *Monitoring the Future: A Continuing Study of American Youth*, which is conducted at the University of Michigan's Institute for Social Research and has been funded through a series of investigator-initiated research grants from the National Institute on Drug Abuse. In the early years the study was often called the National High School Senior Survey because each year since 1975 a representative sample of all seniors in public and private high schools in the coterminous United States has been surveyed. However, the study also surveys (a) representative samples of eighth- and tenth-grade students, (b) representative samples of young adults from previous graduating classes, who are administered follow-up surveys by mail, and (c) representative samples of American college students one to four years past high school, who are a part of these follow-up samples.

¹Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2001). *Monitoring the Future National Results on Adolescent Drug Use: Overview of Key Findings, 2000* (NIH Publication No. 01-4923). Bethesda, MD: National Institute on Drug Abuse, c. 56 pp.

SURVEYS OF SECONDARY SCHOOL STUDENTS

Two of the major topics included in this series of annual reports are (1) the prevalence and frequency of drug use among American secondary school students (specifically, in eighth, tenth, and twelfth grades) and (2) trends in use by those students. 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, and intensity of drug use also are reported in three separate chapters. Key attitudes and beliefs about use of the various drugs have been demonstrated by this study to be important determinants of trends in use over time. 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.

SURVEYS OF COLLEGE STUDENTS AND YOUNG ADULTS GENERALLY

Also included in this report series are findings on the prevalence and trends in drug use among young adults who have completed high school. These data are reported primarily in Volume II, although a brief summary of them is given in Chapter 2 of this volume, "Overview of Key Findings." The period of young adulthood (here defined as late teens to early thirties) is particularly important because it has tended to be the period of peak use for many drugs.

The Monitoring the Future study design calls for biennial follow-ups—through age 32—of a subsample of the participants in each participating senior class, beginning with the class of 1976. In 2000, representative samples of the graduating classes of 1986 through 1999, corresponding to modal ages of 19 to 32, provided the panel data. Because the same questionnaire forms are used in each of these follow-ups, it is possible to integrate the data across this age band. Comprehensive results from this young adult population are presented in Volume II.²

Two chapters in Volume II present data on college students specifically. 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 Household Survey on Drug Abuse, conducted in earlier years by NIDA and now by the Substance Abuse and Mental Health Services Administration, was revised in 1991 to include such group dwellings.) Twenty-one surveys on substance use among American college students have now been completed, encompassing a twenty-year period.

²Older cohorts are now followed up again at ages 35 and 40 using somewhat different questionnaires.

CONTENT AREAS COVERED IN THIS REPORT

Initially, eleven separate classes of drugs were distinguished for this series of reports: marijuana (including hashish), inhalants, hallucinogens, cocaine, heroin, opiates other than heroin (both natural and synthetic), stimulants (more specifically, amphetamines), sedatives, tranquilizers, alcohol, and tobacco. This particular organization of drug use classes was chosen to heighten comparability with a parallel series of publications based on the National Household Surveys on Drug Abuse. Separate statistics also are presented for several subclasses of drugs within these more general classes: PCP and LSD (both hallucinogens), barbiturates and methaqualone (both sedatives), the amyl and butyl nitrites (both inhalants), crystal methamphetamine (“ice”), and crack and other cocaine. A number of these drugs appeared on the American scene after the study began and were added to the twelfth-grade questionnaires in subsequent years. Trend data for PCP and nitrites are available since 1979, when questions about the use of these drugs 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 methylenedioxymethamphetamine (MDMA), or “ecstasy,” were added in 1989 to the follow-up surveys only and in 1996 to the eighth-, tenth-, and twelfth-grade surveys. Questions about crystal methamphetamine (“ice”) were added in 1990. Barbiturates and methaqualone, two components of the sedative class as used here, have been measured separately from the outset. Data for them are presented separately because their trend lines have proven to be quite different. 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. A question about Rohypnol was added to the secondary school questionnaires in 1996. Special tables on the use of heroin by injection, as well as by means other than injection, are contained in Chapters 4 and 5 on prevalence and trends in use. New questions distinguishing these two types of use were introduced in the 1995 survey. The 1999 survey incorporated questions on the use of methamphetamines, 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).

For drugs other than alcohol, cigarettes, smokeless tobacco, inhalants, and nonprescription stimulants, practically all of the information reported here deals with illicit use of controlled substances. Respondents are asked to exclude any occasions on which they used any of the psychotherapeutic drugs under medical supervision. (Some data on the medically supervised use of such drugs are contained in the full 1977, 1978, 1981, and 1983 volumes in this series, and an earlier article discussed trends in the medical use of these drugs.³)

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

³Johnston, 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.

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 the duration and intensity of the highs they usually experience with each type of drug. They have shown some interesting trends over the years. Chapter 7 reports those results.

For both licit and illicit drugs, separate chapters are devoted to various variables: grade of first use; the students’ own attitudes and beliefs; related attitudes, beliefs, and behaviors of others in their social environment; and perceived drug availability. Some of these variables have served to explain observed secular trends in use.

Chapter 10, “Other Findings from the Study,” discusses use of nonprescription stimulants, including diet pills, stay-awake pills, and the “look-alike” pseudo-amphetamines. Questions on these substances were placed in the survey beginning in 1982 because the use of them appeared to be on the rise and because it appeared that some respondents inappropriately included them in their answers about amphetamine use. That inappropriate inclusion affected some of the observed trends until the clarification in 1982.

Chapter 10 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. Also included in Chapter 10 are synopses of a number of other publications that have emanated from the study over the past year.

This volume contains an appendix on how to calculate confidence intervals for point estimates and how to calculate statistics testing 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 selected change intervals, some readers may wish to conduct additional computations. Appendix C provides the necessary formulas and design effect corrections to permit such computations.

The reader’s attention is also called to Appendix D, which presents supplementary tables providing cross-time trends in the use of various drugs for a number of demographic subgroups in the population. Specifically, subgroups are differentiated on the basis of gender, college plans, region of the country, size of the community, education level of the parents (a proxy for socioeconomic status), and racial/ethnic group. The tables document a number of important subgroup differences in both levels of drug use and cross-time trends in drug use.⁴ Appendix B supplies the exact definitions used to distinguish these various subgroups. Appendix E provides trends (for twelfth grade only) on individual drugs within the following general classes: hallucinogens, amphetamines, tranquilizers, and opiates other than heroin.

⁴Graphic presentations of these trends among the various demographic subgroups are available on the study’s Web site (www.monitoringthefuture.org) under Occasional Paper No. 53, which is listed under “Publications.” (Johnston, L. D., O’Malley, P. M., and Bachman, J. G. (2001). *Demographic subgroup trends for various licit and illicit drugs*. (Monitoring the Future Occasional Paper No. 53). Ann Arbor, MI: Institute for Social Research.

PURPOSES AND RATIONALE FOR THIS RESEARCH

Perhaps no social problem has proven more clearly appropriate for 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 have changed rapidly and frequently. They are of great importance to the well-being of the nation, and many legislative and programmatic interventions are addressed to them, particularly in response to the increases in adolescent smoking and illicit drug use we had been reporting 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 thirty or thirty-five years has proven to be a youth phenomenon, and the “relapse” in the drug epidemic in the early '90s occurred almost exclusively among adolescents, as this study and others have demonstrated. Adolescents and young adults in their twenties also fall into the age groups at the highest risk for illicit drug use. The original epidemic began on the nation’s college campuses and then spread downward in age, but the more recent relapse phase in the epidemic manifested itself first 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.

One of the many important purposes of the Monitoring the Future series is to develop an accurate picture of current drug use and trends in that use. This is a formidable task, 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 rational public debate and policymaking. In the absence of reliable *prevalence* data, substantial misconceptions can develop and resources may be misallocated. In the absence of reliable data on *trends*, the early detection and localization of emerging problems are more difficult and societal responses more lagged. We believe that Monitoring the Future played an important role in establishing early that cigarette smoking among American adolescents was rising sharply in the 1990s, a fact which helped to encourage and buttress some extremely important policy initiatives that culminated in the tobacco settlement. More recently MTF has documented and described the sharp rise in ecstasy use.

In addition, assessments of the impact of major historical and policy-induced events are much more conjectural without good trend data. Finally, the accurate empirical comparison of subgroup differences has challenged conventional wisdom in some important ways.

The Monitoring the Future study also monitors a number of factors that we believe help *explain* the changes observed in drug use. Many are discussed in this series of volumes. They include peer norms regarding drugs, beliefs about the dangers of drugs and perceived availability. 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 factors versus demand factors in bringing about some of the observed declines (and more recently, increases) in drug use. We also have developed

Monitoring the Future

a general theory of drug epidemics that makes use of many of these concepts to explain the rises and declines that occur in use.⁵

In addition to assessing prevalence and trends accurately and trying to determine their causes, the Monitoring the Future study has a substantial number of other important research objectives. Among these are 1) helping to determine which young people are at the greatest risk for developing various patterns of drug abuse; 2) gaining a better understanding of the lifestyles and value orientations associated with various patterns of drug use, and monitoring how subgroup differences and lifestyle orientations are shifting over time; 3) determining the immediate and more general aspects of the social environment associated with drug use and abuse; 4) determining how major transitions in social environment (entry into military service, civilian employment, college, homemaking, and unemployment) or in social roles (engagement, marriage, pregnancy, parenthood, divorce, and remarriage) affect drug use; 5) determining the life course of the various drug-using behaviors from early adolescence to middle adulthood and distinguishing such “age effects” from cohort and period effects in determining drug use; 6) evaluating possible explanations of period and age effects, including determining the effects of social legislation on various types of substance use; 7) examining possible consequences of using various drugs; and 8) determining the changing connotations of drug use and changing patterns of multiple drug use among youth.⁶ We believe that the differentiation of period, age, and cohort effects in substance use of various types has been a particularly important contribution of the project; and it is one that the project’s cohort-sequential research design is especially well suited to make. Readers interested in publications dealing with any of these other areas should write the authors at the Institute for Social Research, The University of Michigan, Ann Arbor, Michigan, 48106-1248, or contact us through the study’s Web site.

WEB SITE

Up-to-date information about the study, and copies of the most recent press releases and selected reports from it, may be found on the Monitoring the Future Web site at: <http://www.monitoringthefuture.org>.

⁵See 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.

⁶For an elaboration and discussion of the full range of Monitoring the Future research objectives in the domain of substance abuse, see Johnston, L. D., O’Malley, P. M., Bachman, J. G., and Schulenberg, J. (1996). *Aims and objectives of the Monitoring the Future study and progress toward fulfilling them*. (Monitoring the Future Occasional Paper 34, Revised). Ann Arbor, MI: Institute for Social Research.

Chapter 2

KEY FINDINGS:

AN OVERVIEW AND INTEGRATION ACROSS FIVE POPULATIONS

Monitoring the Future has become one of the nation's most relied-upon sources of information on what changes in psychoactive drug use are occurring among American adolescents and young adults. Over the past quarter century, the study has tracked their use of an ever-growing array of such substances, both illicit and licit.

This annual series of monographs, written by the study's investigators and published by its sponsor—the National Institute on Drug Abuse—is one of the major vehicles by which the epidemiological findings from the study are reported. The present two-volume monograph reports findings through 2000. (A companion series of annual reports, begun in 2000 for the 1999 data, provides a much briefer, advanced synopsis of the key findings from the latest surveys of secondary school students.⁷)

Over its twenty-six year existence, Monitoring the Future has conducted in-school surveys of nationally representative samples of (a) high school seniors each year since 1975 and (b) eighth- and tenth-grade students each year since 1991. In addition, beginning with the class of 1976, follow-up surveys have been conducted by mail on representative subsamples of the respondents from each previously participating twelfth-grade class.

A number of important findings have been summarized and integrated in this chapter so that the reader may quickly get an overview of the key results. Because so many populations, drugs, and prevalence intervals are discussed here, a single integrative set of tables (Table 2-1 through 2-3) showing the 1991-2000 trends for all drugs on all five populations (eighth-grade students, tenth-grade students, twelfth-grade students, full-time college students ages 19 - 22, and all young adults through age 28 who are high school graduates) is included in this chapter. (Note: The young adult group includes the college student population.)

⁷Johnston, L. D., O'Malley P. M., & Bachman, J. G. (2001). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2000*. (NIH Publication No. 01-4923). Bethesda, MD: National Institute on Drug Abuse. (Also available on the Web at www.monitoringthefuture.org.)

TRENDS IN ILLICIT DRUG USE

- Early in the decade of the 1990s we noted an increase in the use of a number of illicit drugs among secondary 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 eighth graders, the youngest respondents surveyed in this study, and also a reversal in attitudes among the twelfth graders. Specifically, the proportions seeing great risk in using drugs began to decline, as did the proportions saying they disapproved of use. As we predicted, 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 for some years.

In 1997, for the first time in six years, illicit drug use finally began to decline among eighth graders. Use of marijuana continued to rise among tenth and twelfth graders, although their use of a number of 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 eighth graders and started to decline at tenth and twelfth grades. In 1999 and 2000, the decline continued for eighth graders while use held fairly level among tenth and twelfth graders. We are hopeful that this leveling simply represents a pause in a longer-term decline, much as did the earlier leveling in 1985 in the midst of an ongoing decline. The fact that use continues to decline steadily, albeit slowly, among the eighth graders bodes well for further decline at the upper grades.

- As illustrated below in 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. In the early years of the epidemic, illicit drug use rates clearly were 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., annual or 30-day prevalence) tended to be found in the late secondary school years. For example, in 2000, 30-day prevalence of using **any illicit drug** is highest in twelfth grade (25%), second highest in tenth grade (23%), third highest among college students (22%), fourth highest among 19- to 28-year-olds (18%), and lowest among eighth graders (12%). When it comes to using **any illicit drug other than marijuana** in the past 30 days, the rank order is: twelfth grade (10%), tenth grade (9%),

college students (7%), and finally 19- to 28-year-olds and eighth graders (both at 6%). As can be seen, usage rates among tenth and twelfth graders are considerably higher than among young adults, and even higher than the college-student segment of the young adult population.

- Until 1997, *marijuana* use rose sharply among secondary school students, and their use of a number of *other illicit drugs* also rose, though more gradually. An increase in marijuana use also has occurred among American college students, no doubt due largely to “generational replacement,” wherein earlier graduating high school class cohorts were replaced in the college population by more recent ones who were more drug experienced before they left high school. A resurgence in illicit drug use spreading *up* the age spectrum is 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 the behavior diffused downward in age to high school students and eventually to junior high school students. This time the increases began in middle schools and radiated up the age spectrum.

The increases in use of *marijuana*, and of *other illicit drugs* taken as a class, have been substantially larger, in both proportional and absolute terms, in the three secondary school grades than in either the college or young adult populations. In fact, at present there still is rather little increase in illicit drug use in the young adult population of 19- to 28-year-olds. From 1991 through 1997, their annual prevalence of use of *any illicit drug* held remarkably stable at the same time that adolescent use rose appreciably. We believe that, as generational replacement continues to occur, we will likely see some increase in use of illicit drugs by the young adults. In fact, some of that appears to have happened among college students, whose annual prevalence of marijuana use peaked a year later than among twelfth graders and whose 30-day prevalence peaked two years later. Their use of any illicit drug other than marijuana continued to rise through 2000, while use by twelfth graders peaked in 1997.

These diverging trends across the different age groups show that changes during the 1990s reflect some cohort effects—lasting differences between class cohorts—rather than broad secular trends, which would appear simultaneously in all of the age groups covered by the study. All during the first fifteen years of the study, the use of most drugs moved in parallel across most age groups, indicating secular change.

- A somewhat parallel finding occurred for *cigarette* smoking, in that college students showed a sharp increase in smoking, beginning in 1995, no doubt reflecting a generational replacement effect. (Smoking had been rising among high school seniors since 1992.) 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 much or all of the life cycle and also tend to account for much of the overall change in use observed at any given age. The increase in current smoking ended among eighth and tenth graders in 1996, among twelfth graders in 1997, but not among college students until 1999. The appreciable decline in the smoking rate which has by now occurred among the eighth graders should radiate up the age spectrum as they get older. (Their 30-day prevalence rate has fallen from 21% to 15%.) In the early 1990s smoking among eighth and tenth graders had risen by about 50%—a particularly sharp and concerning rise.

- ***Marijuana*** use, which had been rising sharply in all three grades of secondary school during the early to mid-1990s, began to turn downward in 1997 among eighth graders and then did the same in 1998 among tenth and twelfth graders. Only the eighth graders showed a continuation of this decline in 2000, however. In the 1990s, the annual prevalence of marijuana use (i.e., the percent reporting any use during the prior twelve months) tripled among eighth graders (from 6% in 1991 to 18% in 1996), more than doubled among tenth graders (from 15% in 1992 to 35% in 1997), and grew by nearly three-quarters among twelfth graders (from 22% in 1992 to 39% in 1997). Among college students, however, the increase in marijuana use, presumably largely due to a “generational replacement effect,” was much more gradual. Annual prevalence rose by about one-third from 27% in 1991 to 36% in 1998, before beginning to decline. Among young adults there so far has been even less change, from 24% in 1991 to 28% in 2000, with no decline yet.

Daily marijuana use rose substantially among secondary school and college students between 1992 and 2000, but somewhat less so among young adults (see Table 2-3). Nearly one in seventeen (6.0%) twelfth graders is now a current daily marijuana user. Still, this rate is far below the 10.7% peak figure reached in 1978. Daily use among eighth graders is considerably lower, at 1.3%. In 2000 daily marijuana use among all five populations was at, or very close to, the peak level since the beginning of the 1990s.

The amount of risk associated with using marijuana fell during the earlier period of increased use and again during the more recent resurgence of use in the 1990s. Indeed, at tenth and twelfth grades, perceived risk 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 eighth grade, as well, but we do not have data starting early enough to check that possibility.) The decline in perceived risk halted after 1997 in eighth and tenth grade, and use began to decline a year or two later. Again, perceived risk was a leading indicator of change in use.

Personal disapproval of marijuana use slipped considerably among eighth graders between 1991 and 1996, and among tenth and twelfth graders between 1992 and 1997. For example, the proportions of eighth, tenth, and twelfth 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 a little increase in disapproval among eighth and tenth graders but not yet among twelfth graders.

- Among seniors, the proportions using *any illicit drug other than marijuana* in the past year rose from a low of 15% in 1992 to 21% in 1997. (This recent peak in 1997 was substantially below the 34% peak rate in 1981.) In fact, all of the younger groups showed significant increases (though not as large in proportional terms as for marijuana). Use of any illicit drug other than marijuana began to increase in 1992 among eighth graders, in 1993 among tenth and twelfth graders, and in 1995 among college students. Use peaked in 1996 among eighth and tenth graders, by 1997 among twelfth graders, and has yet to peak among the college students and young adults. The eighth and tenth graders have shown some gradual decline in their use of the other illicit drugs, taken as a class, since 1996.
- Between 1989 and 1992 we noted an increase among high school seniors, college students, and young adults in their use of *LSD*, a drug most popular in the late 1960s and early 1970s. By 1992, the newly added populations (eighth and tenth graders) were also showing an increase in LSD use; and for several more years, modest increases persisted in all five populations. Use of LSD among college students and young adults peaked first, in 1995. Use in all three grades of secondary school peaked a year later. Since those peak years in the mid-1990s, there has been some decline in the relatively low rates of use of this drug across the board.

Prior to the significant increase in LSD use among seniors 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 this belief was a leading indicator of change in use.) The decline in perceived risk continued through 1997 and halted in 1998. The proportion of seniors disapproving of LSD use also began to decline in 1992 and continued through 1996.

Because LSD was one of the earliest drugs to be popularly used in the overall American drug epidemic, there is a distinct possibility that young people—particularly the youngest cohorts, like the eighth graders—are not as concerned about the risks of use. They have 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 seniors. These measures for risk and disapproval were first introduced for eighth and tenth graders in 1993 and both measures had been dropping until 1997 or 1998, after which perceived risk and disapproval leveled. Because the decline in use in the last few years has *not* been accompanied by expected changes in these attitudes and beliefs, we are inclined to think that there may be some displacement by another drug taking place. The most logical candidate is *ecstasy*, which is also used for its hallucinogenic effects and which has been very much on the rise recently.

- 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 there was a substantial increase (from 0.5% to 2.4% among college students, and from 0.7% to 1.6% among young adults generally).

When data were first gathered on secondary school students in 1996, the tenth and twelfth graders 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. Since 1998 its use has risen sharply in all five populations. In fact, annual prevalence has more than doubled in that two-year period among twelfth graders, college students, and young adults, and nearly doubled in the lower grades. In 2000 even the eighth graders showed a significant increase in use. Among the young adults, the increase in use has occurred primarily among those under age 27. The rates of annual prevalence in 2000 were: 3%, 5%, and 8% among eighth, tenth, and twelfth graders, respectively, 9% among college students, and 7% among all young adults.

There has been quite a dramatic increase in the reported availability of this drug in recent years, which seems to be substantiated by seizure data. So far, there has been little increase in the perceived degree of risk associated with ecstasy, though the mounting media attention to the drug and its consequences may change that by next year.

- Between 1982 and 1992, annual prevalence rates for the use of *amphetamines* among seniors fell by nearly two-thirds, from 20% to 7%. Rates among college students fell even more over the same interval, from 21% to 4%. Annual use increased by about half among eighth and tenth graders between 1991 and 1996, and there were increases among twelfth graders and college students between 1992 and 1996. In 1997, use declined significantly among eighth graders and leveled among tenth graders, but use continued to increase among twelfth graders. After 1997, use continued to decline in eighth and tenth grade and pretty much leveled at twelfth grade. Use continues to increase among college students and young adults, however, perhaps reflecting the effects of generational replacement.

The increase in use of illicit amphetamines (and a decrease in disapproval) that began among seniors in 1993 followed a sharp drop in perceived risk a year earlier (which, as we have said, often serves as a leading indicator). Following a period of decline, disapproval and perceived risk associated with amphetamine use stabilized in 1997 among seniors, while use showed a leveling. In 1998, there was a bump up in perceived risk, but some correction back the next year. This general pattern of change is consistent with our theoretical position that perceived risk can drive both disapproval and use.

College students showed a modest increase in amphetamine use during the 1990s, but the absolute prevalence rates are only about half those for tenth and twelfth graders; and use among young adults generally is lower still and has changed rather little.

- *Ritalin*TM has been among the most widely reported specific amphetamines in recent years; its use increased among high school seniors from an annual prevalence of 0.1% in 1992 to 2.8% in 1997, before leveling. (See Appendix E, Table E-2.) Use of *ice (crystal methamphetamine)* increased in the late 1990s but fell after 1998. *Methamphetamine* questions were introduced in 1999, and a modest decline was observed in its use among all five populations in 2000. The annual prevalence rates observed in 2000 for methamphetamine are 3%, 4%, 4%, 2%, and 3% among eighth graders, tenth grade, twelfth graders, college students, and all young adults, respectively.
- *Inhalants* constitute another class of abusable substances in which a troublesome increase (this time a longer-term one) was followed by a reversal among secondary school students. The reversal came after 1995 in this instance. 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. One class of inhalants, *amyl and butyl*

nitrites, became somewhat popular in the late 1970s, but their use has been almost eliminated. For example, their annual prevalence rate among twelfth-grade students was 6.5% in 1979 but only 0.6% in 2000.

When the nitrites are removed from consideration, it appears that all other inhalants, taken together, showed an upward trend in annual use until 1995. Largely prompted by reports of Monitoring the Future survey findings regarding the rise in inhalant use, the Partnership for a Drug-Free America launched an anti-inhalant ad campaign in mid-April of 1995. By the 1996 spring survey of eighth and tenth graders (twelfth graders are not asked about the dangers of inhalants), there was a sharp increase (of three to six percentage points, depending on the measure) in the percent who said that using inhalants carries great risk to the user. Inhalant use in all grades began to decline in 1996 and continued declining through 1999 in all grades, after a long and steady increase in the preceding years. This is all the more noteworthy because illicit drug use generally was still increasing in 1996 and (for the upper two grades) in 1997 as well. (The decline continued into 2000 among the eighth graders.)

Some 9% of the 2000 eighth graders and 7% of the tenth graders indicated inhalant use in the prior 12 months, making inhalants the second most widely used class of illicitly used drugs for eighth graders (after marijuana) and the third most widely used (after marijuana and amphetamines) for tenth graders. Inhalants can and do cause death, and tragically, this often occurs among those in their early teens. Because the use of inhalants decreases with age, this class of drugs shows an unusual pattern, with active use being highest among the eighth graders (9% annual prevalence in 2000) and lowest among the young adult population (annual prevalence of only 2% in 2000).

- ***Crack cocaine*** use spread rapidly from the early to the mid-1980s. Still, among high school seniors, the overall prevalence of crack leveled in 1987 at a relatively low prevalence rate (3.9% annual prevalence), even though crack use had continued to spread to new communities. Clearly it 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 of the drugs. Annual prevalence dropped sharply in the next few years, reaching 1.5% by 1991, where it remained through 1993. Perceived risk began what turned out to be a long and substantial decline after 1990. Use began to rise gradually after 1993, when it was 1.5%, to 2.7% by 1999, before finally declining in 2000.

Among eighth and tenth graders, crack use has risen gradually in the 1990s: from 0.7% in 1991 to 2.1% by 1998 among eighth graders, and from 0.9% in 1992 to 2.5% in 1998 among tenth graders. In 1999 there

was a significant decrease in use among eighth graders while use among tenth graders leveled. In contrast, among young adults one to 10 years past high school, annual prevalence was 1.2% in 2000, virtually unchanged since 1992. Nor was there much change in the low rates of crack use among college students during the 1990s. Except for the recent decline among eighth and twelfth graders, there does not yet seem to be a turnaround (as we have seen for most other drugs) in the crack situation, and perceived risk continued to decline in 1999 at all grade levels. This pattern of an increase among younger age levels, but none among older ones, would be consistent with the notion that perceived risk eroded as generational replacement has taken place. Because the crack epidemic of the mid-1980s is not that far back, the older age groups may still remember the lessons learned during that historical period.

Among seniors in high school, annual crack prevalence among the college-bound is considerably lower than among those not bound for college (1.7% for college-bound versus 3.5% for noncollege-bound, in 2000).

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 by 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 of the illicit drugs. Also, it did not turn out to be “instantly addicting” upon first-time use, as had been reported widely. While 3.9% of seniors in 2000 reported ever having tried crack, only 1.0% reported use in the past month, indicating that 74% of those who tried crack did not establish a pattern of continued use.

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 has now passed since the media frenzy about crack use peaked in 1986, it is quite possible that “generational forgetting” of the risks of that drug has been occurring. We know that perceived risk of crack use has been eroding steadily at all grade levels since 1991 (or 1992 in the case of the twelfth graders).

- **Cocaine**⁸ 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 since it was still quite new. Between 1986 and 1987 the annual prevalence rate for cocaine dropped dramatically, by roughly one-fifth in all three populations then studied—seniors, college students, and young

⁸Unless otherwise specified, all references to “cocaine” refer to the use of cocaine in any form, including crack.

adults. The decline occurred when young people began to view experimental and occasional use—the type of use in which they are most likely to engage—as more dangerous. This change first began to occur in 1987, probably partly because the hazards of cocaine use received extensive media coverage during the preceding year, but almost surely in part because of 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 (twelfth graders, college students, and young adults).

During the 1990s, however, cocaine use in all five populations increased some, both beginning and ending in a staggered pattern by age. Use rose among eighth graders from 1991 to 1998, among tenth and twelfth graders from 1992 to 1999, among college students from 1994 to 1999, and among young adults from 1996 through 2000. (Note that a turnaround has yet to occur in the two older groups.)

Again, the story regarding attitudes and beliefs is informative. Having risen substantially after 1986, the perceived risk of using cocaine actually showed some (nonsignificant) decline in 1992 among seniors. In 1993, perceived risk for *cocaine other than crack* 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 pretty much ended by 1995 among eighth graders and by 2000 among twelfth graders, but there was a further significant decline among tenth graders in 2000. Disapproval declined between 1991 and 1996 among eighth graders, before leveling, and in 1992 through 1998 among tenth and twelfth graders, with the exception of an increase for twelfth graders in 1995. These changes foretold a subsequent leveling of use at each grade level.

Through 1989, there was no decline in perceived availability of cocaine among twelfth graders; in fact, it rose steadily from 1983 to 1989, suggesting that availability played no role in bringing about the substantial downturn in use after 1986. After 1989, however, perceived availability fell some among seniors; the decline may be explained by the greatly reduced proportions of seniors who said they have any friends who use, because friendship circles are an important part of the supply system. Since 1992 there has been rather little change in eighth and tenth grade reports of availability of powder cocaine (except for a significant decline among tenth graders in 2000). Among seniors, reported availability declined from 1992 to 1994, before leveling.

As with all the illicit drugs, lifetime cocaine prevalence climbs with age, reaching 39% by age 40 (among the 2000 survey respondents). Unlike all

of the other illicit drugs, active use of cocaine—i.e., annual prevalence or monthly prevalence—holds fairly steady after high school (and until recent years increased in use 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 high school seniors 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, declined to 1.8% by 1999, then rose back to 2.3% in 2000. For the young adults, the annual prevalence rate rose from 0.2% in 1996 to 0.6% in 1998, but it is now down to only 0.3%.
- Looking at the long-term trends, we see that the annual prevalence of **heroin** use among twelfth graders fell by half between 1975 (1.0%) and 1979 (0.5%). It then stabilized for fifteen years, through 1994. Heroin use was also stable in the early 1990s among the other four populations covered here. Then, in 1994 in the case of the eighth graders, and in 1995 in the case of all other groups, there was a sudden uptick in use, with rates jumping in one or two years to two or three times what they had been. The new higher levels of heroin use remained among all five populations for the rest of the decade. In 2000, however, there was a significant decrease in use among eighth graders (from 1.4% in 1999 to 1.1% in 2000) and a significant increase in use among seniors (from 1.1% in 1999 to 1.5% in 2000). The increase among seniors was due entirely to an increase in non-injection use.

Two factors very likely contributed to the upturn in heroin use in the 1990s. One is that there was a long-term decline in the perceived risk of harm, probably due to “generational forgetting.” The second, not unrelated to the first, is that in recent years the increased purity of heroin has allowed it to be used by means other than injection. This may have lowered an important psychological barrier for some potential users by making heroin use less aversive, and by making it seem less addictive as well as safer, because non-injection reduces the likelihood of transmission of HIV, hepatitis, or other serious diseases. Using some new questions on heroin use introduced 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 of Volume I 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 seniors seeing a great risk of trying heroin once or twice and only 46% of the 1986 seniors saying the same. (The decline may be an example of generational forgetting, as the

heroin epidemic of the early 1970s faded into the distant past.) 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 because it was so much purer. In 1996, perceived risk among seniors began to rise once again, and then rose sharply by 1997 and continued to rise in 1998—perhaps as the result of an anti-heroin 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 began to decrease among seniors in 1999, however, foretelling a significant increase in their use of the drug in 2000.

Questions about the degree of risk perceived to be associated with heroin use were first introduced into the questionnaires for eighth and tenth graders in 1995. The questions asked specifically 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 twelfth graders, as well, in one of the six questionnaire forms.) In general, perceived risk in all three grades rose in 1996 and 1997, before leveling.

- The use of *narcotics other than heroin* is reported for the oldest three populations, because we believe younger students are not accurately discriminating among the drugs that should be included or excluded from this general class. Use had been declining gradually over most of the life of the study in the age groups under study. Seniors had an annual prevalence rate of 6.4% in 1977, which fell to 3.3% by 1992. From about 1992 through 2000, all of the older age groups showed a continuing increase, reaching peak levels of use in 2000. (A closer look at the age breakdowns suggests that most of this increase among young adults is concentrated among 19- to 24- year-olds.) The specific drugs in this class are listed in Table E-4 in Appendix E, which shows that codeine and opium are among the ones most commonly mentioned by high school seniors in recent years. They also account for much of the increase in the general class, though there have also been increases in the reported use of methadone, Demerol™, and “other.”
- A long, substantial decline, which began in 1977, occurred for *tranquilizer* use among high school seniors. By 1992, annual prevalence reached 2.8%, down from 11% in 1977. Since 1992, use increased significantly (as has been true with most of the drugs), reaching 5.8% in 1999 where it remained in 2000. Reported tranquilizer use also exhibited some recent, modest increase among eighth graders, from 1.8% in 1991 to 3.3% in

1996, before declining to 2.6% in 1998. Among tenth graders, annual prevalence remained stable between 1991 and 1994, at around 3.3%, increased significantly to 4.6% by 1996, and then leveled. After a period of stability, college students also showed some increase between 1994 and 2000. For the young adult sample, annual prevalence increased significantly in 1998 and 2000, after a long period of decline. Most of the reported tranquilizer use in recent years has involved taking Valium™. (See Table E-3 in Appendix E.)

- The long-term gradual decline in *barbiturate* use, which began at least as early as 1975, when the study began, halted in 1992. Use among twelfth graders then rose steadily to 6.2% in 2000—only a little more than half of the rate in the peak year of 1975. The 2000 annual prevalence of this class of sedative drugs is lower among young adults (3.4%) and college students (3.7%) than among seniors (6.2%). Use among college students began to rise a couple of years later than it did among twelfth graders, no doubt reflecting the impact of generational replacement. Use has increased significantly among young adults in 2000. (Data are not included here for eighth and tenth grades, again because we believe the younger students have more problems with the proper classification of the relevant drugs.)
- *Methaqualone*, another sedative drug, has shown quite a different trend pattern than barbiturates. Its use rose among seniors from 1975 to 1981, when annual prevalence reached 8%. 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, where it leveled until use decreased significantly to 0.3% in 2000. Use also fell among all young adults and among college students, who had annual prevalence rates of only 0.3% and 0.2%, respectively, by 1989—the last year they were asked about this drug. In the late 1980s, shrinking availability may well have played a role in this drop, as legal manufacture and distribution of the drug ceased. Because of its very low usage rates, only the seniors are now asked about use of this drug.
- It should be noted that we are seeing in recent years an uninterrupted increase in the use of nearly all of the illicit drugs that are *central nervous system depressants* among high school seniors, college students, and young adults generally. These include *barbiturates*, *tranquilizers*, and *narcotics other than heroin*. All of these drugs tended to fall from favor from the mid- 1970s through the early 1990s, but many now seem to be making a comeback.
- To summarize, for some years five classes of illicitly used drugs, *marijuana*, *amphetamines*, *cocaine*, *LSD*, and *inhalants* have had an impact on appreciable proportions of young Americans in their late teens

and twenties. In 2000, high school seniors showed annual prevalence rates of 37%, 11%, 5%, 7%, and 6%, respectively. Among college students in 2000, the comparable annual prevalence rates are 34%, 7%, 5%, 4%, and 3%; and for all young adults the rates are 28%, 5%, 5%, 4%, and 2%.

- Joining this set of long-established drugs as among the more prevalent is *MDMA (ecstasy)*, which has annual prevalence rates in 2000 of 8% among twelfth graders, 9% among college students, and 7% among young adults. The *narcotics other than heroin* are now also reaching appreciable numbers at 7%, 5%, and 4% respectively, as are *tranquilizers* at 6%, 4%, and 5%, respectively.

In eighth grade, *inhalants* are second only to marijuana as the most widely used of the illicit drugs. Because of their importance among the younger adolescents, a new index of illicit drug use including inhalants was introduced in Table 2-1 through 2-2 in recent years. Certainly the use of inhalants reflects a form of illicit, psychoactive drug use; its inclusion 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 2000 the proportion of eighth graders reporting any illicit drug use in their lifetime, exclusive of inhalants, was 27%, whereas including inhalants raised the figure to 35%.

- The study has contained a set of questions about the use of non-prescription stimulants for some years, including stay-awake pills, diet pills, and the so-called look-alikes. The annual prevalence among twelfth 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, reaching 15% by 2000. Earlier decreases also occurred among the college-aged young adult population (ages 19 to 22), in which annual prevalence was 26% in 1989, declined to 19% in 1998, and then to 16% in 1999 and 2000—its lowest level since 1986.

The *look-alikes* also have shown some falloff in recent years. Among high school seniors, annual prevalence decreased slightly from 6.8% in 1995 to 5.8% in 2000; among young adults aged 19 to 22, the corresponding figures are 6.0% and 3.6%. Over-the-counter *diet pills* have not shown a recent decline. Among high schools seniors, annual prevalence did decline from 1986 to 1995, from 15% to 10%; it stands at 11% in 2000. (Among twelfth-grade girls in 2000, some 26% had tried diet pills by the end of senior year, 17% used them in the past year, and 9% used them in just the past 30 days.) Among young adults aged 19 to 22 there also had been an earlier decline from 1986 to 1995, with annual prevalence going from 17%

to 6.9%; by 1998, however, it had risen slightly, to 8.6% before climbing to 12.9% in 2000.

College-Noncollege Differences in Illicit Drug Use

- American college students (defined here as those respondents one to four years past high school who were actively enrolled full-time in a two- or four-year college) show annual usage rates for several categories of drugs that are about average for all high school graduates their age; these categories include *any illicit drug*, *marijuana*, *inhalants*, *ecstasy* (MDMA), and *narcotics other than heroin*. For several other categories of drugs, however, college students have rates of use that are below those of their age peers, including *any illicit drug other than marijuana*, *hallucinogens*, *LSD* specifically, *cocaine*, *crack cocaine* specifically, *heroin*, *amphetamines*, *ice*, *barbiturates*, and *tranquilizers*.
- Because college-bound seniors had below-average rates of use on *all* of the illicit drugs while they were in high school, the eventual attainment of parity on many of them reflects some closure of the gap. As results from the study published in a recent book 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.⁹
- In general, the trends since 1980 in illicit substance use among American college students have paralleled those of their age peers not in college. Most drugs showed a period of substantial decline in use sometime after 1980. Further, all young adult high school graduates through age 28, as well as college students taken separately, showed trends highly parallel for the most part to the trends among high school seniors until about 1992. After 1992, a number of drugs showed an increase in use among seniors (as well as eighth and tenth graders), but not among college students and young adults.

This divergence, combined with the fact that the upturn began first among the eighth graders (in 1992), suggests that cohort effects are emerging for illicit drug use, as we have discussed above. In fact, as those heavier-using cohorts of high school seniors 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 twelfth graders in 1992 for a number of drugs (e.g., *cocaine*, *amphetamines*, *barbiturates*,

⁹Bachman, J. G., Wadsworth, K. N., O'Malley, P. M., Johnston, L. D., & Schulenberg, J. (1997). *Smoking, drinking, and drug use in young adulthood: The impacts of new freedoms and new responsibilities*. Mahwah, NJ: Lawrence Erlbaum Associates.

tranquilizers, other narcotics, 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 the three grades of secondary school, we saw a sharp increase among college students. The evidence for cohort effects resulting from generational replacement is impressive and consistent with our earlier predictions.

Male-Female Differences in Illicit Drug Use

- Regarding gender differences in three older populations (high school seniors, 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. *Daily marijuana use* among high school seniors in 2000, for example, is reported by 8.2% of males versus 3.5% of females; among all adults (aged 19 to 32 years) by 5.3% of males versus 2.6% of females; and among college students, specifically, by 6.1% of males versus 3.5% of females.
- In the eighth- and tenth-grade samples there are fewer 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. There is little male-female difference in eighth and tenth grades in the use of *cocaine* and *crack*. *Amphetamine* use 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, experience with alcohol is almost universal among them. That is, alcohol has been tried by 52% of eighth graders, 71% of tenth graders, 80% of twelfth graders, and 87% of college students; and active use is widespread. Most important, perhaps, is the widespread occurrence of *occasions of heavy drinking*—measured by the percent reporting five or more drinks in a row at least once in the prior two-week period. Among eighth graders this statistic stands at 14%, among tenth graders at 26%, among twelfth graders at 30%, and among college students at 39%. After the early twenties this behavior recedes somewhat with age, reflected by the 35% rate found in the entire young adult sample and the 24% rate found among 31- to 32-year-olds.
- Alcohol use did not increase as use of other illicit drugs decreased among seniors from the late 1970s to the early 1990s, although it was common to

hear such a “displacement hypothesis” asserted. This study demonstrates that the opposite seems to be true. After 1980, when illicit drug use was declining, the monthly prevalence of alcohol use among seniors also declined gradually, but substantially, from 72% in 1980 to 51% in 1993. *Daily alcohol use* declined from a peak of 6.9% in 1979 to 2.5% in 1993; and 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, there was evidence that alcohol use (particularly binge drinking) was rising some as well—albeit not nearly as sharply as did marijuana use. In the late 1990s, as illicit drug use leveled in secondary schools and began a gradual decline, similar trends are observed for alcohol.

Male-Female Differences in Alcohol Use

- There is a substantial gender difference among high school seniors in the prevalence of *occasions of heavy drinking* (24% for females versus 37% for males in 2000); this difference generally had been diminishing very gradually since the study began. (In 1975 there was a 23 percentage point difference between them, versus a 13 point difference in 2000.)
- As just discussed, there also are substantial gender differences in alcohol use among college students, and young adults generally, with males drinking more. For example, 48% of college males report having *five or more drinks in a row* over the previous two weeks versus 34% of college females. There has not been a great deal of change in this gender difference since 1980.

College-Noncollege Differences in Alcohol Use

- The data from college students show a quite different pattern of change in relation to alcohol use than that of twelfth 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 high school seniors (72% to 51%) and slightly less decline in daily prevalence (6.5% to 3.9%) compared to a decline from 6.0% to 2.5% among high school seniors. *Occasions of heavy drinking* also declined less among college students from 1980 to 1993, from 44% to 40%, compared to a decline from 41% to 28% among high school seniors. Among noncollege age-mates, the decline was from 41% to 34%. Thus, because both their noncollege age-mates and high school students were showing greater declines, the college students stood out as having maintained a high rate of binge or party drinking. Since 1993, the college students changed little (39% in 2000—similar to the 40% rate observed in 1993), while their noncollege age-mates

increased by two percentage points, to 36%; high school seniors increased by two percentage points, to 30%. Still, college students stand out as having a relatively high rate of binge or party drinking.

Because the college-bound seniors in high school are consistently less likely to report occasions of heavy drinking than the noncollege-bound, the higher rates of such drinking in college indicate that they “catch up to and pass” their peers in binge drinking after high school graduation.

- 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. College men have much higher rates of daily drinking than college women (4.9% versus 2.8% in 2000). This gender difference is even greater in the noncollege group (9.1% versus 3.2%, respectively).
- The rate of daily drinking fell considerably among the noncollege group, from 8.3% in 1980 to 3.2% in 1994, but is now back to 5.8%. Daily drinking by the college group went from 6.5% to 3.0% in 1995, and stands at 3.6% in 2000.
- In 2000, college males had only a slightly higher binge drinking rate (48%) than noncollege males the same age (47%), but college females had a considerably higher rate (34%) than their noncollege counterparts (27%).

TRENDS IN CIGARETTE SMOKING

- Quite a number of very important findings about *cigarette smoking* among American adolescents and young adults have emerged during the life of the study. Despite the demonstrated health risks associated with smoking, sizeable and, during the past decade, growing proportions of young people continued to establish regular cigarette habits during late adolescence. In fact, since the study began in 1975, cigarettes have consistently comprised the class of abusable substance 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 eighth and tenth graders, the current smoking rate increased by about half between 1991 (when their use was first measured) and 1996; and among twelfth graders, the current smoking rate rose by nearly one-third between 1992 (their recent low point) and 1997. This study played

an important role in bringing these disturbing increases in adolescent smoking to public attention during those years.

Fortunately, there has been some decline in current smoking since 1996 in the case of eighth and tenth graders, and since 1997 in the case of twelfth graders. In 2000, 15% of eighth graders, 24% of tenth graders, and 31% of twelfth graders reported smoking one or more cigarettes in the prior 30 days. Thus, at present nearly a third of American young people are current smokers by the time they complete high school; and other research consistently shows that smoking rates are substantially higher among those who drop out before graduating.

Daily smoking rates also increased by about half among eighth graders (from a low of 7.0% in 1992 to 10.4% in 1996) and tenth graders (from a low of 12.3% in 1992 to 18.3% in 1996), while daily smoking among twelfth graders increased by 43% (from a low of 17.2% in 1992 to 24.6% in 1997). In 1997, we saw the first evidence of a change in the situation, as daily smoking rates declined among eighth graders and leveled among tenth graders. There was a significant decline in tenth and twelfth graders' daily smoking rates by 1998. All three grades have been continuing to decline through 2000. Among college students there was a nearly 50% increase in smoking from 1994 (13%) through 1999 (19%), before a nonstatistically significant turnaround in 2000 (18%). For high school seniors, the upturn in the 1990s followed a substantial decline in smoking during a much earlier period (from 1977 to 1981), a leveling for nearly a decade (through 1990), and a slight decline in 1991 and 1992. Rates then started up, and the 1998 decline in daily smoking rates was the first decline in use by seniors since 1992.

The dangers perceived to be associated with **pack-a-day** smoking differ greatly by grade level and seem to be unrealistically low at all grade levels. Currently, nearly three-quarters of the seniors (73%) report that pack-a-day smokers run a great risk of harming themselves physically or in other ways: more importantly, only 59% of the eighth 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 between 1995 and 2000, presaging the more recent downturn in smoking.

Disapproval of cigarette smoking had been in decline longer: from 1991 through 1996 among eighth and tenth graders, and from 1992 to 1996 among twelfth graders. Since then there has been an increase in disapproval in all three grades, though it is not yet large enough to offset the earlier decline completely. Undoubtedly the heavy media coverage of the tobacco issue (the proposed 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 these 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 anti-smoking campaigns and recent increases in cigarette prices, have served to sustain these changes.

Age and Cohort-Related Differences in Cigarette Smoking

- Initiation of smoking most often occurs in grades six through nine (i.e., at modal ages 11-12 to 14-15), with rather little further initiation after high school, although a number of light smokers 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 shows 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 the half-pack-a-day (or more) smokers in senior year said that they had tried to quit smoking and found they could not. Of those who had been daily smokers in twelfth grade, nearly three-quarters were daily smokers seven to nine years later (based on the 1985 follow-up survey), despite the fact that in high school only 5% of them thought they would “definitely” be smoking five years hence. A more recent analysis, based on the 1995 follow-up survey, showed similar results. Nearly two-thirds (63%) of those who had been daily smokers in the twelfth 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; it is difficult to break for those young people who have it; and young people greatly overrate their own ability to quit. Additional data from the eighth and tenth grade students show us that younger children are even more likely than older ones to underestimate seriously the dangers of smoking.
- The surveys of eighth and tenth graders also show that cigarettes are almost universally available to teens. Over two-thirds (69%) of eighth graders and nearly nine-tenths (87%) of tenth graders say that cigarettes are “fairly easy” or “very easy” for them to get, if they want them. Until 1997 there had been little change in reported availability since these questions were first asked in 1992. Over the last four years, however, perceived availability of cigarettes decreased significantly for eighth and tenth graders, quite likely reflecting the impact of new regulations and

related enforcement efforts aimed at reducing the sale of cigarettes to children.

College-Noncollege Differences in Cigarette Smoking

- A striking difference in smoking rates has long existed between college-bound and noncollege-bound high school seniors. For example, in 2000 smoking a half-pack or more per day is two and one-half times as prevalent among the noncollege-bound seniors (20% versus 8%). Among respondents of college age (one to four years past high school), those not in college show the same dramatically higher rate of smoking as that found among those who are in college, with half-pack-a-day smoking standing at 24% and 10%, respectively.
- In the first half of the 1990s, smoking rose some among college students and their same-age peers, although the increases were not as steep for either group as they were among high school seniors. 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 high school seniors 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%—or by about 40%. The year 2000 shows, for the first time in several years, a decline in college student smoking.

Male-Female Differences in Cigarette Smoking

- In the 1970s, high school senior females caught up to, and passed, senior males in their 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 there was another crossover—rates rose among males and declined among females. Both genders showed increasing use between 1992 and 1997 and some decline in use since.

Among college students, females had slightly higher probabilities of being daily smokers from 1980 through 1994—although this long-standing gender difference was not true among their age peers not in college. However, there was a crossover in 1995—no doubt an echo of the crossover among seniors in 1991—and since 1995, smoking rates among college males have tended to be slightly higher than among females.

RACIAL/ETHNIC COMPARISONS

The three largest ethnic groupings—Whites, African Americans, and Hispanics taken as a group—are examined here, for eighth, tenth, and twelfth graders. (Sample size limitations simply do not allow finer subgroup breakdowns unless many years are combined.) A number of interesting findings emerge in these comparisons, and the reader is referred to Chapters 4 and 5 of Volume I for a full discussion of them.¹⁰

- African American seniors have consistently shown lower usage rates on most drugs, licit and illicit, than White seniors; this also is true at the lower grade levels where little dropping out of school has yet occurred. The differences are quite large for some drugs, including *inhalants*, *LSD*, and *crack cocaine*, at all three grade levels.
- African American students have a much lower prevalence of 30-day prevalence of *cigarette smoking* than White students (14% versus 38% in senior year, in 2000) because their smoking rate continued to decline after 1983, while the rate for White students stabilized for some years. (Smoking rates had been rising among White seniors after 1992 and among African American seniors after 1994, but by 1998 there was a leveling, and since then a reversal, in both groups in all grades.)
- In twelfth grade, *occasions of heavy drinking* are much less likely to be reported by African American students (12%) than by White students (35%) or Hispanic students (31%).
- In twelfth grade, of the three racial/ethnic groups, Whites have the highest rates of use on a number of drugs, including *inhalants*, *hallucinogens*, *LSD* specifically, *amphetamines*, *barbiturates*, *tranquilizers*, *narcotics other than heroin*, *alcohol*, *cigarettes*, and *smokeless tobacco*.
- However, Hispanics have the highest usage rate in senior year for a number of the most dangerous drugs, e.g., *heroin*, *cocaine*, and *crack*. Further, in eighth grade, Hispanics have the highest rates not only on these drugs, but on many of the others, as well. For example, in eighth grade, the annual prevalence of *marijuana* for Hispanics is 20%, versus 15% for Whites and 16% for African Americans; for *binge drinking*, 19%, 15%, and 10%, respectively. In other words, Hispanics have the highest rates of use for many drugs in eighth grade, but not in twelfth, which suggests that their

¹⁰Periodically we 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 most recent is 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. A sequel article is about to be submitted as of this writing.

considerably higher dropout rate (compared to Whites and African Americans) may change their relative ranking by twelfth grade.

- With regard to trends, seniors in all three racial/ethnic groups exhibited the decline in *cocaine* use from 1986 through 1992, although the decline was less steep among African American seniors 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 seniors had achieved the highest level of use on a number of drugs—including *amphetamines*, *barbiturates*, and *tranquilizers*—they also had the largest declines; African Americans have had the lowest rates and, therefore, the smallest declines.
- The important racial/ethnic differences in *cigarette smoking* noted earlier among high school seniors have emerged during the life of the study. The three groups were fairly similar in their smoking rates during the mid-1970s, and all three mirrored the general decline in smoking from 1977 through 1981. From 1981 through 1992, however, smoking rates declined very little, if at all, for Whites and Hispanics, but the rates for African Americans continued to decline steadily. As a result, by 1992 the daily smoking rate for African Americans was one-fifth that for Whites. Subsequently, all three ethnic groups of twelfth graders exhibited fairly parallel trends in smoking.

DRUG USE IN EIGHTH GRADE

It may be useful to focus specifically on the youngest age group in the study—the eighth graders, most of whom are 13 or 14 years old—because the exceptional levels of both licit and illicit drug use that they already have attained help illustrate the nation’s urgent need to continue to address the substance abuse problems among its young.

- By eighth grade 52% of youngsters report having tried *alcohol* (more than just a few sips), and a quarter (25%) say they have already been *drunk* at least once.
- Just under half of the eighth graders (41%) have tried *cigarettes*, and one in seven (15%) say they have smoked in the prior month. Shocking to most adults is the fact that only 59% of eighth graders recognize that there is great risk associated with being a pack-a-day smoker. While an increasing proportion will recognize the risk by twelfth grade, to a considerable degree the horse is already out of the barn by that time, because many will have become smokers.

- **Smokeless tobacco** has been tried by 19% of male eighth graders, is used currently by 7% of them, and is used daily by 1.5%. (Rates are much lower among females than among males.)
- Among eighth graders, nearly one in five (18%) have used **inhalants**, and one in twenty (5%) say they have used them in the past month. This is the only class of drugs for which use is substantially higher in eighth grade than in tenth or twelfth grade.
- **Marijuana** has been tried by one in every five eighth graders (20%) and has been used in the prior month by almost one in every eleven (9%).
- A surprisingly large number of eighth-grade students (10%) say they have tried prescription-type **amphetamines**; 3.4% say they have used them in the prior 30 days.
- Relatively few eighth graders say they have tried most of the **other illicit drugs** yet. (This is consistent with the retrospective reports from seniors concerning the grades in which they first used the various drugs.) But the proportions having at least some experience with them is not inconsequential because a 3.3% prevalence rate, for example, on average represents one child in every 30-student classroom. The 2000 eighth-grade proportions reporting experience with the other illicit drugs are **tranquilizers** (4.4%), **LSD** (3.9%), **other hallucinogens** (2.3%), **ecstasy** (4.3%), **crack** (3.1%), **other cocaine** (3.5%), **heroin** (1.9%), and **steroids** (3.0% overall, and 4.0% among males).
- In total, 16% of all eighth graders in 2000—one in every six—have tried **some illicit drug other than marijuana** (excluding inhalants).
- The very large number of students who have already begun use of the so-called “gateway drugs” (**tobacco**, **alcohol**, **inhalants**, and **marijuana**) suggests that a substantial number of eighth-grade students are already at risk of proceeding further to such drugs as LSD, cocaine, amphetamines, and heroin.

DRUG USE BY AGE 40

Because we have now followed up graduating high school seniors into their forties, we can characterize the drug-using history of today’s 40-year-olds. This is important not only because it characterizes how use by these respondents has developed over more than two decades since they left high school, but also because many of them are now themselves the parents of adolescents. Their active use of substances may serve as role-

modeling for their children, and their own past experience may complicate their communications with their children regarding drugs. The level of use they have attained is truly impressive. (See Chapter 4 of Volume II for greater detail and discussion.)

- Among 40-year-old high school graduates in 2000, we estimate that nearly four out of five (78%) have tried *marijuana* and that over two-thirds (71%) have tried an *illicit drug other than marijuana* (estimates adjusted as described in Volume II).

Their current behavior is far less extreme than those statistics would imply, however. “Only” one in seven (14%) indicates using marijuana in the last twelve months, while one in twelve (8%) affirm use of any other illicit drug in that time period. (Their past-month prevalence rates are lower still—9% and 4%, respectively.) At least one in forty 40- year-olds (2.6%) is a *current daily marijuana* user, though a great many more have been so at some time in the past.

- Quite high proportions have had some experience during their lifetime with several of the specific illicit drugs other than marijuana. These include *amphetamines* (53%), *cocaine* in any form (45%), *powder cocaine* (38%), *tranquilizers* (37%), *hallucinogens* of any type (32%), *narcotics other than heroin* (29%), *barbiturates* (28%), *LSD* (19%), and *other hallucinogens* (16%).
- Among the illicit drugs other than marijuana that have been used in just the past year by this age group (outside of medical regimen) are: *cocaine* (4% annual prevalence), *tranquilizers* (3%), *barbiturates* (2%), *narcotics other than heroin* (2%), and *amphetamines* (1%). There is virtually no active use being reported by our respondents at this age of *LSD*, *other hallucinogens*, *inhalants*, *ecstasy*, *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 at this age, with 63% indicating that they consumed at least one alcoholic drink in the prior thirty days, 7% indicating current *daily drinking* (defined as drinking on 20 or more occasions in the prior 30 days), and 22% indicating *occasional heavy drinking* (defined as five or more drinks on at least one occasion in the prior two weeks).
- Nearly one in four (23%) 40-year-old high school graduates currently smokes *cigarettes*. Nearly all of those (more than one in five, or 21%) currently *smoke daily*.

SUMMARY AND CONCLUSIONS

We can summarize the findings on trends as follows: over more than a decade—from the late 1970s to the early 1990s—there were very appreciable declines in use of several *illicit drugs* among twelfth-grade students, and even larger declines in their use 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 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 factors appear to have been pivotal in bringing about those changes. The reported levels of availability of marijuana, as reported by high school seniors, has 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 actually was rising during the beginning of the sharp decline in cocaine and crack use, which occurred when the risks associated with that drug suddenly rose sharply.

However, improvements surely are 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 for a more detailed discussion of this point.)

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 seniors regarding drug use began to soften.

In 1993, use of a number of drugs began to rise among tenth and twelfth graders, as well, fulfilling our earlier predictions that we had made based on their eroding beliefs about the dangers of drugs and their attitudes about drug use. Increases occurred in a number of the so-called “gateway drugs”—*marijuana*, *cigarettes*, and *inhalants*—increases that we argued boded ill for the use of later 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 eighth and tenth graders and after 1992 among twelfth graders. (This proportion increased by more than half among eighth 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—the use of both increased fairly steadily through 1998.

Over the years, this study has demonstrated that changes in perceived risk and disapproval have been important causes of change in the use of several drugs. These beliefs and attitudes surely are 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 helps to explain 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 this one—began to document that the problem was worsening again), and the media's *pro bono* placement of ads from the Partnership for a Drug-Free America also fell considerably. (The twelfth graders in this study 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 they learn about through the media. 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. If true, 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. 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 of them to use drugs.

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

- By the end of eighth grade, nearly four in every ten (35%) American eighth-grade students have tried an *illicit drug* (if inhalants are included as an illicit drug), and by twelfth grade, more than half (57%) have done so.
- By their late twenties, about two-thirds (68%) of today's American young adults have tried an *illicit drug*, and 43% have tried some *illicit drug other than marijuana* (usually in addition to marijuana). (These figures do not include inhalants.)
- Almost one in five young Americans (19% in 2000) has tried *cocaine* by the age of 30, and 9% have tried it by their senior year of high school (i.e., by age 17 or 18). More than one in every twenty-five seniors (3.9%) has tried *crack*. In the young adult sample, 5.6% have tried crack by age 29-30.

- Over one in every 16 high school seniors (6.0%) in 2000 currently smokes ***marijuana daily***. Among young adults aged 19 to 28, the percentage is slightly less (4.2%). Among those same seniors in 2000, one in every five or six (17%) had been daily marijuana smokers at some time for at least a month, and among young adults the comparable figure is one in seven (14.4%).
- About a third of all high school seniors (30%) had consumed ***five or more drinks in a row*** at least once in the two weeks prior to the survey, and such behavior tends to increase among young adults one to four years past high school. The prevalence of such behavior among male college students reaches 48%.
- Nearly one-third (31%) of high school seniors in 2000 were current ***cigarette*** smokers, and 21% already were 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 between 1979 and 1991, it is still true that this nation's secondary school students and young adults show a level of involvement with illicit drugs that is as great as has been documented in any other industrialized nation in the world.¹¹ 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 of a large and (until recently) growing proportion of young people to cigarette smoking is a matter of the greatest public health concern.
- 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. There is also a great capacity for our young people to discover the abuse potential of existing products, such as Robitussin™, 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

¹¹A recently published report from an international collaborative study, modeled largely after Monitoring the Future, suggests that in 2000 none of the 30 European countries in which national school surveys of 15- to 16-year olds were conducted, had rates of illicit drug use comparable to those observed in the United States. (Heroin was the one important exception.) See Hibell, B., Anderson, B., Ahlström, S., Balakireva, O., Bjarnasson, T., Kokkevi, A., & Morgan, M. (Eds.). (2000). *The 1999 ESPAD Report (The European School Survey Project on Alcohol and Other Drugs): Alcohol and other drug use among students in 30 European countries*. Stockholm: The Swedish Council for Information on Alcohol and Other Drugs, and the Council of Europe. (See also Chapter 10 for a more detailed description of the results of this study.)

against the opening of new fronts, as well as the reemergence of trouble on older ones.

- In fact, 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 *ketamine* and *GHB* have appeared recently and now must be 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 identifying their emergence and quickly demystifying them will be increasingly important.
- The drug problem is not an enemy that can be vanquished, as in a war. It is more a recurring and relapsing problem that must be contained to the extent possible on a long-term, ongoing basis. Therefore, it is a problem that requires an ongoing, dynamic response from our society—one that takes into account the continuing generational replacement of our children and the generational forgetting of the dangers of drugs that can occur with that replacement.

TABLE 2-1
Trends in Lifetime Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

(Entries are percentages)

| | Lifetime | | | | | | | | | | '99-'00 change |
|--|----------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Any Illicit Drug ^a | | | | | | | | | | | |
| 8th Grade | 18.7 | 20.6 | 22.5 | 25.7 | 28.5 | 31.2 | 29.4 | 29.0 | 28.3 | 26.8 | -1.5 |
| 10th Grade | 30.6 | 29.8 | 32.8 | 37.4 | 40.9 | 45.4 | 47.3 | 44.9 | 46.2 | 45.6 | -0.6 |
| 12th Grade | 44.1 | 40.7 | 42.9 | 45.6 | 48.4 | 50.8 | 54.3 | 54.1 | 54.7 | 54.0 | -0.7 |
| College Students | 50.4 | 48.8 | 45.9 | 45.5 | 45.5 | 47.4 | 49.0 | 52.9 | 53.2 | 53.7 | +0.5 |
| Young Adults | 62.2 | 60.2 | 59.6 | 57.5 | 57.4 | 56.4 | 56.7 | 57.0 | 57.4 | 58.2 | +0.7 |
| Any Illicit Drug Other Than Marijuana ^a | | | | | | | | | | | |
| 8th Grade | 14.3 | 15.6 | 16.8 | 17.5 | 18.8 | 19.2 | 17.7 | 16.9 | 16.3 | 15.8 | -0.6 |
| 10th Grade | 19.1 | 19.2 | 20.9 | 21.7 | 24.3 | 25.5 | 25.0 | 23.6 | 24.0 | 23.1 | -0.9 |
| 12th Grade | 26.9 | 25.1 | 26.7 | 27.6 | 28.1 | 28.5 | 30.0 | 29.4 | 29.4 | 29.0 | -0.3 |
| College Students | 25.8 | 26.1 | 24.3 | 22.0 | 24.5 | 22.7 | 24.4 | 24.8 | 25.5 | 25.8 | +0.3 |
| Young Adults | 37.8 | 37.0 | 34.6 | 33.4 | 32.8 | 31.0 | 30.5 | 29.9 | 30.2 | 31.3 | +1.0 |
| Any Illicit Drug Including Inhalants ^{a,b} | | | | | | | | | | | |
| 8th Grade | 28.5 | 29.6 | 32.3 | 35.1 | 38.1 | 39.4 | 38.1 | 37.8 | 37.2 | 35.1 | -2.0 |
| 10th Grade | 36.1 | 36.2 | 38.7 | 42.7 | 45.9 | 49.8 | 50.9 | 49.3 | 49.9 | 49.3 | -0.6 |
| 12th Grade | 47.6 | 44.4 | 46.6 | 49.1 | 51.5 | 53.5 | 56.3 | 56.1 | 56.3 | 57.0 | +0.8 |
| College Students | 52.0 | 50.3 | 49.1 | 47.0 | 47.0 | 49.1 | 50.7 | 55.4 | 54.4 | 54.6 | +0.2 |
| Young Adults | 63.4 | 61.2 | 61.2 | 58.5 | 59.0 | 58.2 | 58.4 | 58.5 | 58.5 | 59.5 | +1.0 |
| Marijuana/Hashish | | | | | | | | | | | |
| 8th Grade | 10.2 | 11.2 | 12.6 | 16.7 | 19.9 | 23.1 | 22.6 | 22.2 | 22.0 | 20.3 | -1.8 |
| 10th Grade | 23.4 | 21.4 | 24.4 | 30.4 | 34.1 | 39.8 | 42.3 | 39.6 | 40.9 | 40.3 | -0.7 |
| 12th Grade | 36.7 | 32.6 | 35.3 | 38.2 | 41.7 | 44.9 | 49.6 | 49.1 | 49.7 | 48.8 | -0.9 |
| College Students | 46.3 | 44.1 | 42.0 | 42.2 | 41.7 | 45.1 | 46.1 | 49.9 | 50.8 | 51.2 | +0.4 |
| Young Adults | 58.6 | 56.4 | 55.9 | 53.7 | 53.6 | 53.4 | 53.8 | 54.4 | 54.6 | 55.1 | +0.6 |
| Inhalants ^{b,c} | | | | | | | | | | | |
| 8th Grade | 17.6 | 17.4 | 19.4 | 19.9 | 21.6 | 21.2 | 21.0 | 20.5 | 19.7 | 17.9 | -1.8s |
| 10th Grade | 15.7 | 16.6 | 17.5 | 18.0 | 19.0 | 19.3 | 18.3 | 18.3 | 17.0 | 16.6 | -0.4 |
| 12th Grade | 17.6 | 16.6 | 17.4 | 17.7 | 17.4 | 16.6 | 16.1 | 15.2 | 15.4 | 14.2 | -1.2 |
| College Students | 14.4 | 14.2 | 14.8 | 12.0 | 13.8 | 11.4 | 12.4 | 12.8 | 12.4 | 12.9 | +0.5 |
| Young Adults | 13.4 | 13.5 | 14.1 | 13.2 | 14.5 | 14.1 | 14.1 | 14.2 | 14.2 | 14.3 | 0.0 |
| Nitrites ^d | | | | | | | | | | | |
| 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 | -0.8 |
| College Students | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | 1.4 | 1.2 | 1.3 | 1.0 | — | — | — | — | — | — | — |

(Table continued on next page)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Lifetime | | | | | | | | | | '99-'00 change |
|---------------------------------|----------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Hallucinogens ^c | | | | | | | | | | | |
| 8th Grade | 3.2 | 3.8 | 3.9 | 4.3 | 5.2 | 5.9 | 5.4 | 4.9 | 4.8 | 4.6 | -0.1 |
| 10th Grade | 6.1 | 6.4 | 6.8 | 8.1 | 9.3 | 10.5 | 10.5 | 9.8 | 9.7 | 8.9 | -0.8 |
| 12th Grade | 9.6 | 9.2 | 10.9 | 11.4 | 12.7 | 14.0 | 15.1 | 14.1 | 13.7 | 13.0 | -0.7 |
| College Students | 11.3 | 12.0 | 11.8 | 10.0 | 13.0 | 12.6 | 13.8 | 15.2 | 14.8 | 14.4 | -0.4 |
| Young Adults | 15.7 | 15.7 | 15.4 | 15.4 | 16.1 | 16.4 | 16.8 | 17.4 | 18.0 | 18.4 | +0.4 |
| LSD | | | | | | | | | | | |
| 8th Grade | 2.7 | 3.2 | 3.5 | 3.7 | 4.4 | 5.1 | 4.7 | 4.1 | 4.1 | 3.9 | -0.2 |
| 10th Grade | 5.6 | 5.8 | 6.2 | 7.2 | 8.4 | 9.4 | 9.5 | 8.5 | 8.5 | 7.6 | -1.0 |
| 12th Grade | 8.8 | 8.6 | 10.3 | 10.5 | 11.7 | 12.6 | 13.6 | 12.6 | 12.2 | 11.1 | -1.1 |
| College Students | 9.6 | 10.6 | 10.6 | 9.2 | 11.5 | 10.8 | 11.7 | 13.1 | 12.7 | 11.8 | -0.8 |
| Young Adults | 13.5 | 13.8 | 13.6 | 13.8 | 14.5 | 15.0 | 15.0 | 15.7 | 16.2 | 16.4 | +0.2 |
| Hallucinogens Other Than LSD | | | | | | | | | | | |
| 8th Grade | 1.4 | 1.7 | 1.7 | 2.2 | 2.5 | 3.0 | 2.6 | 2.5 | 2.4 | 2.3 | -0.1 |
| 10th Grade | 2.2 | 2.5 | 2.8 | 3.8 | 3.9 | 4.7 | 4.8 | 5.0 | 4.7 | 4.8 | +0.1 |
| 12th Grade | 3.7 | 3.3 | 3.9 | 4.9 | 5.4 | 6.8 | 7.5 | 7.1 | 6.7 | 6.9 | +0.2 |
| College Students | 6.0 | 5.7 | 5.4 | 4.4 | 6.5 | 6.5 | 7.5 | 8.7 | 8.8 | 8.2 | -0.6 |
| Young Adults | 8.4 | 8.0 | 7.6 | 7.4 | 7.8 | 7.9 | 8.5 | 9.4 | 9.3 | 9.9 | +0.5 |
| PCP ^d | | | | | | | | | | | |
| 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 | -0.1 |
| College Students | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | 3.1 | 2.0 | 1.9 | 2.0 | 2.2 | 1.9 | 2.4 | 2.7 | 2.3 | 2.3 | 0.0 |
| MDMA (Ecstasy) ^{d,e} | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | 3.4 | 3.2 | 2.7 | 2.7 | 4.3 | +1.6ss |
| 10th Grade | — | — | — | — | — | 5.6 | 5.7 | 5.1 | 6.0 | 7.3 | +1.3 |
| 12th Grade | — | — | — | — | — | 6.1 | 6.9 | 5.8 | 8.0 | 11.0 | +3.0s |
| College Students | 2.0 | 2.9 | 2.3 | 2.1 | 3.1 | 4.3 | 4.7 | 6.8 | 8.4 | 13.1 | +4.7s |
| Young Adults | 3.2 | 3.9 | 3.8 | 3.8 | 4.5 | 5.2 | 5.1 | 7.2 | 7.1 | 11.6 | +4.6sss |

(Table continued on next page)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Lifetime | | | | | | | | | | '99-'00 change |
|-------------------------------|----------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Cocaine | | | | | | | | | | | |
| 8th Grade | 2.3 | 2.9 | 2.9 | 3.6 | 4.2 | 4.5 | 4.4 | 4.6 | 4.7 | 4.5 | -0.2 |
| 10th Grade | 4.1 | 3.3 | 3.6 | 4.3 | 5.0 | 6.5 | 7.1 | 7.2 | 7.7 | 6.9 | -0.9 |
| 12th Grade | 7.8 | 6.1 | 6.1 | 5.9 | 6.0 | 7.1 | 8.7 | 9.3 | 9.8 | 8.6 | -1.2 |
| College Students | 9.4 | 7.9 | 6.3 | 5.0 | 5.5 | 5.0 | 5.6 | 8.1 | 8.4 | 9.1 | +0.7 |
| Young Adults | 21.0 | 19.5 | 16.9 | 15.2 | 13.7 | 12.9 | 12.1 | 12.3 | 12.8 | 12.7 | -0.1 |
| Crack | | | | | | | | | | | |
| 8th Grade | 1.3 | 1.6 | 1.7 | 2.4 | 2.7 | 2.9 | 2.7 | 3.2 | 3.1 | 3.1 | 0.0 |
| 10th Grade | 1.7 | 1.5 | 1.8 | 2.1 | 2.8 | 3.3 | 3.6 | 3.9 | 4.0 | 3.7 | -0.3 |
| 12th Grade | 3.1 | 2.6 | 2.6 | 3.0 | 3.0 | 3.3 | 3.9 | 4.4 | 4.6 | 3.9 | -0.7s |
| College Students | 1.5 | 1.7 | 1.3 | 1.0 | 1.8 | 1.2 | 1.4 | 2.2 | 2.4 | 2.5 | +0.2 |
| Young Adults | 4.8 | 5.1 | 4.3 | 4.4 | 3.8 | 3.9 | 3.6 | 3.8 | 4.3 | 4.6 | +0.3 |
| Other Cocaine ^f | | | | | | | | | | | |
| 8th Grade | 2.0 | 2.4 | 2.4 | 3.0 | 3.4 | 3.8 | 3.5 | 3.7 | 3.8 | 3.5 | -0.3 |
| 10th Grade | 3.8 | 3.0 | 3.3 | 3.8 | 4.4 | 5.5 | 6.1 | 6.4 | 6.8 | 6.0 | -0.8 |
| 12th Grade | 7.0 | 5.3 | 5.4 | 5.2 | 5.1 | 6.4 | 8.2 | 8.4 | 8.8 | 7.7 | -1.1 |
| College Students | 9.0 | 7.6 | 6.3 | 4.6 | 5.2 | 4.6 | 5.0 | 7.4 | 7.8 | 8.1 | +0.2 |
| Young Adults | 19.8 | 18.4 | 15.1 | 13.9 | 12.4 | 11.9 | 11.3 | 11.5 | 11.8 | 11.7 | -0.1 |
| Heroin ^g | | | | | | | | | | | |
| 8th Grade | 1.2 | 1.4 | 1.4 | 2.0 | 2.3 | 2.4 | 2.1 | 2.3 | 2.3 | 1.9 | -0.4 |
| 10th Grade | 1.2 | 1.2 | 1.3 | 1.5 | 1.7 | 2.1 | 2.1 | 2.3 | 2.3 | 2.2 | -0.1 |
| 12th Grade | 0.9 | 1.2 | 1.1 | 1.2 | 1.6 | 1.8 | 2.1 | 2.0 | 2.0 | 2.4 | +0.4 |
| College Students | 0.5 | 0.5 | 0.6 | 0.1 | 0.6 | 0.7 | 0.9 | 1.7 | 0.9 | 1.7 | +0.8s |
| Young Adults | 0.9 | 0.9 | 0.9 | 0.8 | 1.1 | 1.3 | 1.3 | 1.6 | 1.7 | 1.8 | +0.2 |
| With a needle ^h | | | | | | | | | | | |
| 8th Grade | — | — | — | — | 1.5 | 1.6 | 1.3 | 1.4 | 1.6 | 1.1 | -0.5ss |
| 10th Grade | — | — | — | — | 1.0 | 1.1 | 1.1 | 1.2 | 1.3 | 1.0 | -0.2 |
| 12th Grade | — | — | — | — | 0.7 | 0.8 | 0.9 | 0.8 | 0.9 | 0.8 | -0.1 |
| College Students | — | — | — | — | 0.4 | 0.1 | 0.2 | 0.5 | 0.8 | 0.7 | -0.1 |
| Young Adults | — | — | — | — | 0.4 | 0.4 | 0.3 | 0.4 | 0.6 | 0.4 | -0.2 |
| Without a needle ^h | | | | | | | | | | | |
| 8th Grade | — | — | — | — | 1.5 | 1.6 | 1.4 | 1.5 | 1.4 | 1.3 | -0.1 |
| 10th Grade | — | — | — | — | 1.1 | 1.7 | 1.7 | 1.7 | 1.6 | 1.7 | 0.0 |
| 12th Grade | — | — | — | — | 1.4 | 1.7 | 2.1 | 1.6 | 1.8 | 2.4 | +0.6 |
| College Students | — | — | — | — | 0.5 | 1.0 | 1.2 | 2.1 | 1.0 | 2.5 | +1.4 |
| Young Adults | — | — | — | — | 0.9 | 1.3 | 1.5 | 1.7 | 1.9 | 2.1 | +0.2 |
| Other Narcotics ⁱ | | | | | | | | | | | |
| 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 | +0.4 |
| College Students | 7.3 | 7.3 | 6.2 | 5.1 | 7.2 | 5.7 | 8.2 | 8.7 | 8.7 | 8.9 | +0.2 |
| Young Adults | 9.3 | 8.9 | 8.1 | 8.2 | 9.0 | 8.3 | 9.2 | 9.1 | 9.5 | 10.0 | +0.6 |

(Table continued on next page)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Lifetime | | | | | | | | | | '99-'00 change |
|--------------------------------|----------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Amphetamines ⁱ | | | | | | | | | | | |
| 8th Grade | 10.5 | 10.8 | 11.8 | 12.3 | 13.1 | 13.5 | 12.3 | 11.3 | 10.7 | 9.9 | -0.8 |
| 10th Grade | 13.2 | 13.1 | 14.9 | 15.1 | 17.4 | 17.7 | 17.0 | 16.0 | 15.7 | 15.7 | +0.1 |
| 12th Grade | 15.4 | 13.9 | 15.1 | 15.7 | 15.3 | 15.3 | 16.5 | 16.4 | 16.3 | 15.6 | -0.7 |
| College Students | 13.0 | 10.5 | 10.1 | 9.2 | 10.7 | 9.5 | 10.6 | 10.6 | 11.9 | 12.3 | +0.5 |
| Young Adults | 22.4 | 20.2 | 18.7 | 17.1 | 16.6 | 15.3 | 14.6 | 14.3 | 14.1 | 15.0 | +1.0 |
| Methamphetamine ^{j,k} | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | 4.5 | 4.2 | -0.3 |
| 10th Grade | — | — | — | — | — | — | — | — | 7.3 | 6.9 | -0.5 |
| 12th Grade | — | — | — | — | — | — | — | — | 8.2 | 7.9 | -0.3 |
| College Students | — | — | — | — | — | — | — | — | 7.1 | 5.1 | -1.9 |
| Young Adults | — | — | — | — | — | — | — | — | 8.8 | 9.3 | +0.5 |
| Ice ^k | | | | | | | | | | | |
| 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 | -0.8 |
| College Students | 1.3 | 0.6 | 1.6 | 1.3 | 1.0 | 0.8 | 1.6 | 2.2 | 2.8 | 1.3 | -1.5 |
| Young Adults | 2.9 | 2.2 | 2.7 | 2.5 | 2.1 | 3.1 | 2.5 | 3.4 | 3.3 | 3.9 | +0.6 |
| Barbiturates ⁱ | | | | | | | | | | | |
| 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 | +0.2 |
| College Students | 3.5 | 3.8 | 3.5 | 3.2 | 4.0 | 4.6 | 5.2 | 5.7 | 6.7 | 6.9 | +0.2 |
| Young Adults | 8.2 | 7.4 | 6.5 | 6.4 | 6.7 | 6.6 | 6.5 | 6.9 | 7.4 | 8.1 | +0.7 |
| Tranquilizers ⁱ | | | | | | | | | | | |
| 8th Grade | 3.8 | 4.1 | 4.4 | 4.6 | 4.5 | 5.3 | 4.8 | 4.6 | 4.4 | 4.4 | 0.0 |
| 10th Grade | 5.8 | 5.9 | 5.7 | 5.4 | 6.0 | 7.1 | 7.3 | 7.8 | 7.9 | 8.0 | +0.1 |
| 12th Grade | 7.2 | 6.0 | 6.4 | 6.6 | 7.1 | 7.2 | 7.8 | 8.5 | 9.3 | 8.9 | -0.5 |
| College Students | 6.8 | 6.9 | 6.3 | 4.4 | 5.4 | 5.3 | 6.9 | 7.7 | 8.2 | 8.8 | +0.6 |
| Young Adults | 11.8 | 11.3 | 10.5 | 9.9 | 9.7 | 9.3 | 8.6 | 9.6 | 9.6 | 10.5 | +1.0 |
| Rohypnol ^{d,l} | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | 1.5 | 1.1 | 1.4 | 1.3 | 1.0 | -0.3 |
| 10th Grade | — | — | — | — | — | 1.5 | 1.7 | 2.0 | 1.8 | 1.3 | -0.5 |
| 12th Grade | — | — | — | — | — | 1.2 | 1.8 | 3.0 | 2.0 | 1.5 | -0.6 |
| College Students | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — |

(Table continued on next page)

TABLE 2-1 (cont.)
Trends in Lifetime Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Lifetime | | | | | | | | | | '99-'00 change | |
|----------------------------------|----------|------|------|------|------|------|------|------|------|------|-------------------|---------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | | |
| Alcohol ^m | | | | | | | | | | | | |
| Any use | | | | | | | | | | | | |
| 8th Grade | 70.1 | 69.3 | 67.1 | — | — | — | — | — | — | — | — | — |
| 10th Grade | 83.8 | 82.3 | 80.8 | — | — | — | — | — | — | — | — | — |
| 12th Grade | 88.0 | 87.5 | 87.0 | — | — | — | — | — | — | — | — | — |
| College Students | 93.6 | 91.8 | 89.3 | 80.4 | 80.7 | 79.2 | 81.7 | 81.4 | 80.0 | 80.3 | 80.3 | +0.2 |
| Young Adults | 94.1 | 93.4 | 92.1 | 91.2 | 91.6 | 91.2 | 90.7 | 90.6 | 90.2 | 90.7 | 90.7 | +0.5 |
| Been Drunk ^k | | | | | | | | | | | | |
| 8th Grade | 26.7 | 26.8 | 26.4 | 25.9 | 25.3 | 26.8 | 25.2 | 24.8 | 24.8 | 25.1 | 25.1 | +0.3 |
| 10th Grade | 50.0 | 47.7 | 47.9 | 47.2 | 46.9 | 48.5 | 49.4 | 46.7 | 48.9 | 49.3 | 49.3 | +0.4 |
| 12th Grade | 65.4 | 63.4 | 62.5 | 62.9 | 63.2 | 61.8 | 64.2 | 62.4 | 62.3 | 62.3 | 62.3 | 0.0 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — |
| Cigarettes | | | | | | | | | | | | |
| Any use | | | | | | | | | | | | |
| 8th Grade | 44.0 | 45.2 | 45.3 | 46.1 | 46.4 | 49.2 | 47.3 | 45.7 | 44.1 | 40.5 | 40.5 | -3.6 ^{sss} |
| 10th Grade | 55.1 | 53.5 | 56.3 | 56.9 | 57.6 | 61.2 | 60.2 | 57.7 | 57.6 | 55.1 | 55.1 | -2.5 ^s |
| 12th Grade | 63.1 | 61.8 | 61.9 | 62.0 | 64.2 | 63.5 | 65.4 | 65.3 | 64.6 | 62.5 | 62.5 | -2.1 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — |
| Smokeless Tobacco ^{d,e} | | | | | | | | | | | | |
| 8th Grade | 22.2 | 20.7 | 18.7 | 19.9 | 20.0 | 20.4 | 16.8 | 15.0 | 14.4 | 12.8 | 12.8 | -1.6 |
| 10th Grade | 28.2 | 26.6 | 28.1 | 29.2 | 27.6 | 27.4 | 26.3 | 22.7 | 20.4 | 19.1 | 19.1 | -1.3 |
| 12th Grade | — | 32.4 | 31.0 | 30.7 | 30.9 | 29.8 | 25.3 | 26.2 | 23.4 | 23.1 | 23.1 | -0.4 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — |
| Steroids ^k | | | | | | | | | | | | |
| 8th Grade | 1.9 | 1.7 | 1.6 | 2.0 | 2.0 | 1.8 | 1.8 | 2.3 | 2.7 | 3.0 | 3.0 | +0.3 |
| 10th Grade | 1.8 | 1.7 | 1.7 | 1.8 | 2.0 | 1.8 | 2.0 | 2.0 | 2.7 | 3.5 | 3.5 | +0.8 ^{sss} |
| 12th Grade | 2.1 | 2.1 | 2.0 | 2.4 | 2.3 | 1.9 | 2.4 | 2.7 | 2.9 | 2.5 | 2.5 | -0.4 |
| 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 | -0.4 |

Footnotes for Table 2-1 to Table 2-3

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 .05 percent but greater than 0 percent.

Any apparent inconsistency between the change estimate and the prevalence of use estimates for the two most recent classes is due to rounding error.

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

| Approximate Weighted Ns | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 8th Graders | 17,500 | 18,600 | 18,300 | 17,300 | 17,500 | 17,800 | 18,600 | 18,100 | 16,700 | 16,700 |
| 10th Graders | 14,800 | 14,800 | 15,300 | 15,800 | 17,000 | 15,600 | 15,500 | 15,000 | 13,600 | 14,300 |
| 12th Graders | 15,000 | 15,800 | 16,300 | 15,400 | 15,400 | 14,300 | 15,400 | 15,200 | 13,600 | 12,800 |
| College Students | 1,410 | 1,490 | 1,490 | 1,410 | 1,450 | 1,450 | 1,480 | 1,440 | 1,440 | 1,350 |
| Young Adults | 6,600 | 6,800 | 6,700 | 6,500 | 6,400 | 6,300 | 6,400 | 6,200 | 6,000 | 5,700 |

^aFor 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 other narcotics, amphetamines, barbiturates, or tranquilizers not under a doctor's orders. For 8th and 10th graders only: The use of other narcotics and barbiturates has been excluded, because these younger respondents appear to overreport use (perhaps because they include the use of nonprescription drugs in their answers).

^bFor 12th graders, college students, and young adults only: Data based on five of six forms in 1991–98; N is five-sixths of N indicated. Data based on three of six forms beginning in 1999; N is three-sixths of N indicated.

^cInhalants are unadjusted for underreporting of amyl and butyl nitrites; hallucinogens are unadjusted for underreporting of PCP.

^dFor 12th graders only: Data based on one of six forms; N is one-sixth of N indicated. For college students and young adults only: Data based on two of six forms; N is one-third of N indicated. Questions about nitrite use were dropped from the college student and young adult questionnaires in 1995. Questions about smokeless tobacco use were dropped from the college student and young adult analyses in 1989.

^eFor 8th and 10th graders only: MDMA data based on one of two forms in 1996; N is one-half of N indicated. Beginning in 1997, data based on one-third of N indicated due to changes in the questionnaire forms. Smokeless tobacco data based on one of two forms for 1991–96 and on two of four forms beginning in 1997; N is one-half of N indicated.

^fFor 12th graders, college students, and young adults only: Data based on four of six forms; N is four-sixths of N indicated for each group.

^gIn 1995, the heroin question was changed in three of six forms for 12th graders and in one of two forms for 8th and 10th graders. Separate questions were asked for use with injection 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.

^hFor 8th and 10th graders only: Data based on one of two forms in 1995; N is one-half of N indicated. For 12th graders only: Data based on three of six forms; N is three-sixths of N indicated.

ⁱOnly drug use which was not under a doctor's orders is included here.

^jFor 8th and 10th graders only: Data based on one of four forms; N is one-third of N indicated.

^kFor 12th graders, college students, and young adults only: Data based on two of six forms; N is two-sixths of N indicated for each group.

^lFor 8th and 10th graders only: Data based on one of two forms in 1996–97; N is one-half of N indicated. Data based on three of four forms in 1998; N is two-thirds of N indicated. Data based on two of four forms beginning in 1999; N is one-third of N indicated.

^mFor 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 data in the upper line for alcohol came from forms using the original wording, while the data in the lower line came from forms using the revised wording. In 1993, each line of data was based on one of two forms for the 8th and 10th graders and on three of six forms for the 12th graders. N is one-half of N indicated for these groups. Beginning in 1994, data were based on all forms for all grades. 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.

ⁿDaily used is defined as use on twenty or more occasions in the past thirty 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.

**TABLE 2-2
Trends in Annual and 30-Day Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)**

| | Annual | | | | | | | | | | | 30-Day | | | | | | | | | | |
|--|--------|------|------|------|------|------|------|------|------|------|-------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change |
| Any Illicit Drug ^a | 11.3 | 12.9 | 15.1 | 18.5 | 21.4 | 23.6 | 22.1 | 21.0 | 20.5 | 19.5 | -1.1 | 5.7 | 6.8 | 8.4 | 10.9 | 12.4 | 14.6 | 12.9 | 12.1 | 12.2 | 11.9 | -0.4 |
| 8th Grade | 11.3 | 12.9 | 15.1 | 18.5 | 21.4 | 23.6 | 22.1 | 21.0 | 20.5 | 19.5 | -1.1 | 5.7 | 6.8 | 8.4 | 10.9 | 12.4 | 14.6 | 12.9 | 12.1 | 12.2 | 11.9 | -0.4 |
| 10th Grade | 21.4 | 20.4 | 24.7 | 30.0 | 33.3 | 37.5 | 38.5 | 35.0 | 35.9 | 36.4 | +0.5 | 11.6 | 11.0 | 14.0 | 18.5 | 20.2 | 23.2 | 23.0 | 21.5 | 22.1 | 22.5 | +0.4 |
| 12th Grade | 29.4 | 27.1 | 31.0 | 35.8 | 39.0 | 40.2 | 42.4 | 41.4 | 42.1 | 40.9 | -1.2 | 16.4 | 14.4 | 18.3 | 21.9 | 23.8 | 24.6 | 26.2 | 25.6 | 25.9 | 24.9 | -1.0 |
| College Students | 29.2 | 30.6 | 30.6 | 31.4 | 33.5 | 34.2 | 34.1 | 37.8 | 36.9 | 36.1 | -0.9 | 15.2 | 16.1 | 15.1 | 16.0 | 19.1 | 17.6 | 19.2 | 19.7 | 21.6 | 21.5 | -0.1 |
| Young Adults | 27.0 | 28.3 | 28.4 | 28.4 | 29.8 | 29.2 | 29.2 | 29.9 | 30.3 | 30.8 | +0.5 | 15.1 | 14.8 | 14.9 | 15.3 | 15.8 | 15.8 | 16.4 | 16.1 | 17.1 | 18.1 | +1.0 |
| Any Illicit Drug Other Than Marijuana ^a | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 8.4 | 9.3 | 10.4 | 11.3 | 12.6 | 13.1 | 11.8 | 11.0 | 10.5 | 10.2 | -0.4 | 3.8 | 4.7 | 5.3 | 5.6 | 6.5 | 6.9 | 6.0 | 5.5 | 5.5 | 5.6 | +0.1 |
| 10th Grade | 12.2 | 12.3 | 13.9 | 15.2 | 17.5 | 18.4 | 18.2 | 16.6 | 16.7 | 16.7 | 0.0 | 5.5 | 5.7 | 6.5 | 7.1 | 8.9 | 8.9 | 8.8 | 8.6 | 8.6 | 8.5 | -0.1 |
| 12th Grade | 16.2 | 14.9 | 17.1 | 18.0 | 19.4 | 19.8 | 20.7 | 20.2 | 20.7 | 20.4 | -0.3 | 7.1 | 6.3 | 7.9 | 8.8 | 10.0 | 9.5 | 10.7 | 10.7 | 10.4 | 10.4 | 0.0 |
| College Students | 13.2 | 13.1 | 12.5 | 12.2 | 15.9 | 12.8 | 15.8 | 14.0 | 15.4 | 15.6 | +0.2 | 4.3 | 4.6 | 5.4 | 4.6 | 6.3 | 4.5 | 6.8 | 6.1 | 6.4 | 6.9 | +0.6 |
| Young Adults | 14.3 | 14.1 | 13.0 | 13.0 | 13.8 | 13.2 | 13.6 | 13.2 | 13.7 | 14.9 | +1.2 | 5.4 | 5.5 | 4.9 | 5.3 | 5.7 | 4.7 | 5.5 | 6.0 | 6.4 | 6.4 | +0.4 |
| Any Illicit Drug Including Inhalants ^{a,b} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 16.7 | 18.2 | 21.1 | 24.2 | 27.1 | 28.7 | 27.2 | 26.2 | 25.3 | 24.0 | -1.4 | 8.8 | 10.0 | 12.0 | 14.3 | 16.1 | 17.5 | 16.0 | 14.9 | 15.1 | 14.4 | -0.7 |
| 10th Grade | 23.9 | 23.5 | 27.4 | 32.5 | 35.6 | 39.6 | 40.3 | 37.1 | 37.7 | 38.0 | +0.3 | 13.1 | 12.6 | 15.5 | 20.0 | 21.6 | 24.5 | 24.1 | 22.5 | 23.1 | 23.6 | +0.5 |
| 12th Grade | 31.2 | 28.8 | 32.5 | 37.6 | 40.2 | 41.9 | 43.3 | 42.4 | 42.8 | 42.5 | -0.3 | 17.8 | 15.5 | 19.3 | 23.0 | 24.8 | 25.5 | 26.9 | 26.6 | 26.4 | 26.4 | 0.0 |
| College Students | 29.8 | 31.1 | 31.7 | 31.9 | 33.7 | 35.1 | 35.5 | 39.1 | 37.4 | 37.0 | -0.5 | 15.1 | 16.5 | 15.7 | 16.4 | 19.6 | 18.0 | 19.6 | 21.0 | 21.8 | 22.6 | +0.8 |
| Young Adults | 27.8 | 29.2 | 28.9 | 29.2 | 30.4 | 30.2 | 30.1 | 30.6 | 30.6 | 31.2 | +0.6 | 15.4 | 15.3 | 15.1 | 16.1 | 16.1 | 16.4 | 16.9 | 16.7 | 17.4 | 18.8 | +1.4 |
| Marijuana/Hashish | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 6.2 | 7.2 | 9.2 | 13.0 | 15.8 | 18.3 | 17.7 | 16.9 | 16.5 | 15.6 | -0.9 | 3.2 | 3.7 | 5.1 | 7.8 | 9.1 | 11.3 | 10.2 | 9.7 | 9.7 | 9.1 | -0.6 |
| 10th Grade | 16.5 | 15.2 | 19.2 | 25.2 | 28.7 | 33.6 | 34.8 | 31.1 | 32.1 | 32.2 | +0.2 | 8.7 | 8.1 | 10.9 | 15.8 | 17.2 | 20.4 | 20.5 | 18.7 | 19.4 | 19.7 | +0.3 |
| 12th Grade | 23.9 | 21.9 | 26.0 | 30.7 | 34.7 | 35.8 | 38.5 | 37.5 | 37.8 | 36.5 | -1.3 | 13.8 | 11.9 | 15.5 | 19.0 | 21.2 | 21.9 | 23.7 | 22.8 | 23.1 | 21.6 | -1.6 |
| College Students | 26.5 | 27.7 | 27.9 | 29.3 | 31.2 | 33.1 | 31.6 | 35.9 | 35.2 | 34.0 | -1.2 | 14.1 | 14.6 | 14.2 | 15.1 | 18.6 | 17.5 | 17.7 | 18.6 | 20.7 | 20.0 | -0.6 |
| Young Adults | 23.8 | 25.2 | 25.1 | 25.5 | 26.5 | 27.0 | 26.8 | 27.4 | 27.6 | 27.9 | +0.3 | 13.5 | 13.3 | 13.4 | 14.1 | 14.0 | 15.1 | 15.0 | 14.9 | 15.6 | 16.1 | +0.5 |
| Inhalants ^{b,c} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 9.0 | 9.5 | 11.0 | 11.7 | 12.8 | 12.2 | 11.8 | 11.1 | 10.3 | 9.4 | -0.9 | 4.4 | 4.7 | 5.4 | 5.6 | 6.1 | 5.8 | 5.6 | 4.8 | 5.0 | 4.5 | -0.5 |
| 10th Grade | 7.1 | 7.5 | 8.4 | 9.1 | 9.6 | 9.5 | 8.7 | 8.0 | 7.2 | 7.3 | +0.1 | 2.7 | 2.7 | 3.3 | 3.6 | 3.5 | 3.3 | 3.0 | 2.9 | 2.6 | 2.6 | 0.0 |
| 12th Grade | 6.6 | 6.2 | 7.0 | 7.7 | 8.0 | 7.6 | 6.7 | 6.2 | 5.6 | 5.9 | +0.3 | 2.4 | 2.3 | 2.5 | 2.7 | 3.2 | 2.5 | 2.5 | 2.3 | 2.0 | 2.2 | +0.2 |
| College Students | 3.5 | 3.1 | 3.8 | 3.0 | 3.9 | 3.6 | 4.1 | 3.0 | 3.2 | 2.9 | -0.3 | 0.9 | 1.1 | 1.3 | 0.6 | 1.6 | 0.8 | 0.8 | 0.6 | 1.5 | 0.9 | -0.6 |
| Young Adults | 2.0 | 1.9 | 2.1 | 2.1 | 2.4 | 2.2 | 2.3 | 2.1 | 2.3 | 2.1 | -0.1 | 0.5 | 0.6 | 0.7 | 0.5 | 0.7 | 0.5 | 0.5 | 0.7 | 0.8 | 0.5 | -0.3 |
| Nitrites ^d | | | | | | | | | | | | | | | | | | | | | | |
| 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 | -0.3 | 0.4 | 0.3 | 0.6 | 0.4 | 0.4 | 0.7 | 0.7 | 1.0 | 0.4 | 0.3 | -0.1 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | 0.2 | 0.1 | 0.4 | 0.3 | — | — | — | — | — | — | — | * | 0.1 | 0.2 | 0.1 | — | — | — | — | — | — | — |

(Table continued on next page)

**TABLE 2-2 (cont.)
Trends in Annual and 30-Day Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)**

| | Annual | | | | | | | | | | | 30-Day | | | | | | | | | | |
|---------------------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change |
| Hallucinogens ^c | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.9 | 2.5 | 2.6 | 2.7 | 3.6 | 4.1 | 3.7 | 3.4 | 2.9 | 2.8 | 0.0 | 0.8 | 1.1 | 1.2 | 1.3 | 1.7 | 1.9 | 1.8 | 1.4 | 1.3 | 1.2 | -0.1 |
| 10th Grade | 4.0 | 4.3 | 4.7 | 5.8 | 7.2 | 7.8 | 7.6 | 6.9 | 6.9 | 6.1 | -0.9 | 1.6 | 1.8 | 1.9 | 2.4 | 3.3 | 2.8 | 3.3 | 3.2 | 2.9 | 2.3 | -0.6s |
| 12th Grade | 5.8 | 5.9 | 7.4 | 7.6 | 9.3 | 10.1 | 9.8 | 9.0 | 9.4 | 8.1 | -1.3s | 2.2 | 2.1 | 2.7 | 3.1 | 4.4 | 3.5 | 3.9 | 3.8 | 3.5 | 2.6 | -0.9ss |
| College Students | 6.3 | 6.8 | 6.0 | 6.2 | 8.2 | 6.9 | 7.7 | 7.2 | 7.8 | 6.7 | -1.2 | 1.2 | 2.3 | 2.5 | 2.1 | 3.3 | 1.9 | 2.1 | 2.1 | 2.0 | 1.4 | -0.5 |
| Young Adults | 4.5 | 5.0 | 4.5 | 4.8 | 5.6 | 5.6 | 5.9 | 5.2 | 5.4 | 5.4 | 0.0 | 1.1 | 1.5 | 1.2 | 1.4 | 1.7 | 1.2 | 1.5 | 1.4 | 1.3 | 1.2 | -0.1 |
| LSD | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.7 | 2.1 | 2.3 | 2.4 | 3.2 | 3.5 | 3.2 | 2.8 | 2.4 | 2.4 | +0.1 | 0.6 | 0.9 | 1.0 | 1.1 | 1.4 | 1.5 | 1.5 | 1.1 | 1.1 | 1.0 | -0.1 |
| 10th Grade | 3.7 | 4.0 | 4.2 | 5.2 | 6.5 | 6.9 | 6.7 | 5.9 | 6.0 | 5.1 | -0.9 | 1.5 | 1.6 | 1.6 | 2.0 | 3.0 | 2.4 | 2.8 | 2.7 | 2.3 | 1.6 | -0.7ss |
| 12th Grade | 5.2 | 5.6 | 6.8 | 6.9 | 8.4 | 8.8 | 8.4 | 7.6 | 8.1 | 6.6 | -1.5s | 1.9 | 2.0 | 2.4 | 2.6 | 4.0 | 2.5 | 3.1 | 3.2 | 2.7 | 1.6 | -1.2sss |
| College Students | 5.1 | 5.7 | 5.1 | 5.2 | 6.9 | 5.2 | 5.0 | 4.4 | 5.4 | 4.3 | -1.0 | 0.8 | 1.8 | 1.6 | 1.8 | 2.5 | 0.9 | 1.1 | 1.5 | 1.2 | 0.9 | -0.2 |
| Young Adults | 3.8 | 4.3 | 3.8 | 4.0 | 4.6 | 4.5 | 4.4 | 3.5 | 4.0 | 3.7 | -0.3 | 0.8 | 1.1 | 0.8 | 1.1 | 1.3 | 0.7 | 0.9 | 1.0 | 0.8 | 0.8 | -0.1 |
| Hallucinogens Other Than LSD | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 0.7 | 1.1 | 1.0 | 1.3 | 1.7 | 2.0 | 1.8 | 1.6 | 1.5 | 1.4 | -0.1 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 0.7 | 0.7 | 0.6 | 0.6 | +0.1 |
| 10th Grade | 1.3 | 1.4 | 1.9 | 2.4 | 2.8 | 3.3 | 3.3 | 3.4 | 3.2 | 3.1 | -0.1 | 0.4 | 0.5 | 0.7 | 1.0 | 1.0 | 1.0 | 1.2 | 1.4 | 1.2 | 1.2 | 0.0 |
| 12th Grade | 2.0 | 1.7 | 2.2 | 3.1 | 3.8 | 4.4 | 4.6 | 4.6 | 4.3 | 4.4 | +0.1 | 0.7 | 0.5 | 0.8 | 1.2 | 1.3 | 1.6 | 1.7 | 1.6 | 1.6 | 1.7 | +0.1 |
| College Students | 3.1 | 2.6 | 2.7 | 2.8 | 4.0 | 4.1 | 4.9 | 4.4 | 4.5 | 4.4 | -0.1 | 0.6 | 0.7 | 1.1 | 0.8 | 1.6 | 1.2 | 1.2 | 0.7 | 1.2 | 0.8 | -0.4 |
| Young Adults | 1.7 | 1.9 | 1.9 | 2.0 | 2.5 | 2.8 | 3.1 | 3.0 | 3.0 | 3.4 | +0.4 | 0.3 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.5 | 0.6 | 0.7 | +0.1 |
| PCP ^d | | | | | | | | | | | | | | | | | | | | | | |
| 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 | +0.5 | 0.5 | 0.6 | 1.0 | 0.7 | 0.6 | 1.3 | 0.7 | 1.0 | 0.8 | 0.9 | +0.1 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.5 | 0.6 | 0.6 | 0.3 | -0.3 | 0.1 | 0.2 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.0 | -0.2 |
| MDMA (Ecstasy) ^{d,e} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | 2.3 | 2.3 | 1.8 | 1.7 | 3.1 | +1.4sss | — | — | — | — | — | 1.0 | 1.0 | 0.9 | 0.8 | 1.4 | +0.7ss |
| 10th Grade | — | — | — | — | — | 4.6 | 3.9 | 3.3 | 4.4 | 5.4 | +1.0 | — | — | — | — | — | 1.8 | 1.3 | 1.3 | 1.8 | 2.6 | +0.8s |
| 12th Grade | — | — | — | — | — | 4.6 | 4.0 | 3.6 | 5.6 | 8.2 | +2.6ss | — | — | — | — | — | 2.0 | 1.6 | 1.5 | 2.5 | 3.6 | +1.1 |
| College Students | 0.9 | 2.0 | 0.8 | 0.5 | 2.4 | 2.8 | 2.4 | 3.9 | 5.5 | 9.1 | +3.6s | 0.2 | 0.4 | 0.3 | 0.2 | 0.7 | 0.7 | 0.8 | 0.8 | 2.1 | 2.5 | +0.4 |
| Young Adults | 0.8 | 1.0 | 0.8 | 0.7 | 1.6 | 1.7 | 2.1 | 2.9 | 3.6 | 7.2 | +3.6sss | 0.1 | 0.3 | 0.3 | 0.2 | 0.4 | 0.3 | 0.6 | 0.8 | 1.3 | 1.9 | +0.5 |

(Table continued on next page)

**TABLE 2-2 (cont.)
Trends in Annual and 30-Day Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)**

| | Annual | | | | | | | | | | | 30-Day | | | | | | | | | | |
|-------------------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change |
| Cocaine | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.1 | 1.5 | 1.7 | 2.1 | 2.6 | 3.0 | 2.8 | 3.1 | 2.7 | 2.6 | -0.1 | 0.5 | 0.7 | 0.7 | 1.0 | 1.2 | 1.3 | 1.1 | 1.4 | 1.3 | 1.2 | -0.1 |
| 10th Grade | 2.2 | 1.9 | 2.1 | 2.8 | 3.5 | 4.2 | 4.7 | 4.7 | 4.9 | 4.4 | -0.5 | 0.7 | 0.7 | 0.9 | 1.2 | 1.7 | 1.7 | 2.0 | 2.1 | 1.8 | 1.8 | -0.1 |
| 12th Grade | 3.5 | 3.1 | 3.3 | 3.6 | 4.0 | 4.9 | 5.5 | 5.7 | 6.2 | 5.0 | -1.3s | 1.4 | 1.3 | 1.3 | 1.5 | 1.8 | 2.0 | 2.3 | 2.4 | 2.6 | 2.1 | -0.5 |
| College Students | 3.6 | 3.0 | 2.7 | 2.0 | 3.6 | 2.9 | 3.4 | 4.6 | 4.6 | 4.8 | +0.2 | 1.0 | 1.0 | 0.7 | 0.6 | 0.7 | 0.8 | 1.6 | 1.6 | 1.2 | 1.4 | +0.2 |
| Young Adults | 6.2 | 5.7 | 4.7 | 4.3 | 4.4 | 4.1 | 4.7 | 4.9 | 5.4 | 5.4 | 0.0 | 2.0 | 1.8 | 1.4 | 1.3 | 1.5 | 1.2 | 1.6 | 1.7 | 1.9 | 1.7 | -0.3 |
| Crack | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 0.7 | 0.9 | 1.0 | 1.3 | 1.6 | 1.8 | 1.7 | 2.1 | 1.8 | 1.8 | 0.0 | 0.3 | 0.5 | 0.4 | 0.7 | 0.7 | 0.8 | 0.7 | 0.9 | 0.8 | 0.8 | -0.1 |
| 10th Grade | 0.9 | 0.9 | 1.1 | 1.4 | 1.8 | 2.1 | 2.2 | 2.5 | 2.4 | 2.2 | -0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.9 | 0.8 | 0.9 | 1.1 | 0.8 | 0.9 | +0.1 |
| 12th Grade | 1.5 | 1.5 | 1.5 | 1.9 | 2.1 | 2.1 | 2.4 | 2.5 | 2.7 | 2.2 | -0.5s | 0.7 | 0.6 | 0.7 | 0.8 | 1.0 | 1.0 | 0.9 | 1.0 | 1.1 | 1.0 | -0.1 |
| College Students | 0.5 | 0.4 | 0.6 | 0.5 | 1.1 | 0.6 | 0.4 | 1.0 | 0.9 | 0.9 | 0.0 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.0 |
| Young Adults | 1.2 | 1.4 | 1.3 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.4 | 1.2 | -0.2 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | -0.1 |
| Other Cocaine ^f | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.0 | 1.2 | 1.3 | 1.7 | 2.1 | 2.5 | 2.2 | 2.4 | 2.3 | 1.9 | -0.4 | 0.5 | 0.5 | 0.6 | 0.9 | 1.0 | 1.0 | 0.8 | 1.0 | 1.1 | 0.9 | -0.2 |
| 10th Grade | 2.1 | 1.7 | 1.8 | 2.4 | 3.0 | 3.5 | 4.1 | 4.0 | 4.4 | 3.8 | -0.6 | 0.6 | 0.6 | 0.7 | 1.0 | 1.4 | 1.3 | 1.6 | 1.8 | 1.6 | 1.6 | 0.0 |
| 12th Grade | 3.2 | 2.6 | 2.9 | 3.0 | 3.4 | 4.2 | 5.0 | 4.9 | 5.8 | 4.5 | -1.4s | 1.2 | 1.0 | 1.2 | 1.3 | 1.3 | 1.6 | 2.0 | 2.5 | 1.7 | 1.7 | -0.7s |
| College Students | 3.2 | 2.4 | 2.5 | 1.8 | 3.3 | 2.3 | 3.0 | 4.2 | 4.2 | 4.1 | -0.1 | 1.0 | 0.9 | 0.6 | 0.3 | 0.8 | 0.6 | 1.3 | 1.5 | 1.0 | 0.9 | -0.1 |
| Young Adults | 5.4 | 5.1 | 3.9 | 3.6 | 3.9 | 3.8 | 4.3 | 4.5 | 4.8 | 4.8 | 0.0 | 1.8 | 1.7 | 1.1 | 1.0 | 1.3 | 1.1 | 1.5 | 1.5 | 1.6 | 1.5 | -0.2 |
| Heroin ^g | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 0.7 | 0.7 | 0.7 | 1.2 | 1.4 | 1.6 | 1.3 | 1.3 | 1.4 | 1.1 | -0.3s | 0.3 | 0.4 | 0.4 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | -0.2 |
| 10th Grade | 0.5 | 0.6 | 0.7 | 0.9 | 1.1 | 1.2 | 1.4 | 1.4 | 1.4 | 1.4 | 0.0 | 0.2 | 0.2 | 0.3 | 0.4 | 0.6 | 0.5 | 0.6 | 0.7 | 0.7 | 0.5 | -0.2 |
| 12th Grade | 0.4 | 0.6 | 0.5 | 0.6 | 1.1 | 1.0 | 1.2 | 1.0 | 1.1 | 1.5 | +0.4s | 0.2 | 0.3 | 0.2 | 0.3 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 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 | +0.3 | 0.1 | 0.0 | * | 0.0 | 0.1 | * | 0.2 | 0.1 | 0.1 | 0.2 | +0.1 |
| Young Adults | 0.1 | 0.2 | 0.2 | 0.1 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.0 | * | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 |
| With a needle ^h | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | 0.9 | 1.0 | 0.8 | 0.8 | 0.9 | 0.6 | -0.3ss | — | — | — | — | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 | 0.3 | -0.1 |
| 10th Grade | — | — | — | — | 0.6 | 0.7 | 0.7 | 0.8 | 0.6 | 0.5 | -0.1 | — | — | — | — | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | -0.1 |
| 12th Grade | — | — | — | — | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.0 | — | — | — | — | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.0 |
| College Students | — | — | — | — | 0.1 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | — | — | — | — | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 |
| Young Adults | — | — | — | — | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | * | -0.1 | — | — | — | — | 0.0 | 0.0 | 0.1 | * | 0.1 | * | 0.0 |
| Without a needle ^h | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | 0.8 | 1.0 | 0.8 | 0.8 | 0.9 | 0.7 | -0.2 | — | — | — | — | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.3 | -0.1 |
| 10th Grade | — | — | — | — | 0.8 | 0.9 | 1.1 | 1.0 | 1.1 | 1.1 | 0.0 | — | — | — | — | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.4 | -0.2 |
| 12th Grade | — | — | — | — | 1.0 | 1.0 | 1.2 | 0.8 | 1.0 | 1.6 | +0.6ss | — | — | — | — | 0.6 | 0.4 | 0.6 | 0.4 | 0.4 | 0.7 | +0.3 |
| College Students | — | — | — | — | 0.0 | 0.8 | 0.4 | 0.9 | 0.3 | 0.8 | +0.5 | — | — | — | — | 0.0 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | +0.1 |
| Young Adults | — | — | — | — | 0.3 | 0.4 | 0.4 | 0.7 | 0.6 | 0.5 | -0.1 | — | — | — | — | 0.1 | * | 0.1 | 0.2 | 0.2 | 0.2 | -0.1 |
| Other Narcotics ⁱ | | | | | | | | | | | | | | | | | | | | | | |
| 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 | +0.3 | 1.1 | 1.2 | 1.3 | 1.5 | 1.8 | 2.0 | 2.3 | 2.4 | 2.6 | 2.9 | +0.3 |
| College Students | 2.7 | 2.7 | 2.5 | 2.4 | 3.8 | 3.1 | 4.2 | 4.2 | 4.3 | 4.5 | +0.2 | 0.6 | 1.0 | 0.7 | 0.4 | 1.2 | 0.7 | 1.3 | 1.1 | 1.0 | 1.7 | +0.7 |
| Young Adults | 2.5 | 2.5 | 2.2 | 2.5 | 3.0 | 2.9 | 3.3 | 3.4 | 3.8 | 4.1 | +0.4 | 0.6 | 0.7 | 0.7 | 0.6 | 0.9 | 0.7 | 0.9 | 0.9 | 1.2 | 1.4 | +0.2 |

(Table continued on next page)

TABLE 2-2 (cont.)
Trends in Annual and 30-Day Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Annual | | | | | | | | | | | 30-Day | | | | | | | | | | |
|--------------------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|--------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change |
| Amphetamines ⁱ | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 6.2 | 6.5 | 7.2 | 7.9 | 8.7 | 9.1 | 8.1 | 7.2 | 6.9 | 6.5 | -0.4 | 2.6 | 3.3 | 3.6 | 3.6 | 4.2 | 4.6 | 3.8 | 3.3 | 3.4 | 3.4 | +0.1 |
| 10th Grade | 8.2 | 8.2 | 9.6 | 10.2 | 11.9 | 12.4 | 12.1 | 10.7 | 10.4 | 11.1 | +0.7 | 3.3 | 3.6 | 4.3 | 4.5 | 5.3 | 5.5 | 5.1 | 5.1 | 5.0 | 5.4 | +0.5 |
| 12th Grade | 8.2 | 7.1 | 8.4 | 9.4 | 9.3 | 9.5 | 10.2 | 10.1 | 10.2 | 10.5 | +0.3 | 3.2 | 2.8 | 3.7 | 4.0 | 4.0 | 4.1 | 4.8 | 4.6 | 4.5 | 5.0 | +0.5 |
| College Students | 3.9 | 3.6 | 4.2 | 4.2 | 5.4 | 4.2 | 5.7 | 5.1 | 5.8 | 6.6 | +0.8 | 1.0 | 1.1 | 1.5 | 1.5 | 2.2 | 0.9 | 2.1 | 1.7 | 2.3 | 2.9 | +0.6 |
| Young Adults | 4.3 | 4.1 | 4.0 | 4.5 | 4.6 | 4.2 | 4.6 | 4.5 | 4.7 | 5.4 | +0.7 | 1.5 | 1.5 | 1.5 | 1.7 | 1.7 | 1.5 | 1.7 | 1.7 | 1.9 | 2.3 | +0.4 |
| Methamphetamine ^{l,k} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | 3.2 | 2.5 | -0.7 | — | — | — | — | — | — | — | — | 1.1 | 0.8 | -0.3 |
| 10th Grade | — | — | — | — | — | — | — | — | 4.6 | 4.0 | -0.6 | — | — | — | — | — | — | — | — | 1.8 | 2.0 | +0.2 |
| 12th Grade | — | — | — | — | — | — | — | — | 4.7 | 4.3 | -0.3 | — | — | — | — | — | — | — | — | 1.7 | 1.9 | +0.2 |
| College Students | — | — | — | — | — | — | — | — | 3.3 | 1.6 | -1.7 | — | — | — | — | — | — | — | — | 1.2 | 0.2 | -1.0 |
| Young Adults | — | — | — | — | — | — | — | — | 2.8 | 2.5 | -0.3 | — | — | — | — | — | — | — | — | 0.8 | 0.7 | -0.1 |
| Ice ^k | | | | | | | | | | | | | | | | | | | | | | |
| 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 | +0.3 | 0.6 | 0.5 | 0.6 | 0.7 | 1.1 | 1.1 | 0.8 | 1.2 | 0.8 | 1.0 | +0.2 |
| College Students | 0.1 | 0.2 | 0.7 | 0.8 | 1.1 | 0.3 | 0.8 | 1.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.3 | 0.5 | 0.3 | 0.1 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 |
| Young Adults | 0.3 | 0.4 | 0.8 | 0.9 | 1.2 | 0.9 | 0.9 | 1.1 | 0.9 | 1.2 | +0.3 | * | 0.1 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | +0.1 |
| Barbiturates ⁱ | | | | | | | | | | | | | | | | | | | | | | |
| 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 | +0.4 | 1.4 | 1.1 | 1.3 | 1.7 | 2.2 | 2.1 | 2.1 | 2.6 | 2.6 | 3.0 | +0.4 |
| College Students | 1.2 | 1.4 | 1.5 | 1.2 | 2.0 | 2.3 | 3.0 | 2.5 | 3.2 | 3.7 | +0.5 | 0.3 | 0.7 | 0.4 | 0.4 | 0.5 | 0.8 | 1.2 | 1.1 | 1.1 | 1.1 | 0.0 |
| Young Adults | 1.8 | 1.6 | 1.9 | 1.8 | 2.1 | 2.2 | 2.4 | 2.5 | 2.8 | 3.4 | +0.6s | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 | 0.8 | 0.9 | 0.9 | 1.1 | 1.3 | +0.2 |
| Tranquilizers ⁱ | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.8 | 2.0 | 2.1 | 2.4 | 2.7 | 3.3 | 2.9 | 2.6 | 2.5 | 2.6 | +0.2 | 0.8 | 0.8 | 0.9 | 1.1 | 1.2 | 1.5 | 1.2 | 1.2 | 1.1 | 1.4 | +0.3 |
| 10th Grade | 3.2 | 3.5 | 3.3 | 3.3 | 4.0 | 4.6 | 4.9 | 5.1 | 5.4 | 5.6 | +0.2 | 1.2 | 1.5 | 1.1 | 1.5 | 1.7 | 1.7 | 2.2 | 2.2 | 2.2 | 2.5 | +0.4 |
| 12th Grade | 3.6 | 2.8 | 3.5 | 3.7 | 4.4 | 4.6 | 4.7 | 5.5 | 5.8 | 5.7 | -0.1 | 1.4 | 1.0 | 1.2 | 1.4 | 1.8 | 2.0 | 1.8 | 2.4 | 2.5 | 2.6 | +0.1 |
| College Students | 2.4 | 2.9 | 2.4 | 1.8 | 2.9 | 2.8 | 3.8 | 3.9 | 3.8 | 4.2 | +0.4 | 0.6 | 0.6 | 0.4 | 0.4 | 0.5 | 0.7 | 1.2 | 1.3 | 1.1 | 2.0 | +0.9s |
| Young Adults | 3.5 | 3.4 | 3.1 | 2.9 | 3.4 | 3.2 | 3.1 | 3.8 | 3.7 | 4.6 | +0.9s | 0.9 | 1.0 | 1.0 | 0.8 | 1.1 | 0.7 | 1.1 | 1.2 | 1.3 | 1.8 | +0.5s |
| Rohypnol ^{d,l} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | 1.0 | 0.8 | 0.8 | 0.5 | 0.5 | +0.1 | — | — | — | — | — | 0.5 | 0.3 | 0.4 | 0.3 | 0.3 | 0.0 |
| 10th Grade | — | — | — | — | — | 1.1 | 1.3 | 1.2 | 1.0 | 0.8 | -0.3 | — | — | — | — | — | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | -0.2 |
| 12th Grade | — | — | — | — | — | 1.1 | 1.2 | 1.4 | 1.0 | 0.8 | -0.2 | — | — | — | — | — | 0.5 | 0.3 | 0.3 | 0.3 | 0.4 | +0.1 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| GHB ^{l,k} | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | — | 1.2 | — | — | — | — | — | — | — | — | — | — | — | — |
| 10th Grade | — | — | — | — | — | — | — | — | — | 1.1 | — | — | — | — | — | — | — | — | — | — | — | — |
| 12th Grade | — | — | — | — | — | — | — | — | — | 1.9 | — | — | — | — | — | — | — | — | — | — | — | — |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

(Table continued on next page)

TABLE 2-2 (cont.)
Trends in Annual and 30-Day Prevalence of Use of Various Drugs
for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Annual | | | | | | | | | | | 30-Day | | | | | | | | | | | | |
|--|--------|------|------|------|------|------|------|------|------|------|-------------------|-------------------|------|------|------|------|------|------|------|------|------|-------------------|---------------------|------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | '99-'00 change | | |
| Ketamine^{j,k} | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | — | 1.6 | — | — | — | — | — | — | — | — | — | — | — | — | | |
| 10th Grade | — | — | — | — | — | — | — | — | — | 2.1 | — | — | — | — | — | — | — | — | — | — | — | — | | |
| 12th Grade | — | — | — | — | — | — | — | — | — | 2.5 | — | — | — | — | — | — | — | — | — | — | — | — | | |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| Alcohol^m | | | | | | | | | | | | | | | | | | | | | | | | |
| Any use | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 54.0 | 53.7 | 51.6 | — | — | — | — | — | — | — | — | 25.1 | 26.1 | 26.2 | — | — | — | — | — | — | — | — | | |
| 10th Grade | 72.3 | 70.2 | 69.3 | 45.4 | 46.8 | 45.3 | 46.5 | 45.5 | 43.7 | 43.5 | 43.1 | -0.4 | 42.8 | 39.9 | 41.5 | 24.3 | 25.5 | 24.6 | 26.2 | 24.5 | 23.0 | 24.0 | 22.4 | -1.7 |
| 12th Grade | 77.7 | 76.8 | 76.0 | 63.4 | 63.9 | 63.5 | 65.0 | 65.2 | 62.7 | 63.7 | 65.3 | +1.6 | 54.0 | 51.3 | 51.0 | 38.2 | 39.2 | 38.8 | 40.4 | 40.1 | 38.8 | 40.0 | 41.0 | +0.9 |
| College Students | 88.3 | 86.9 | 85.1 | 72.7 | 73.0 | 73.7 | 72.5 | 74.8 | 74.3 | 73.8 | 73.2 | -0.6 | 74.7 | 71.4 | 70.1 | 48.6 | 50.1 | 51.3 | 50.8 | 52.7 | 52.0 | 51.0 | 50.0 | -1.0 |
| Young Adults | 86.9 | 86.2 | 85.3 | 83.7 | 84.7 | 84.0 | 84.3 | 84.0 | 84.1 | 84.0 | 84.0 | -0.1 | 70.6 | 69.0 | 68.3 | 67.7 | 68.1 | 66.7 | 67.5 | 66.9 | 68.2 | 66.8 | 66.8 | -1.4 |
| Been Drunk^k | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 17.5 | 18.3 | 18.2 | 18.2 | 18.4 | 19.8 | 18.4 | 17.9 | 18.5 | 18.5 | 18.5 | 0.0 | 7.6 | 7.5 | 7.8 | 8.7 | 8.3 | 9.6 | 8.2 | 8.4 | 9.4 | 8.3 | -1.1 | |
| 10th Grade | 40.1 | 37.0 | 37.8 | 38.0 | 38.5 | 40.1 | 40.7 | 38.3 | 40.9 | 41.6 | 41.6 | +0.7 | 20.5 | 18.1 | 19.8 | 20.3 | 20.8 | 21.3 | 22.4 | 21.1 | 22.5 | 23.5 | 23.5 | +1.0 |
| 12th Grade | 52.7 | 50.3 | 49.6 | 51.7 | 52.5 | 51.9 | 53.2 | 52.0 | 53.2 | 51.8 | 51.8 | -1.4 | 31.6 | 29.9 | 28.9 | 30.8 | 33.2 | 31.3 | 34.2 | 32.9 | 32.9 | 32.3 | 32.3 | -0.6 |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Cigarettes | | | | | | | | | | | | | | | | | | | | | | | | |
| Any use | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | — | — | — | — | 14.3 | 15.5 | 16.7 | 18.6 | 19.1 | 21.0 | 19.4 | 19.1 | 17.5 | 14.6 | -2.8 ^{sss} | |
| 10th Grade | — | — | — | — | — | — | — | — | — | — | — | — | 20.8 | 21.5 | 24.7 | 25.4 | 27.9 | 30.4 | 29.8 | 27.6 | 25.7 | 23.9 | -1.8 | |
| 12th Grade | — | — | — | — | — | — | — | — | — | — | — | — | 28.3 | 27.8 | 29.9 | 31.2 | 33.5 | 34.0 | 36.5 | 35.1 | 34.6 | 31.4 | -3.2 ^{sss} | |
| College Students | 35.6 | 37.3 | 38.8 | 37.6 | 39.3 | 41.4 | 43.6 | 44.3 | 44.5 | 41.3 | 41.3 | -3.2 | 23.2 | 23.5 | 24.5 | 23.5 | 26.8 | 27.9 | 28.3 | 30.0 | 30.6 | 28.2 | -2.4 | |
| Young Adults | 37.7 | 37.9 | 37.8 | 38.3 | 38.8 | 40.3 | 41.8 | 41.6 | 41.1 | 40.9 | 40.9 | -0.2 | 28.2 | 28.3 | 28.0 | 28.0 | 29.2 | 30.1 | 29.9 | 30.9 | 30.3 | 30.1 | 30.1 | -0.3 |
| Bidis^{l,k} | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | — | 3.9 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 10th Grade | — | — | — | — | — | — | — | — | — | 6.4 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 12th Grade | — | — | — | — | — | — | — | — | — | 9.2 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Smokeless Tobacco^{d,e} | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | — | — | — | — | — | — | — | — | — | — | — | — | 6.9 | 7.0 | 6.6 | 7.7 | 7.1 | 7.1 | 5.5 | 4.8 | 4.5 | 4.2 | -0.3 | |
| 10th Grade | — | — | — | — | — | — | — | — | — | — | — | — | 10.0 | 9.6 | 10.4 | 10.5 | 9.7 | 8.6 | 8.9 | 7.5 | 6.5 | 6.1 | -0.5 | |
| 12th Grade | — | — | — | — | — | — | — | — | — | — | — | — | — | 11.4 | 10.7 | 11.1 | 12.2 | 9.8 | 9.7 | 8.8 | 8.4 | 7.6 | -0.7 | |
| College Students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Steroids^k | | | | | | | | | | | | | | | | | | | | | | | | |
| 8th Grade | 1.0 | 1.1 | 0.9 | 1.2 | 1.0 | 0.9 | 1.0 | 1.2 | 1.7 | 1.7 | 1.7 | 0.0 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.4 | 0.5 | 0.5 | 0.7 | 0.8 | +0.1 | |
| 10th Grade | 1.1 | 1.1 | 1.0 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.7 | 2.2 | 2.2 | +0.5 ^s | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.7 | 0.6 | 0.9 | 1.0 | 0.0 | |
| 12th Grade | 1.4 | 1.1 | 1.2 | 1.3 | 1.5 | 1.4 | 1.4 | 1.7 | 1.8 | 1.7 | 1.7 | -0.1 | 0.8 | 0.6 | 0.7 | 0.9 | 0.7 | 1.0 | 1.1 | 0.9 | 0.8 | 0.8 | -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 | -0.2 | 0.2 | 0.1 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.1 | -0.2 |

TABLE 2-3

Trends in 30-Day Prevalence of Daily Use of Various Drugs for Eighth, Tenth, and Twelfth Graders, College Students, and Young Adults (Ages 19-28)

| | Daily | | | | | | | | | | '99-'00 change |
|---|-------|------|------|------|------|------|------|------|------|------|-------------------|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| Marijuana/Hashish, daily ⁿ | | | | | | | | | | | |
| 8th Grade | 0.2 | 0.2 | 0.4 | 0.7 | 0.8 | 1.5 | 1.1 | 1.1 | 1.4 | 1.3 | 0.0 |
| 10th Grade | 0.8 | 0.8 | 1.0 | 2.2 | 2.8 | 3.5 | 3.7 | 3.6 | 3.8 | 3.8 | 0.0 |
| 12th Grade | 2.0 | 1.9 | 2.4 | 3.6 | 4.6 | 4.9 | 5.8 | 5.6 | 6.0 | 6.0 | 0.0 |
| College Students | 1.8 | 1.6 | 1.9 | 1.8 | 3.7 | 2.8 | 3.7 | 4.0 | 4.0 | 4.6 | +0.6 |
| Young Adults | 2.3 | 2.3 | 2.4 | 2.8 | 3.3 | 3.3 | 3.8 | 3.7 | 4.4 | 4.2 | -0.2 |
| Alcohol ^{m,n} | | | | | | | | | | | |
| Any daily use | | | | | | | | | | | |
| 8th Grade | 0.5 | 0.6 | 0.8 | — | — | — | — | — | — | — | — |
| 10th Grade | 1.3 | 1.2 | 1.6 | 1.0 | 0.7 | 1.0 | 0.8 | 0.9 | 1.0 | 0.8 | -0.3s |
| 12th Grade | 3.6 | 3.4 | 1.8 | 1.7 | 1.7 | 1.6 | 1.7 | 1.9 | 1.9 | 1.8 | -0.1 |
| College Students | 4.1 | 3.7 | 3.4 | 2.9 | 3.5 | 3.7 | 3.9 | 3.9 | 3.4 | 2.9 | -0.4 |
| Young Adults | 4.9 | 4.5 | 3.9 | 3.7 | 3.0 | 3.2 | 4.5 | 3.9 | 4.5 | 3.6 | -0.8 |
| Been Drunk, daily ^{k,n} | | | | | | | | | | | |
| 8th Grade | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.3 | -0.1 |
| 10th Grade | 0.2 | 0.3 | 0.4 | 0.4 | 0.6 | 0.4 | 0.6 | 0.6 | 0.7 | 0.5 | -0.2 |
| 12th Grade | 0.9 | 0.8 | 0.9 | 1.2 | 1.3 | 1.6 | 2.0 | 1.5 | 1.9 | 1.7 | -0.2 |
| College Students | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — |
| 5+ drinks in a row in last 2 weeks | | | | | | | | | | | |
| 8th Grade | 12.9 | 13.4 | 13.5 | 14.5 | 14.5 | 15.6 | 14.5 | 13.7 | 15.2 | 14.1 | -1.1 |
| 10th Grade | 22.9 | 21.1 | 23.0 | 23.6 | 24.0 | 24.8 | 25.1 | 24.3 | 25.6 | 26.2 | +0.6 |
| 12th Grade | 29.8 | 27.9 | 27.5 | 28.2 | 29.8 | 30.2 | 31.3 | 31.5 | 30.8 | 30.0 | -0.8 |
| College Students | 42.8 | 41.4 | 40.2 | 40.2 | 38.6 | 38.3 | 40.7 | 38.9 | 40.0 | 39.3 | -0.7 |
| Young Adults | 34.7 | 34.2 | 34.4 | 33.7 | 32.6 | 33.6 | 34.4 | 34.1 | 35.8 | 34.7 | -1.1 |
| Cigarettes | | | | | | | | | | | |
| 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 | -0.7 |
| 10th Grade | 12.6 | 12.3 | 14.2 | 14.6 | 16.3 | 18.3 | 18.0 | 15.8 | 15.9 | 14.0 | -1.9s |
| 12th Grade | 18.5 | 17.2 | 19.0 | 19.4 | 21.6 | 22.2 | 24.6 | 22.4 | 23.1 | 20.6 | -2.5s |
| College Students | 13.8 | 14.1 | 15.2 | 13.2 | 15.8 | 15.9 | 15.2 | 18.0 | 19.3 | 17.8 | -1.4 |
| Young Adults | 21.7 | 20.9 | 20.8 | 20.7 | 21.2 | 21.8 | 20.6 | 21.9 | 21.5 | 21.8 | +0.3 |
| 1/2 pack+/day | | | | | | | | | | | |
| 8th Grade | 3.1 | 2.9 | 3.5 | 3.6 | 3.4 | 4.3 | 3.5 | 3.6 | 3.3 | 2.8 | -0.5 |
| 10th Grade | 6.5 | 6.0 | 7.0 | 7.6 | 8.3 | 9.4 | 8.6 | 7.9 | 7.6 | 6.2 | -1.4ss |
| 12th Grade | 10.7 | 10.0 | 10.9 | 11.2 | 12.4 | 13.0 | 14.3 | 12.6 | 13.2 | 11.3 | -1.9ss |
| College Students | 8.0 | 8.9 | 8.9 | 8.0 | 10.2 | 8.4 | 9.1 | 11.3 | 11.0 | 10.1 | -0.9 |
| Young Adults | 16.0 | 15.7 | 15.5 | 15.3 | 15.7 | 15.3 | 14.6 | 15.6 | 15.1 | 15.1 | 0.0 |
| Smokeless Tobacco, daily ^{d,e} | | | | | | | | | | | |
| 8th Grade | 1.6 | 1.8 | 1.5 | 1.9 | 1.2 | 1.5 | 1.0 | 1.0 | 0.9 | 0.9 | 0.0 |
| 10th Grade | 3.3 | 3.0 | 3.3 | 3.0 | 2.7 | 2.2 | 2.2 | 2.2 | 1.5 | 1.9 | +0.3 |
| 12th Grade | — | 4.3 | 3.3 | 3.9 | 3.6 | 3.3 | 4.4 | 3.2 | 2.9 | 3.2 | +0.3 |
| College Students | — | — | — | — | — | — | — | — | — | — | — |
| Young Adults | — | — | — | — | — | — | — | — | — | — | — |

NOTE: See Table 2-1 for relevant footnotes

Chapter 3

STUDY DESIGN AND PROCEDURES

Monitoring the Future has a complex cohort sequential design appropriate for distinguishing and explaining three different types of change: period-related, age-related, and cohort-related. This chapter contains a description of this research design, including the sampling plans and field procedures used in both the in-school surveys of the eighth-, tenth-, and twelfth-grade students and the follow-up surveys of young adults. Related methodological issues such as response rates, population coverage, and the validity of the measures are also discussed. We begin with a description of the design that has been used consistently over twenty-six years to survey high school seniors; then we describe the more recently instituted design for eighth and tenth graders. Finally, the designs for the *follow-up* surveys of former twelfth graders, and former eighth and tenth graders, are covered.^{12,13}

RESEARCH DESIGN AND PROCEDURES FOR THE SURVEYS OF SENIORS

The data from high school seniors have been collected during the spring of each year starting with the class of 1975. Each year's data collection takes place in between 123 to 146 public and private high schools selected to provide an accurate representative cross-section of high school seniors throughout the coterminous United States (see Figure 3-1).

The Population under Study

The senior year of high school was chosen as an optimal point for monitoring the drug use and related attitudes of youth for several reasons. First, completion of high school represents the end of an important developmental stage in this society because it demarcates both the end of universal education and, for many, the end of living in the parental home. Therefore, it is a logical point at which to take stock of the cumulated influences of these two 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. Senior year, then, represents a good time to take a "before" measure that allows calculation of changes that may be attributable to the many environmental and role transitions that occur in young adulthood. Finally, there were some important practical advantages to building the original system of data

¹²For a more detailed description of the study design, see Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1996). *Monitoring the Future project after twenty-two years: Design and procedures*. (Monitoring the Future Occasional Paper 38.) Ann Arbor, MI: Institute for Social Research.

¹³For 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., & Bachman, J. G. (1996). *The aims and objectives of the Monitoring the Future study and progress toward fulfilling them* (2nd ed.). Ann Arbor, MI: Institute for Social Research.

Monitoring the Future

collections around samples of high school seniors. The need for systematically repeated, large-scale samples from which to make reliable estimates of change requires that considerable stress be laid 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 15 and 20 percent 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 dropouts 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 the likely effects of the exclusion of dropouts on estimates of prevalence of drug use and trends in drug use among the entire age cohort; the reader is referred there for a more detailed discussion of this issue.

Sampling Procedures

A multi-stage random sampling procedure is used to secure the nationwide sample of high school seniors 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 seniors within each high school. Within each school, up to about 350 seniors may be included. In schools with fewer seniors, the usual procedure is to include all of them in the data collection. In larger schools, a subset of seniors is selected 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. 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 over the years shown in Table 3-1.

Questionnaire Administration

About ten days before the questionnaire administration date, the target respondents are given flyers explaining the study. Local Institute for Social Research representatives and their assistants conduct the actual questionnaire administrations following standardized procedures that are detailed in a project 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.

Questionnaire Format

Because many questions are needed to cover all of the topic areas in the study, much of the questionnaire content intended for high school seniors is divided into six different questionnaire forms that are 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 that are 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 dealing with 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) and on one-sixth as many cases in 1989-2000 (approximately 2,600). 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 is roughly equivalent to the actual number of cases).

RESEARCH DESIGN AND PROCEDURES FOR THE SURVEYS OF LOWER GRADES

Beginning in 1991, there was an important expansion of the study to include nationally representative samples of eighth- and tenth-grade students. Surveys at these two grade levels have been conducted on an annual basis since 1991.

In general, the procedures used for the annual in-school surveys of eighth- and tenth-grade students closely parallel those used for high school seniors, 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 with seniors. Eighth and tenth grades receive identical forms and, for the most part, questionnaire content is drawn from the twelfth-grade questionnaires. Thus, key demographic variables and measures of drug use and related attitudes and beliefs are generally identical for all three grades. The forms used in both eighth and tenth grades have a common core (Parts B and C) that parallels the core used in twelfth-grade forms. Many fewer questions about lifestyles and values are included in the eighth- and tenth-grade forms, in part because we think that many of these attitudes are likely to be more fully formed by twelfth grade and, therefore, are best monitored there. For the national survey of eighth graders each year, approximately 155 schools (mostly junior high schools and middle schools) are sampled, and approximately 17,000 to 19,000 students are surveyed. For the tenth graders, approximately 130 high schools are sampled, and from 14,000 to 17,000 students are surveyed. (See Table 3-1 for specifics.)

The research design originally called for follow-up surveys of subsamples of the eighth and tenth graders participating in the study, carried out at two-year intervals, similar to the twelfth-grade follow-up samples. From 1991 to 1994, this plan influenced the design of the cross-sectional studies of eighth and tenth graders in an important way. In order to “recapture” many of the eighth-grade participants two years later in the normal tenth-grade cross-sectional study for that year, we selected the eighth-grade schools by drawing a sample of high schools and then selecting

a sample of their “feeder schools” that contained eighth graders. This extra stage in the sampling process meant that many of the eighth-grade participants in, say, the 1991 cross-sectional survey were also participants in the 1993 cross-sectional survey of tenth graders. Thus, a fair amount of panel data were generated at no additional cost. However, having followed this design from 1991 through 1993, we concluded that the saving 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 eighth-grade schools were drawn independently of the tenth-grade school sample. Further follow-ups (at two-year intervals) were conducted only on panels of students drawn from the first three cohorts of students surveyed in the eighth and tenth grades, i.e., those surveyed in school in 1991, 1992, and 1993.

When follow-up surveys of new cohorts of eighth and tenth graders were no longer being conducted, the collection of personal identification information for follow-up purposes was no longer a necessity. For confidentiality reasons, this personal information had been gathered on a tear-off sheet at the back of each questionnaire. We felt 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 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 used for comparison purposes in state and local surveys (nearly all of which use anonymous questionnaires), and thus make those comparisons more valid. Therefore, in 1998 for the first time, in half of the eighth- and tenth-grade schools surveyed, the questionnaires administered were made fully anonymous. Specifically, the matched half-sample of schools beginning their two-year participation in Monitoring the Future in 1998 received the anonymous questionnaires, while the half-sample participating in the study for their second and final year continued to get the confidential questionnaires.

A careful examination of the 1998 results, based on the two equivalent half-samples at grade 8, and also at grade 10, revealed that there was no effect of this methodological change among tenth graders, and, at most, only a very modest effect in the self-reported substance use rates among eighth graders (with prevalence rates slightly higher in the anonymous condition). The net effect of this methodological change is to increase very slightly the observed eighth-grade prevalence estimates for marijuana, alcohol, and cigarettes in 1998 from what they would have been if there had been no change in questionnaire administration. For those three drugs, that means that the declines in use in 1998 may be slightly understated for the eighth graders only. In other words, the direction of the change is the same as shown in the tables, but the actual declines may be slightly larger than those shown. For example, the annual prevalence of marijuana use among eighth graders is shown to have fallen by 0.8 percentage points between 1997-1998; however, the half-sample of eighth-grade schools receiving exactly the same type of questionnaire that was used in 1997 showed a slightly greater decline of 1.5 percentage points.

For cigarettes, this change in method appeared to have no effect on self-reported rates of daily use or half-pack per day use, and to have had only a very small effect on 30-day prevalence. Thus, for example, the 30-day prevalence of cigarette use among eighth graders is shown to have fallen 0.3 percentage points between 1997-1998; however, the half-sample of eighth-grade schools

receiving exactly the same type of questionnaire that was used in 1997 showed a slightly greater decline of 0.6 percentage points. Finally, lifetime cigarette prevalence is shown as falling by 1.6 percentage points between 1997 and 1998, but in the half-sample of schools with a constant methodology, it fell by 2.6 percentage points.

We have examined the effects of mode of administration in detail in a published journal article, in which we use multivariate controls to assess the effects of the change on the eighth-grade self-report data. It generally shows even less effect than is to be found without such controls.¹⁴

All tables and figures in Volume I use data from both half-samples of eighth graders, combined. This is also true for the tenth graders (for whom we found no methodological effect) and the twelfth graders (for whom it is assumed there is no such effect since none was found among the tenth graders). In 1999 the remaining half of the participating schools (all beginning the first of their two years of participation) received anonymous questionnaires, as well. Thus, from 1999 on, all data from eighth- and tenth-grade students are gathered using anonymous questionnaires. We continue to use confidential questionnaires with twelfth graders in order to permit follow-up of those who are randomly selected into the panel studies.

RESEARCH DESIGN AND PROCEDURES FOR THE FOLLOW-UP SURVEYS OF SENIORS

Beginning with the graduating class of 1976, each senior class has been followed up annually on a continuing basis after high school for seven follow-up data collections, which corresponds to their reaching a modal age of 32.¹⁵ From the roughly 15,000 to 17,000 seniors originally participating in a given senior class, a representative sample of 2,400 individuals is chosen for follow-up. In order to ensure sufficient numbers of drug users in the follow-up surveys, seniors reporting 20 or more occasions of using marijuana in the previous 30 days, or any use of any of the other illicit drugs in the previous 30 days, are selected with higher probability (by a factor of 3.0) than the remaining seniors. 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 over-representation at the selection stage, there are actually more follow-up respondents than are reported in the weighted Ns given in the tables.

The 2,400 selected respondents from each class are randomly split into two matching 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.

¹⁴O'Malley, P. M., Johnston, L. D., Bachman, J. G., & Schulenberg, J. (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.

¹⁵Further follow-ups occur (or will occur) at half-decade intervals, beginning with age 35.

Follow-up Procedures

Using information provided by high school senior respondents on a tear-off card (containing the respondent's name, address, 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. Questionnaires are sent to each individual biennially in the spring of each year by certified mail. A check for \$10.00, made payable to the respondent, is attached to the front of each questionnaire.¹⁶ 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. 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 bothered further, that wish is honored.

Panel Retention Rates

To date, an average of about 77% of those selected for inclusion in follow-up panels have returned questionnaires in the first follow-up after high school. The retention rate declines with time, as would be expected. The 2000 panel retention from the class of 1986—the oldest of the panels in the seven biennial follow-ups, now age 32 (14 years past their first data collection in high school)—was 53%.

Corrections for Panel Attrition

Because, to a modest degree, attrition is associated with drug use, we have introduced corrections into the prevalence of use estimates for the follow-up panels. These corrections raise the prevalence estimates above the uncorrected ones, but only slightly. We believe the resulting estimates to be the most accurate obtainable for the population of high school senior graduates but still low for the age group as a whole, due to the omission of dropouts and absentees from the population covered by the original panels.¹⁷

¹⁶Note that, for the class of 1991 and all prior classes, the follow-up checks were for \$5.00. The rate was raised, beginning with the class of 1992, to compensate for the effects of inflation over the life of the study. An experiment was first conducted that suggested that the increased payment was justified based on the increased panel retention it achieved.

¹⁷The intent of the weighting process is to correct for the effects of differential attrition on follow-up drug use estimates. Different weights are used for different substances. Cigarettes, alcohol, and marijuana each have one weight for every follow-up of each graduating class. The weights are based on the observed differences in the distribution on an index of twelfth-grade use of the relevant substance for the follow-up sample compared to the distribution based on the full base-year sample. For example, the distribution on the index of marijuana use in the 1988 follow-up of approximately 1,000 respondents from the class of 1976 was compared to the original 1976 base-year distribution for the entire participating base-year class of 17,000 respondents; and weights were derived that, when applied to the base-year data for only those participating in the 1988 follow-up, would reproduce the original base-year frequency distribution of marijuana use. A similar procedure is used to determine a weight for all illicit drugs other than marijuana combined. In this case, however, an average weight is derived across graduating classes. Thus, the same weight is applied, for example, to all respondents in the follow-up of 1988, regardless of when they graduated from high school.

Follow-up Questionnaire Format

The questionnaires used in the follow-up surveys are very much like those used in the senior year. They are optically scanned; they contain a core section on drug use and background and demographic factors common to all forms; and they have questions about a wide range of topics at the beginning and ending sections, many of which are unique to each questionnaire form. Many of the questions asked of seniors are retained in the follow-up questionnaires, and respondents are consistently mailed the same version (or form) of the questionnaire that they first received in senior year, 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.

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 senior year. That new questionnaire form was first sent to follow-up respondents in 1990; single-form data since then have Ns 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 for that “slot.” In 2000, either an original school or a replacement school was obtained in 97% of the sample units, or “slots.” 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 “slots” filled since 1977. (The data for the years prior to 1991 are for twelfth grade only; beginning in 1991, the data are for eighth, tenth, and twelfth grades combined.) As shown in the table, replacement schools are obtained in the vast majority of cases.

There are two questions that are sometimes raised with respect to school participation rates: (1) Are participation rates so low as to compromise the representativeness of the sample? (2) 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. In fact, however, the reasons given for a school refusing to participate tend to be varied and are often a function of happenstance events specific to that particular year; only a very small proportion specifically object to the drug-related or “sensitive” nature of the content of the survey.

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. For example, for tenth graders in 1992, between-schools variance for marijuana use was 4%-6% of the total variance (depending on the specific measure); for inhalant use, 1%-2%; for LSD, 2%-4%; for crack cocaine, 1.0%-1.5%; for alcohol use, 4%-5%; and for cigarette use, 3%-4%. (Eighth- and twelfth-grade values are similar.) To the extent that schools tend to be fairly similar in drug use, then which particular schools participate (within a selection framework that seeks national representation) has a smaller 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 respect to drug use, schools are for the most part fairly similar.¹⁸ 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 because of the way in which replacement schools are selected.

With respect to the second issue, the observed data from the series make it extremely unlikely that results have been significantly affected by changes in response rate. If changes in response rates seriously affected prevalence estimates, there would be noticeable bumps up or down in concert with the changing rates. But in fact the trend figures that result from this series of surveys are very smooth and change in a very orderly fashion from one year to the next. This suggests very strongly that the level of school-related error in the estimates does not vary much over time. Moreover, the fact that different substances trend in very different ways further refutes any likelihood that changes in response rates are affecting prevalence estimates. 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); 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 (as described in this and previous volumes in this series), and cannot be explained by changes in response rates.

Of course, there could be some sort of a constant bias across the years, but even in the unlikely event that there was, 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.

¹⁸Among the schools that actually participated in the study, 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 replacement schools. 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 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 $\pm 0.9\%$.

At each grade level, schools are selected in such a way that half of each year's sample is comprised of schools that participated the previous year, and half is comprised of schools that will participate the next year. (Both of these 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 1998 *and* 1999, then based on the students in the half-sample that participated in both 1999 *and* 2000, 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). 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 little affected by turnover or shifting refusal rates in the school samples. 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 2000, completed questionnaires were obtained from 89% of all sampled students in eighth grade, 86% in tenth grade, and 83% in twelfth grade. (See Table 3-1 for response rates in earlier years.) The single most important reason that students are missed is absence from class at the time of data collection; in most cases, for reasons of cost efficiency, we do not schedule special follow-up data collections for absent students. Students with fairly high rates of absenteeism also report above-average rates of drug use; therefore, 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 of 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* because the necessary weighting procedures would have introduced greater sampling variance in the estimates. Appendix A in an earlier report¹⁹ provides a discussion of this point, and Appendix A in the current Volume I illustrates the changes in trend and prevalence estimates that would result if corrections for absentees had been included. Of course, some students are not absent from class but 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 (Chapter 4, Volume I) for lifetime, annual, 30-day, and daily prevalence of use for eighth-, tenth-, and twelfth-grade students. As can be seen in Table 4-1a, confidence intervals for lifetime prevalence for seniors average less than $\pm 1.5\%$ across a variety of drug classes. That is, if we took a large number of

¹⁹Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (1984). *Drugs and American high school students: 1975-1983*. DHHS (ADM) 85-1374. Washington, D.C.: U.S. Government Printing Office.

samples of this size from the universe of all schools containing twelfth 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* seniors in *all* schools. This is a high level of sampling accuracy, and it should permit detection of fairly small changes from one year to the next. Confidence intervals for the other prevalence periods (past 12 months, past 30 days, and current daily use) are generally smaller than those for lifetime use. In general, confidence intervals for eighth and tenth graders are very similar to those observed for twelfth graders. Some drugs are measured on only one or two forms (smokeless tobacco, PCP, nitrites, and others, as indicated in Table 2-1 footnotes); these drugs will have somewhat larger confidence intervals due to their smaller sample sizes. Appendix C of Volume I contains information for the interested reader on how to calculate confidence intervals around other point estimates; it also provides the information needed to compare trends across time or to test the significance of differences between subgroups in any given year.

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 that leads to this conclusion may be found in other publications; here we will only briefly summarize the evidence.²⁰

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.²¹ 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 seniors reporting some illicit drug use by senior year has reached two-thirds of all respondents in peak years and nearly 80% in some follow-up years, constituting *prima facie* evidence that the degree of under-reporting must be very limited. Fourth, the seniors' reports of use by their unnamed friends—about whom they would presumably have less reason to distort reports of use—has been highly consistent with self-reported use in the aggregate in terms of both prevalence *and* trends in prevalence, as will be discussed later in this report. 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

²⁰Johnston, 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, D.C.: 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, D.C.: 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. Rockville, MD: National Institute on Drug Abuse.

²¹O'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.

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.²² There was a higher level of recanting for the psychotherapeutic drugs, which we interpreted as suggesting that adolescents actually may overestimate their use of some of these drugs because of misinformation about definitions which get corrected as they get older. Finally, the great majority of respondents, when asked, say they would answer such questions honestly if they were users.²³

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 feel that their confidentiality will be protected. We have also tried to present a convincing case as to why such research is needed. We think 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 under-reporting. Thus, we believe our estimates to be lower than their true values, even for the obtained samples, but not substantially so.

One procedure we undertake to help assure the validity of our data is worth noting. We check for logical inconsistencies in the triplets of answers about the use of each drug (i.e., about lifetime, past year, and past 30-day use), and if a respondent exceeds a minimum number of inconsistencies, his or her record is deleted from the dataset. 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. Relatively few cases are eliminated for these reasons.

Consistency and the Measurement of Trends

One further point is worth noting in a discussion of the validity of the findings. The Monitoring the Future project is designed to be sensitive to changes from one time period to another. One 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 way from one year to the next. In other words, biases in the survey estimates will tend to be consistent from one year to another, which means that our measurement of *trends* should be affected very little by any such biases. The smooth and consistent nature of

²²Johnston, L. D. & O'Malley, P. M. (1997). The recanting of earlier reported drug use by young adults. In Harrison, L. (Ed.), *The validity of self-reported drug use: Improving the accuracy of survey estimates* (pp. 59-80). (NIDA Research Monograph 167, pp 59-79). Rockville, MD: National Institute on Drug Abuse.

²³For a discussion of reliability and validity of student self-report measures of drug use like those used in Monitoring the Future across varied cultural settings, see also 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.

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most trend curves reported for the various drugs provides rather compelling empirical support for this assertion.

TABLE 3-1
Sample Sizes and Response Rates

| | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| Twelfth Grade | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. public schools | 111 | 108 | 108 | 111 | 111 | 107 | 109 | 116 | 112 | 117 | 115 | 113 | 117 | 113 | 111 | 114 | 117 | 120 | 121 | 119 | 120 | 118 | 125 | 124 | 124 | 116 | |
| No. private schools | 14 | 15 | 16 | 20 | 20 | 20 | 19 | 21 | 22 | 17 | 17 | 16 | 18 | 19 | 22 | 23 | 19 | 18 | 18 | 20 | 24 | 21 | 21 | 20 | 19 | 18 | |
| Total no. schools | 125 | 123 | 124 | 131 | 131 | 127 | 128 | 137 | 134 | 134 | 132 | 129 | 135 | 132 | 133 | 137 | 136 | 138 | 139 | 139 | 144 | 139 | 146 | 144 | 143 | 134 | |
| Total no. students | 15,791 | 16,678 | 18,436 | 18,924 | 16,662 | 16,524 | 18,267 | 18,348 | 16,947 | 16,499 | 16,502 | 15,713 | 16,843 | 16,795 | 17,142 | 15,676 | 15,483 | 16,251 | 16,763 | 15,929 | 15,876 | 14,824 | 15,963 | 15,780 | 14,056 | 13,286 | |
| Student response rate | 78% | 77% | 79% | 83% | 82% | 82% | 81% | 83% | 84% | 83% | 84% | 83% | 84% | 83% | 86% | 86% | 83% | 84% | 84% | 84% | 84% | 83% | 83% | 82% | 83% | 83% | |
| Tenth Grade | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. public schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 107 | 106 | 111 | 116 | 117 | 113 | 113 | 110 | 117 | 121 | |
| No. private schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 14 | 19 | 17 | 14 | 22 | 20 | 18 | 19 | 23 | 24 | |
| Total no. schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 121 | 125 | 128 | 130 | 139 | 133 | 131 | 129 | 140 | 145 | |
| Total no. students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 14,996 | 14,997 | 15,516 | 16,080 | 17,285 | 15,873 | 15,778 | 15,419 | 13,885 | 14,576 | |
| Student response rate | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 87% | 88% | 86% | 88% | 87% | 87% | 86% | 87% | 85% | 86% | |
| Eighth Grade | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. public schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 131 | 133 | 126 | 116 | 118 | 122 | 125 | 122 | 120 | 125 | |
| No. private schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 31 | 26 | 30 | 34 | 34 | 30 | 27 | 27 | 30 | 31 | |
| Total no. schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 162 | 159 | 156 | 150 | 152 | 152 | 152 | 149 | 150 | 156 | |
| Total no. students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 17,844 | 19,015 | 18,820 | 17,708 | 17,929 | 18,368 | 19,066 | 18,667 | 17,287 | 17,311 | |
| Student response rate | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 90% | 90% | 90% | 89% | 89% | 91% | 89% | 88% | 87% | 89% | |
| Totals | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total no. schools | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 419 | 422 | 423 | 419 | 435 | 424 | 429 | 422 | 433 | 435 | |
| Total no. students | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 48,323 | 50,263 | 51,099 | 49,717 | 51,090 | 49,065 | 50,807 | 49,866 | 45,228 | 45,173 | |

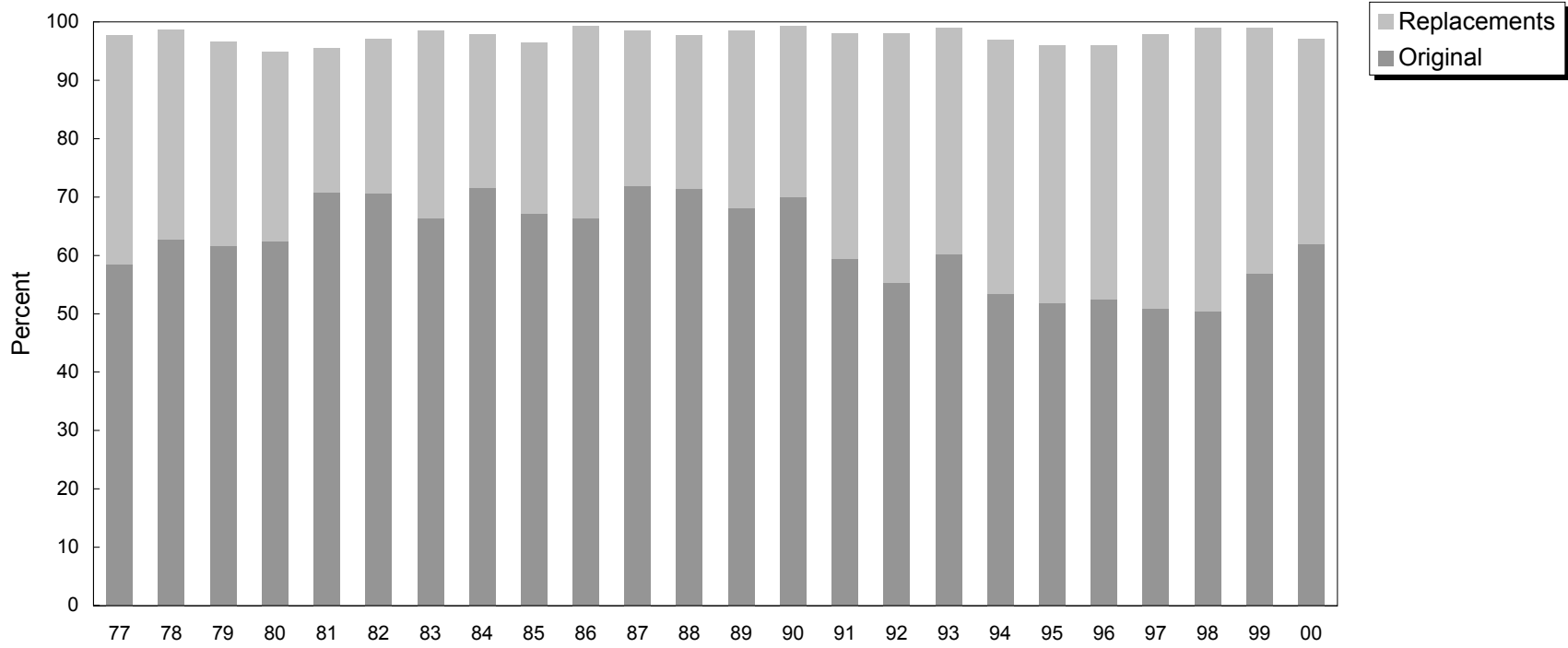
SOURCE: The Monitoring the Future Study, the University of Michigan.

FIGURE 3-1
Schools Included in One Year's Data Collection
Eighth, Tenth and Twelfth Grades



Note: One dot equals one school.

**FIGURE 3-2
School Response Rates**



| | <u>77</u> | <u>78</u> | <u>79</u> | <u>80</u> | <u>81</u> | <u>82</u> | <u>83</u> | <u>84</u> | <u>85</u> | <u>86</u> | <u>87</u> | <u>88</u> | <u>89</u> | <u>90</u> | <u>91</u> | <u>92</u> | <u>93</u> | <u>94</u> | <u>95</u> | <u>96</u> | <u>97</u> | <u>98</u> | <u>99</u> | <u>00</u> |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Original | 59 | 63 | 62 | 63 | 71 | 71 | 66 | 72 | 67 | 66 | 72 | 71 | 68 | 70 | 59 | 55 | 60 | 53 | 52 | 53 | 51 | 51 | 57 | 62 |
| Replacements | 39 | 36 | 35 | 32 | 25 | 26 | 32 | 26 | 29 | 33 | 26 | 26 | 30 | 29 | 39 | 43 | 39 | 44 | 44 | 43 | 47 | 48 | 42 | 35 |
| Total | 98 | 99 | 97 | 95 | 96 | 97 | 99 | 98 | 96 | 99 | 99 | 98 | 99 | 99 | 98 | 98 | 99 | 97 | 96 | 96 | 98 | 99 | 99 | 97 |

Chapter 4

PREVALENCE OF DRUG USE AMONG EIGHTH-, TENTH-, AND TWELFTH-GRADE STUDENTS

Two important questions with which any behavioral epidemiology study like Monitoring the Future must deal is how prevalent certain problematic behaviors are in the population under study, and with what frequency people engage in them. In this case the behaviors of interest include the use of a wide array of licit and illicit drugs. In this chapter both prevalence and frequency of use data on all of these drugs are included for the year 2000: they are estimated for (a) lifetime use, (b) use in the past 12 months, and (c) use in the prior 30 days. The prevalence of current daily use also is provided, as are the prevalence and frequency of having five or more drinks in a row. For cigarettes, the rate of smoking a half-pack or more per day is included, in addition to a measure of daily smoking.

Later in the chapter, prevalence estimates are given for key *subgroups* in the population based on six cross-break 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 each of the three grade levels covered in this research—grades 8, 10, and 12.

It should be noted that all of the prevalence statistics given in this section are based on students in attendance on the day of the survey administration. Selected prevalence rate estimates for twelfth-grade students, reflecting adjustments for the missing absentees, as well as for dropouts, may be found in Appendix A to this report (17% of twelfth graders were absent in 2000). (The adjustments turn out not to be particularly large, and to have virtually no effect on trend estimates.) For eighth and tenth graders, the adjustments for absenteeism and dropping out would be much smaller than those given for twelfth graders in Appendix A, because eighth and tenth graders have lower rates of absenteeism (11% and 14%, respectively, in 2000) and much lower rates of dropping out.

PREVALENCE AND FREQUENCY OF DRUG USE IN 2000: ALL STUDENTS

Prevalence of Lifetime, Annual, and 30-Day Use

A number of tables and figures, upon which the following discussion is based, are provided at the end of this chapter. *Prevalence of use* estimates are provided in Tables 4-1a through 4-1d, respectively, for lifetime, past 12-month, past 30-day, 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 at 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.

Table 4-2 brings together on a single page, to facilitate comparisons, the point estimates for all four prevalence periods.

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

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

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

- More than half of all seniors (54%) reported *any illicit drug use* at some time in their lives (see Table 4-2). Some 46% of tenth graders and 27% of eighth graders said they have used an illicit drug at some time.²⁴
- Of all the students in each grade reporting some illicit drug use in their lifetime, fewer than half reported using only *marijuana*: 41% of all eighth-grade users of any illicit drug (or 11% of the total eighth-grade sample), 49% of all tenth-grade users of any illicit drug (or 22% of the total tenth-grade sample), and 46% of the twelfth-grade users of any illicit drug (or 25% of the total twelfth-grade sample). Put another way, more than half of those students at each grade level who have ever used an illicit drug have used something in addition to (or other than) marijuana.
- When inhalants are also included in the index of illicit drug use, the proportions categorized as having ever used an illicit drug rise, especially for eighth graders. The percentages using *any illicit drug including inhalants* in their lifetime are 35% for eighth graders, 49% for tenth graders, and 57% for twelfth graders.
- *Marijuana* is by far the most widely used illicit drug. Half of all seniors (49%) reported some marijuana use in their lifetime, 37% reported some use in the past year, and 22% reported some use in the past month. Among tenth graders, the corresponding rates are 40%, 32%, and 20%, respectively. Even among eighth-grade students, marijuana has been used by one in five (20%), with 16% reporting use in the prior year and 9% use 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 17 twelfth graders (6%) uses marijuana daily, as do one in 26 tenth graders (3.8%) and about one in 75 eighth graders (1.3%).

²⁴For twelfth graders, use of “other illicit drugs” includes any use of hallucinogens, cocaine, or heroin *or* any use of other narcotics, amphetamines, barbiturates, methaqualone (excluded since 1990), or tranquilizers that is not under a doctor’s orders. For eighth and tenth graders the list of drugs is the same except that the use of other narcotics and 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 eighth and tenth graders, but the results led us to believe that some respondents were including nonprescription drugs in their answers, resulting in exaggerated prevalence of use rates.

- **Inhalants** have become an important class of drugs, showing the second highest lifetime prevalence of use rate among eighth and tenth graders and the third highest among twelfth graders of any of the illicit drugs used, with lifetime prevalence rates of 18%, 17%, and 14%, respectively. However, in terms of any use in the past 30 days (current use), inhalants rank lower in the upper grade levels because many who had used them at a younger age have discontinued use.
- Only 0.8% of the 2000 seniors have tried the specific class of inhalants known as **amyl and butyl nitrites**. 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 senior 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 make estimates of the degree to which inhalant use was being underreported. As a result, we introduced **inhalants adjusted** prevalence estimates, which correct for the under-inclusion of nitrite use. Such correction has made very little difference in recent years because of the low rates of nitrite use.²⁵
- For eighth and tenth graders, inhalant use is followed closely in the rankings by **amphetamines**, with lifetime prevalence of use rates of 10% for eighth graders and 16% for tenth graders. Amphetamine use comes ahead of inhalant use in the rankings for twelfth graders, with 16% reporting some use in their lifetime.
- **Hallucinogens** are the next most widely used class of substances. Lifetime prevalence of use is 4.6% for eighth graders, 8.9% for tenth graders, and 13% for twelfth graders. Hallucinogen prevalence rates rank this high primarily due to the prevalence of **LSD** use (3.9%, 7.6%, and 11.1%, respectively).
- Another drug used for its somewhat hallucinogenic properties is **ecstasy (MDMA)**. At present the lifetime prevalence rates for this drug stand at 4.3%, 7.3%, and 11.0% in grades 8, 10, and 12—rates which are almost identical to LSD and are now higher than for cocaine in the upper grades.
- When specific questions about **PCP** use were added, in 1979, we discovered that some users of PCP did not report themselves as users of hallucinogens, even though PCP is explicitly included as an example in the questions about hallucinogens. Thus, from 1979 onward, we have included the **hallucinogens adjusted** prevalence and trend estimates for seniors to correct for this known underreporting. Again, such

²⁵Because the data to adjust inhalant and hallucinogen use for seniors 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 very low 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 eighth- and tenth-grade questionnaires.

correction has made very little difference in recent years among seniors, because the rate of PCP use is so low. (See previous footnote.)

- Lifetime prevalence of use among seniors for the specific hallucinogenic drug **PCP** now stands at 3.4%, substantially lower than the lifetime prevalence of the other most widely used hallucinogens, **LSD** (11.1%) and **ecstasy** (11.0%).
- Lifetime prevalence rates for **cocaine** use by eighth, tenth, and twelfth graders are 4.5%, 6.9%, and 8.6%, respectively.
- **Crack**, a form of cocaine that comes in small chunks or “rocks,” can be smoked to produce a rapid and intense high. It currently has a relatively low lifetime prevalence of use rate in all grade levels: 3.1% for eighth graders, 3.7% for tenth graders, and 3.9% for twelfth graders.

Of all students reporting *any* cocaine use, a significant proportion have some experience with crack: two-thirds of the eighth-grade cocaine users (69%), one-half of the tenth-grade users (54%), and nearly one-half of the twelfth-grade users (45%) reported using crack.

- **Heroin** is one of the least commonly used of the illicit drugs for each grade level. Lifetime use is 2.4% for twelfth graders, 2.2% for tenth graders, and 1.9% for eighth 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 at the world level, purity has risen substantially and, as a result, smoking and snorting have become more common modes of use. Because of these changes, in 1995 we added separate questions on taking heroin with and without a needle. We found that significant proportions of those reporting any heroin use in the past 12 months indicated use only *without* a needle: this is true of four-tenths (42%) of the eighth-grade heroin users in 2000 (0.8% out of the 1.9% indicating any use), more than one-half (55%) of the tenth-grade users (1.2% out of 2.2%), and three-quarters of the twelfth-grade users (1.8% out of 2.4%). In addition, roughly half of the remaining users of heroin in each grade reported use *both* with and without a needle (see Table 4-3).
- **Other narcotics** are in the top third of the ranking for seniors (10.6% lifetime prevalence). (Data for eighth and tenth graders are not reported for other narcotics because the data are of questionable validity.)
- **Tranquilizers** fall in the middle of the prevalence rankings of illicit drugs, with lifetime prevalence rates of 4.4%, 8.0%, and 8.9% for grades 8, 10, and 12, respectively.
- Within the general class of sedatives, the specific drug **methaqualone** is used by many fewer seniors (0.8% lifetime prevalence of use) than the much broader subclass of sedatives, **barbiturates** (9.2% lifetime prevalence of use). Because methaqualone use

has become so limited, questions about its use have not been included in the eighth- and tenth-grade questionnaires. Barbiturate use questions have been included in the grade 8 and 10 questionnaires, but the results are not reported because we suspect that the younger respondents include the use of drugs that are not 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 the tenth and twelfth graders, for whom inhalants rank lower in terms of current use than is true for lifetime use, because use of a number of the inhalants, such as glues and aerosols, tends to be discontinued at a relatively early age. Among the eighth graders, however, it should be noted that nearly one in ten (9.4%) sniffed or “huffed” some inhalant in the prior 12 months, and one in twenty-two (4.5%) did so in the 30 days prior to the survey.
- Two of the newer drugs reported to be on the scene were included in the 2000 survey for the first time, *GHB* and *ketamine*. Because we are never sure how widespread the use of such new drugs is going to be, we have developed a measurement approach that begins with what we call a single “tripwire” question, which asks only about the frequency of use in the last twelve months. The purpose of such a question is to determine whether the drug is making sufficient inroads to be worthy of the larger allocation of questionnaire space given to most of the other drugs.
- Neither of these drugs turned out to have particularly high prevalence rates in 2000. (See Table 4-6.) *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 1.2%, 1.1%, and 1.9% in grades 8, 10, and 12, respectively. It is known as a “date rape” drug, because of its ability to induce amnesia of events that occurred while under the influence. There has been considerable adverse publicity in the media about this drug in the past year or so, which may explain the limited rates of use.
- *Ketamine*, also known as “*special K*” and “*K*,” had only slightly higher prevalence rates: 1.6%, 2.1%, and 2.5%, respectively. It is an anesthetic used mostly in veterinary medicine; and it can induce dream-like states and hallucinations.
- Use of either of the two major licit drugs, *alcohol* and *cigarettes*, remains more widespread than use of any of the illicit drugs. Four out of every five students (80%) have at least tried *alcohol* by twelfth grade, and half of all twelfth graders (50%) reported using alcohol in the month prior to the survey (Table 4-2). Even among eighth graders, the number of students who reported some alcohol use in their lifetime is high: more than half (52%) said they have tried alcohol and almost a quarter (22%) are current (past 30 days) drinkers.²⁶

²⁶In 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 the respondent had “just a few sips” of an alcoholic beverage. In 1994 this change was made to the remaining forms. The 2000 data presented here are all based on the revised question. In later tables and graphs in this volume, the 1993 data are

- Of greater concern than just any use of alcohol is its use to the point of inebriation: 25% of the eighth graders, 49% of the tenth graders, and 62% of the twelfth 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—8.3%, 24%, and 32%, 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 14%, 26%, and 30% for the three grades, respectively.²⁷
- Nearly two-thirds (63%) of seniors reported having tried *cigarettes* at some time, and almost one-third (31%) smoked at least some in the prior month. Even among eighth graders, four in every ten (41%) reported having tried cigarettes and 15% smoked in the prior month.
- *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. The proportions using during the past year were not inconsequential—3.9% in eighth grade, 6.4% in tenth grade, and 9.2% in twelfth grade. Presumably, 30-day and daily use would be far lower, however.
- *Smokeless tobacco* is used by a surprisingly large number of young people. Among eighth, tenth, and twelfth graders, lifetime prevalence of use rates are 13%, 19%, and 23%, respectively, while current (past 30 days) prevalence of use rates are 4.2%, 6.1%, and 7.6%, respectively. As will be discussed later in this chapter, the rates are considerably higher among boys, who account for most of the use of smokeless, or “spit,” tobacco.
- Questions about *anabolic steroids* were added to the study in 1989. These drugs bear some resemblance to a number of other drugs in the study in that their distribution and sale are legally controlled (with some important exceptions) and, like those other drugs, they often find their way into an illicit market. They also carry a particular danger for HIV transmission since they are often taken by injection. However, they

presented for both the original question and the revised question. As would be expected, the prevalence of use rates dropped slightly as a result of this methodological change, with the largest shifts observed in the lifetime prevalence of use measures and among the eighth-grade respondents. See Table 2-1 to examine the effects of this change.

²⁷We 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 eighth-grade students' reported prevalence of getting drunk. In 2000, 14% of eighth graders said they had had five or more drinks in a row at least once in the past two weeks. However, only 8% said they had been drunk or very high from drinking in the past 30 days. It seems unlikely that about one-half of eighth 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 the reports of getting drunk or very high are likely to be the more accurate of the two for eighth graders, at least.

differ from all the other drugs discussed here in one important way: they are not usually taken for their direct psychoactive effects (although they may have some) but rather for their enhancement of the user's musculature and for healing physical injuries. Clearly their potential unintended consequences, including the transmission of HIV, make their illicit use a public health concern. It is for these reasons that they were added to the study.

The prevalence of use rates for anabolic steroids are relatively low. For eighth, tenth, and twelfth graders, lifetime prevalence rates are 3.0%, 3.5%, and 2.5%, respectively, while current (past 30 days) prevalence of use rates are 0.8%, 1.0%, and 0.8%, respectively. Rates for males are distinctly higher, however, as is detailed below.

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), some readers may be interested in more detailed information about the frequency with which various drugs have been used in these same time periods. Tables 4-4a and 4-4b present frequency-of-use information in the full detail contained in the original question-and-answer sets.

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 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 and users of smokeless tobacco if they stated using "about once a day" or more often.

- Across all three grade levels, there are more current daily users of *cigarettes* than of any of the other drug classes: 7.4%, 14%, and 21% in grades 8, 10, and 12, respectively, in 2000. Many of these daily smokers say they currently smoke a half-pack or more per day (2.8%, 6.2%, and 11.3% of all respondents in grades 8, 10, and 12, respectively).
- Daily use of *smokeless tobacco* is considerably lower than daily use of cigarettes, at 0.9%, 1.5%, and 2.9%, respectively. Again, the rates among boys are quite a bit higher.
- The proportions of students who consume *tobacco* daily in either or both forms (i.e., as cigarettes and/or smokeless tobacco) are only slightly higher than the prevalence of use rates for cigarettes alone, and not far from the sum of the prevalence of use rates for the two different types of tobacco consumption: 8%, 15%, and 21% for grades 8, 10, and 12, respectively (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 alcohol use rates in 2000 were 0.8%, 1.8%, and 2.9% in grades 8, 10, and 12, respectively.
- *Marijuana* is now used on a daily or near-daily basis by 1 of every 17 seniors (6%); somewhat fewer tenth-grade and considerably fewer eighth-grade students use it daily (3.8% and 1.3%, respectively). (See Chapter 10 for information on levels of past daily use and cumulative daily use of marijuana.)
- Less than 1% of the twelfth-grade respondents reported daily use of any one of the illicit drugs other than marijuana. Only 0.5% reported daily use of *amphetamines*, followed by 0.3% or fewer using a number of drug classes (see Table 5-4). While very low, these figures are not inconsequential because 1% of the high school class of 2000 represents roughly 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) who did not use it in the 12 months preceding the survey.²⁸ We use the word “noncontinuation” to describe this operational definition, 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. In Figure 4-3 these noncontinuation rates are provided for all drug classes for all grades in 2000. It may be seen in Figure 4-3 that noncontinuation rates vary widely among the different drugs.

- The highest twelfth-grade noncontinuation rates observed are for *methaqualone* (63%). *Inhalants* follow closely (at 58%); many inhalants are used primarily at a younger age, so often use is not continued into the senior year. After methaqualone and inhalants, the rank ordering for noncontinuation rates is as follows: *Rohypnol* (47%); *methamphetamine* (46%); *crystal methamphetamine* (45%); *crack cocaine* (44%); *LSD* (41%); *heroin* (38%); *tranquilizers and hallucinogens in general* (both 36%); *narcotics other than heroin* (34%); *amphetamines* and *barbiturates* (both 33%), *PCP* and *steroids* (both 32%); *MDMA or “ecstasy”* (26%); and *nitrite inhalants* and *marijuana* (both 25%). Ecstasy very likely has one of the lowest noncontinuation rates at present because it has become more popular very recently, particularly among the older teens.

²⁸This 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.

- Because a relatively high proportion of users continues to use *marijuana* at some level over an extended period, it consistently has had one of the lowest noncontinuation rates in senior year of any of the illicit drugs (25% in 2000).
- It is noteworthy that of all the seniors who have ever used *crack* (3.9%), only one-quarter (1.0%) are current users and only 0.1% 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 seniors (80%), is still used in the senior year by nearly all who have ever tried it (73% of all seniors), yielding a noncontinuation rate for alcohol of only 9%.²⁹
- Noncontinuation is defined differently for *cigarettes*, because respondents are not asked to report on cigarette use in the past year. The noncontinuation rate is thus defined as the percentage of those who say they ever smoked “regularly” who also reported not smoking at all during the past 30 days. Of the seniors who said they were regular smokers, only 16% 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 15% of the lifetime “regular” users had not used it in the past 30 days.

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 below. Tables 4-5 through 4-9 provide the statistics on the usage rates for the various subgroups defined on these dimensions.

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 (see Tables 4-5 through 4-8).

- Overall, the proportion of twelfth graders using *marijuana* is higher among males (annual prevalence of use 39% versus 33% among females), and daily use of marijuana is even more concentrated among males (8.2% versus 3.5% for females). This is also true among eighth- and tenth-grade students (see Tables 4-6 and 4-8).

²⁹Specifically, dividing the 73.2% annual rate by the 80.3% lifetime rate yields a *continuation* rate of 91.2%; the *noncontinuation* rate is thus 8.8%.

- Males have considerably higher prevalence of use rates on most other illicit drugs, too. The annual prevalence of use rates in the senior year tend to be at least one and one-half to two times as high among males as among females for *hallucinogens, cocaine, crack and other forms of cocaine, hallucinogens other than LSD*, and *steroids*. Further, males account for an even greater share of the frequent or heavy users of these various classes of drugs. For many of these drugs, there is little gender difference in use among eighth and tenth graders, however. In fact, for some drugs, including *any illicit drug other than marijuana, inhalants, crack, heroin, amphetamines, methamphetamine, Rohypnol*, and *tranquilizers*, females have slightly higher rates of annual use in eighth grade. Thus, the gender differences observed in twelfth grade, with males more likely to use many drugs, seem to emerge over the course of middle to late adolescence.
- In twelfth grade, females have an annual prevalence rate for *amphetamines* (10.5%) equivalent to that for males (10.4%), and in the earlier grades females actually have higher rates of amphetamine use.
- The proportions of high school seniors who reported using *some illicit drug other than marijuana* during the last year are not very different between genders (22% for males versus 19% for females; see 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 sexes 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 heavily concentrated among males: twelfth-grade males have an annual prevalence of use rate of 2.5% compared to 0.9% among females. In eighth grade, the difference is 2.2% versus 1.0%, respectively.
- Frequent use of *alcohol* also tends to be disproportionately concentrated among males. *Daily use*, for example, is reported by 4.7% of the twelfth-grade males versus only 1.1% of the twelfth-grade females. Males are more likely than females to drink large quantities of alcohol in a single sitting: 37% of twelfth-grade males reported drinking *five or more drinks in a row* in the prior two weeks versus 24% of twelfth-grade females.³⁰ These gender differences are observable at all three grade levels, but they become considerably larger at the higher grade levels.
- In recent years, *smoking rates* among seniors have been similar for males and females. In 2000, twelfth-grade males and females reported almost equal rates of *daily*

³⁰Because 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 seniors is 9% (38% for males versus 27% for females), which is two-thirds of the 13% gender difference in having five or more drinks in a row (37% versus 24%).

smoking in the past month (21% for males versus 20% for females) and smoking *a half-pack or more per day* (11% for both males and females). In eighth grade, daily smoking rates are also very close for the two genders (7.5% for males versus 7.0% for females), and in tenth grade the rates of daily smoking are the same (14%) for the two genders.

- The smoking of *bidis*, however, tends to be more concentrated among males.
- The use of *smokeless tobacco* is almost exclusively a male behavior. Although 14% of the twelfth-grade males reported some use in the prior month, only 1.3% of the females did. Rates of daily use by males are 1.5% among eighth graders, 3.9% among tenth graders, and 6.5% among twelfth graders. The comparable statistics for females are only 0.3%, 0.2%, and 0.4%, 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 through 5-9 in Chapter 5.)

It is interesting to note that while the great majority of students at all three grade levels expect to complete college (see Table 4-7), 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% to 20% of each cohort who eventually will drop out of high school. There likely are cohort shifts in college attendance taking place, as there have been through the life of the study, that may partially explain this anomaly; but there also likely is a considerable age effect, as well, wherein early aspirations become reality tested (and adjusted) as high school experience cumulates.

For any given drug, the differences between these two self-identified groups of college- or noncollege-bound students tend to be greatest in the eighth grade. This could reflect an earlier age of initiation of drug use for the noncollege-bound and/or the fact that fewer of the eventual dropouts have left school yet, thus increasing the differences in the lower grades.

- Annual *marijuana* use is reported by 35% of the college-bound seniors versus 40% of the noncollege-bound, but among eighth graders it is reported by only 13% of the college-bound versus 34% of the noncollege-bound.
- Among 2000 seniors, 19% of the college-bound reported using *any illicit drug other than marijuana* in the prior year versus 25% of the noncollege-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 twelfth graders, for example, is more than twice as high among those who do not plan to attend college

(9.8%) as among the college-bound (4.4%). Among eighth graders, it is nearly six times as high, and among tenth graders it is almost four times as high.

- Frequent alcohol use also is considerably more prevalent among the noncollege-bound. For example, **daily drinking** is reported by 4.8% of the noncollege-bound seniors versus 2.2% of the college-bound seniors. **Binge drinking** (five or more drinks in a row at least once during the preceding two weeks) is reported by 36% of the noncollege-bound seniors versus 28% of the college-bound. There are also modest differences between the noncollege-bound and college-bound seniors in lifetime (85% versus 79%), annual (78% versus 72%), or 30-day (54% versus 48%) 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 4-6 through 4-8).
- At all three grade levels, more noncollege-bound students use **steroids** compared to college-bound students.
- By far, the largest and most dramatic difference in substance use between the college- and noncollege-bound involves **cigarette** smoking—8% of the college-bound seniors reported smoking **a half-pack or more daily** compared to 20% of the noncollege-bound seniors. The proportional differences are even larger in the lower grades: 1.8% versus 10%, respectively, in eighth grade and 4.5% versus 16% in tenth grade. (The absence of dropouts by twelfth grade undoubtedly reduces the ratio, since dropouts have a particularly high rate of smoking.)

Regional Differences

Some regional differences in the rates of illicit drug use among high school seniors may be observed in Tables 4-5 through 4-8 and Figure 5-10a-c in Chapter 5. See Figure 4-4 for a **regional division** map showing the states included in the four regions of the country as defined by the Census Bureau.

- In 2000, the overall rates of **any illicit drug** use differed some among the regions. The highest rate was in the West, where 47% of seniors said they had used an **illicit drug** in the past year, followed closely by the Northeast (46%), the North Central (39%), and the South (35%) (see Figure 5-10a in Chapter 5).
- At present, the regional variation in terms of the percentage of seniors using some **illicit drug other than marijuana** in the past year follows a similar pattern to that of any illicit drug, with the West having the highest rate of use (23%), followed by the Northeast at 22%, and the North Central and the South (both at 19%). Among twelfth graders, there generally has been little difference in **marijuana** use among the regions, except that use in the South typically has been lower than in the other three regions. That remains true this year, except that the North Central now lies in the middle at 35%.

- In the past, there consistently was a large regional difference in the use of *ice*, or crystal methamphetamine, with the West having the highest rate. The highest rate in 2000 among seniors was still in the West, with 2.9% annual prevalence of use, closely followed by the North Central (2.8%), the South (2.0%), and the Northeast (1.0%).
- In the past, the largest observed regional differences have been in *cocaine* use, and the West has tended to have the highest level of use. At present the West has the highest rate of *cocaine* use overall at all three grade levels, with the regional differences between the other three regions being very small. The West also has the highest *crack* use rates in all three grades.
- The South has had the highest rate of *tranquilizer* use at all three grades for some years and also the highest rate of *barbiturate* use in twelfth grade (the only grade for which it is reported).
- *Rohypnol* which, like *tranquilizers* and *barbiturates*, is a central nervous system depressant, also has a higher rate of use in the South than in any other region.
- The use of *ecstasy* is currently highest in the West among twelfth graders, with very small regional differences in grades 8 and 10.
- For some years, the annual prevalence rates of *alcohol* use among seniors have been somewhat lower in the South and West than in the Northeast and North Central regions, though there has been little regional difference in the lower grades. This year, the same remains true at all grade levels.
- *Crystal methamphetamine (ice)* use among 12th graders is currently highest in the West (2.9% annual prevalence) and the North Central (2.0%), with use lowest in the Northeast (1.0%).
- The West continues to have considerably lower rates of *daily smoking* than the other regions at all three grade levels, but particularly at the lower grade levels (Table 4-8).
- The use of *smokeless tobacco*, particularly current daily use, tends to be concentrated in the South and North Central.

Differences Related to Population Density

Three levels of population density (or urbanicity) have been distinguished for analytical purposes: (1) large MSAs, which are the largest Metropolitan Statistical Areas in the 1990 Census; (2) other MSAs, which are the remaining Metropolitan Statistical Areas; and (3) non-MSAs, which are the sampling areas not designated as metropolitan by the Census. See Appendix B for further details.

Monitoring the Future

In general, the 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).

- In twelfth grade, annual *marijuana* use is a little lower in the non-urban areas (33%) than in the large metropolitan areas (37%) or in the other metropolitan areas (38%).
- On the other hand, at all three grade levels, amphetamine use is somewhat higher in non-urban areas than in the metropolitan areas.
- The use of *GHB* and *Ketamine* seems to be highest in the metropolitan areas and lowest in the non-metropolitan areas. (See Table 4-6.)
- In all grades, *binge drinking* is highest in the non-metropolitan areas, although the differences are not large (Table 4-8).
- *Daily cigarette* use is inversely related to community size at all three grade levels. (See Table 4-8.) The proportional differences are larger at the lower grades; for example, among eighth graders use is about twice as high in the non-urban areas as in the other strata. In 2000 the daily smoking rates for eighth graders were 5.6% in the large cities, 6.3% in the other cities, and 12% in the non-metropolitan areas.
- *Smokeless tobacco* use also is highest in the non-urban areas at all three grade levels and, again, the differences are large. Current prevalence of use (past 30 days) is two to three times as high in the non-urban areas as in the most urban (e.g., for eighth graders, 30-day prevalence is 2.4% in the large MSAs, 3.9% in the other MSAs, and 7% in the non-MSAs). Daily use of smokeless tobacco is even more 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, particularly among rural males in the South and North Central regions of the country.
- By way of contrast, the reported use of *bidis* flavored cigarettes tends to be higher in urban areas, though the differences are not large (Table 4-6.)

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 original questions are: (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. The average educational level obtained by students’ parents has been rising over the years. Tables 4-5 through 4-8 give the distributions for 2000 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 eighth grade, there tends to be a negative ordinal relationship between socioeconomic level (SEL) and annual prevalence of use. The relationships are not always entirely ordinal, often because the top two categories have similar levels of use. To illustrate, among eighth graders the annual prevalence of the index of *any illicit drug* use drops steadily from 31% in the lowest SEL stratum to 15% in both of the top two strata. The annual prevalence of use of *any illicit drug other than marijuana* drops steadily from 16% in the lowest stratum to 8% in the top two strata.

Many of these differences have disappeared by tenth grade or twelfth grade. This is true for *marijuana, inhalants, hallucinogens, LSD, and tranquilizers* but *not* for *cocaine, crack, or heroin*. For these latter drugs the lower strata (or lowest stratum in some cases) generally continue to have the highest proportion using, even at the upper grade levels.

The diminished socioeconomic differences by twelfth grade could be explained by the upper- and middle-class teenagers “catching up” with their more precocious peers from poorer backgrounds. But the diminished differences may also be explained by the fact that dropping out of school is correlated both with socioeconomic status (negatively) and with drug use (positively). Thus, the lower strata may have lost more of their drug users to dropping out by the time they reach the upper grades.

- *Cigarette smoking* tends to bear an inverse relationship with parental education (Table 4-7), but this relationship attenuates considerably by grade 12. (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 1991.³¹ 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. Otherwise, misleading findings about the size of racial/ethnic differences may emerge as well as, perhaps more importantly,

³¹We 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 unfortunately are 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. A sequel article to this one, with updated results, is now being written.

misleading findings about their trends. We caution the reader that the sampling error of differences between 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. Table 4-9 gives the combined 1999-2000 lifetime, annual, 30-day, and daily use statistics 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 Table 4-9. First, for ***all drugs***, licit and illicit, African American seniors reported lifetime, annual, 30-day, and daily prevalence of use rates that are lower—sometimes dramatically lower—than those for White or Hispanic seniors.

Second, the same can be said for African American students in eighth and tenth grades; therefore, the low usage rates in twelfth grade almost certainly are not due to differential dropout rates. (The one exception occurs with eighth-grade marijuana use, where White students have slightly lower rates of use than African American students.)

- The third general point is that by twelfth grade, Whites have the highest lifetime and annual prevalence of use rates for many substances, including: ***inhalants, LSD, hallucinogens other than LSD, other narcotics, amphetamines, barbiturates, methaqualone, Rohypnol, tranquilizers, cigarettes, and smokeless tobacco***. Not all of these findings are replicated at lower grade levels, however.
- Hispanics, taken as a group, now have the highest lifetime and annual prevalence of use rates in their senior year for ***marijuana, MDMA, crack, other cocaine, heroin, ice, and steroids***. Their rate of ***cocaine*** use has tended to be particularly high, compared to the other two racial/ethnic groups, particularly in the lower grades. It should be remembered that Hispanics have a considerably higher dropout rate than Whites or African Americans, based on Census Bureau statistics, and this 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 nearly all the substances on which they have the highest prevalence of use in twelfth grade, as well as of several other drugs. For example, in eighth grade 37% of Hispanic students reported ever having used ***marijuana***, compared to 19% of White students and 24% of African American students. For ***tranquilizers***, the lifetime prevalence of use in eighth grade for Hispanics, Whites, and African Americans is 6.8%, 4.7%, and 1.5%, respectively, and for ***cigarettes***, 46%, 43%, and 40%, respectively. In other words, in eighth grade—before most dropping out occurs—Hispanics have the highest rates of use of all the substances except ***other narcotics, amphetamines, barbiturates, and smokeless tobacco***; whereas, by twelfth 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 considering is that Hispanics may

tend to start using drugs at a younger age, but that 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 for the racial/ethnic differences in reported substance use can be found in Wallace, et. al. (1995).³²

- Looking at the daily use tables (Table 4-9), we find exceptionally large absolute and proportional differences between the three groups in their rates of **daily cigarette smoking**. Among twelfth graders, Whites have a 26% daily smoking rate, Hispanics 16% (which may be low, in part, because of their higher dropout rate), and African Americans only 8%. In fact, African Americans have dramatically lower smoking rates than Whites or Hispanics at all grade levels.
- African American students have the lowest lifetime, annual, and 30-day prevalence rates for **alcohol** use. They also tend to have the lowest rates for self-reports of having been **drunk**.
- Recent **binge drinking** (having 5 or more drinks in a row during the prior two weeks) is also lowest among African Americans at all grade levels: in twelfth grade, 12% versus 35% for Whites and 31% for Hispanics. In eighth grade, Hispanics have the highest rate at 19%, compared to 15% for Whites and 10% for African Americans.

³²Wallace, J.M., Jr., Bachman, J.G., O'Malley, P.M., & Johnston, L.D. (1995). Racial/ethnic differences in adolescent drug use: Exploring possible explanations. Pp. 59-80 in G. Botvin, S. Schinke, & M. Orlandi (Eds.), Drug abuse prevention with multi-ethnic youth. Thousand Oaks, CA: Sage.

TABLE 4-1a

Ninety-Five Percent Confidence Limits: Lifetime Prevalence of Use for Eighth, Tenth, and Twelfth Graders, 2000

(Approx. Ns: 8th grade = 16,700, 10th grade = 14,300, 12th grade = 12,800)

| | 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 ^a | 25.3 | 26.8 | 28.5 | 43.4 | 45.6 | 47.8 | 51.2 | 54.0 | 56.8 |
| Any Illicit Drug ^a Other Than Marijuana | 14.5 | 15.8 | 17.1 | 21.4 | 23.1 | 24.9 | 27.0 | 29.0 | 31.2 |
| Any Illicit Drug ^{a,b} Including Inhalants | 33.4 | 35.1 | 36.9 | 47.0 | 49.3 | 51.5 | 53.0 | 57.0 | 61.0 |
| Marijuana/Hashish | 18.8 | 20.3 | 21.8 | 38.1 | 40.3 | 42.5 | 45.9 | 48.8 | 51.6 |
| Inhalants ^b | 16.6 | 17.9 | 19.2 | 15.3 | 16.6 | 18.0 | 12.4 | 14.2 | 16.1 |
| <i>Inhalants, Adjusted^{b,c}</i> Amyl/Butyl Nitrites ^d | — | — | — | — | — | — | 12.8 | 14.6 | 16.6 |
| Hallucinogens | 3.9 | 4.6 | 5.5 | 7.8 | 8.9 | 10.1 | 11.6 | 13.0 | 14.5 |
| <i>Hallucinogens, Adjusted^c</i> LSD | — | — | — | — | — | — | 12.1 | 13.6 | 15.1 |
| LSD | 3.2 | 3.9 | 4.7 | 6.5 | 7.6 | 8.7 | 9.8 | 11.1 | 12.6 |
| Hallucinogens Other Than LSD | 2.0 | 2.3 | 2.8 | 4.2 | 4.8 | 5.4 | 6.2 | 6.9 | 7.7 |
| PCP ^d | — | — | — | — | — | — | 2.5 | 3.4 | 4.7 |
| MDMA (Ecstasy) ^d | 3.6 | 4.3 | 5.1 | 6.3 | 7.3 | 8.4 | 9.3 | 11.0 | 13.0 |
| Cocaine | 3.8 | 4.5 | 5.4 | 5.9 | 6.9 | 8.0 | 7.5 | 8.6 | 9.9 |
| Crack | 2.8 | 3.1 | 3.5 | 3.3 | 3.7 | 4.2 | 3.5 | 3.9 | 4.4 |
| Other Cocaine ^e | 2.9 | 3.5 | 4.3 | 5.1 | 6.0 | 7.1 | 6.4 | 7.7 | 9.2 |
| Heroin | 1.6 | 1.9 | 2.2 | 1.9 | 2.2 | 2.6 | 2.1 | 2.4 | 2.8 |
| With a Needle ^b | 0.9 | 1.1 | 1.4 | 0.8 | 1.0 | 1.3 | 0.5 | 0.8 | 1.1 |
| Without a Needle ^b | 1.1 | 1.3 | 1.5 | 1.4 | 1.7 | 2.0 | 2.0 | 2.4 | 3.0 |
| Other Narcotics ^f | — | — | — | — | — | — | 9.8 | 10.6 | 11.6 |
| Amphetamines ^f | 9.0 | 9.9 | 10.9 | 14.5 | 15.7 | 17.1 | 14.3 | 15.6 | 17.1 |
| Methamphetamine ^{g,h} | 3.5 | 4.2 | 5.0 | 5.9 | 6.9 | 7.9 | 6.8 | 7.9 | 9.1 |
| Crystal Meth. (Ice) ^h | — | — | — | — | — | — | 3.2 | 4.0 | 4.9 |
| Sedatives ^{f,i} | — | — | — | — | — | — | 8.5 | 9.3 | 10.2 |
| Barbiturates ^f | — | — | — | — | — | — | 8.4 | 9.2 | 10.1 |
| Methaqualone ^{d,f} | — | — | — | — | — | — | 0.4 | 0.8 | 1.6 |
| Tranquilizers ^f | 3.9 | 4.4 | 5.0 | 7.3 | 8.0 | 8.8 | 8.1 | 8.9 | 9.7 |
| Rohypnol ^d | 0.7 | 1.0 | 1.4 | 0.9 | 1.3 | 1.9 | 0.9 | 1.5 | 2.4 |
| Alcohol | 50.0 | 51.7 | 53.4 | 69.7 | 71.4 | 73.1 | 78.6 | 80.3 | 81.8 |
| Been Drunk ^h | 23.6 | 25.1 | 26.6 | 47.4 | 49.3 | 51.1 | 58.9 | 62.3 | 65.6 |
| Cigarettes | 38.8 | 40.5 | 42.2 | 53.2 | 55.1 | 57.0 | 60.6 | 62.5 | 64.5 |
| Smokeless Tobacco ^d | 11.2 | 12.8 | 14.5 | 17.1 | 19.1 | 21.3 | 19.2 | 23.1 | 27.5 |
| Steroids ^h | 2.7 | 3.0 | 3.4 | 3.1 | 3.5 | 3.9 | 1.9 | 2.5 | 3.2 |

NOTE: '—' indicates data not available.

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

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

^bFor 12th graders only: Data based on three of six forms; N is one-half of N indicated.

^cFor 12th graders only: Adjusted for underreporting of certain drugs. See text for details.

^dFor 8th and 10th graders only: Smokeless tobacco data based on two of four forms; N is one-half of N indicated.

MDMA and Rohypnol data based on one-third of N indicated due to changes in the questionnaire forms. For 12th graders only: Data based on one of six forms; N is one-sixth of N indicated.

^eFor 12th graders only: Data based on four of six forms; N is four-sixths of N indicated.

^fOnly drug use which was not under a doctor's orders is included here.

^gFor 8th and 10th graders only: Data based on one of four forms; N is one-third of N indicated.

^hFor 12th graders only: Data based on two of six forms; N is two-sixths of N indicated.

ⁱFor 12th graders only: Data based on six forms adjusted by one form data.

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Figure 4-1. Prevalence and Recency of Use Various Types of Drugs, 8th, 10th, 12th Graders, 2000

Figure 4-1. page 2

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Figure 4-2. 30-Day Prevalence of Daily Use of Various Types of Drugs, 12th Graders, 2000

Figure 4-3. Noncontinuation Rates, Percent Who Used Drug Once or More in Lifetime, Who Did Not Use in Past Year, 8th, 10th, 12th Graders, 2000

- *Monitoring the Future*

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Figure 4-3. page 2

Figure 4-4. States Included in the Four Regions of the Country