CHAPTER 5

Patterns of Illegal Drug Use

What is known about the use and abuse of illegal drugs, drug treatment, and consequences associated with drug use is derived primarily from several large-scale surveys and selected compilations of justice and health statistics. Although information on drug use in the United States, Canada, and many European countries is plentiful, data on substance use in other regions of the world, particularly Third World countries, are much scarcer. Available data have enabled researchers to demonstrate that drug use varies significantly in the population and that it is more common in some populations than in others (i.e., drug use is *correlated* with certain populations and statuses).

Among the correlates of illegal drug use is age, as the use of drugs is much more common in late adolescence and early adulthood than at any other point in the lifecourse. Gender is another important predictor of illegal drug use; males are more likely than females to use illegal drugs. Drug use also varies by race/ethnicity, but in contrast to what is commonly believed, whites are among the most likely to use illegal drugs. In part, racial and ethnic differences in substance use are a function of differences in social class. Social class is a measure that captures differences in economic prosperity and educational attainment and

is another important correlate of drug use. Finally, residence characteristics, such as whether one lives in an urban area as opposed to a small town or rural area, are important for understanding drug use, with levels of illegal drug use generally highest in large cities.

The correlates of illegal drug use are the primary focus of this chapter and are discussed in depth below. However, in order to understand research on the correlates of drug use, it is necessary to have a basic understanding of the methods and sources of data used to generate this information. The two most widely used and perhaps the best sources of information on substance use and abuse are the Monitoring the Future Study and the National Survey on Drug Use and Health. Both are large, ongoing surveys based in the United States, which have collected data on substance use and abuse for decades. The former is predominately focused on substance use by adolescents, although it also provides information on adults, while the latter is a household survey focusing mainly on adults, although data on youth aged 12–17 are also included.

Surveys of drug use have been conducted in foreign countries, and data sources such as the European School Survey Project on Alcohol and Drugs and the British Crime

Survey provide us with information on patterns and correlates of substance use outside the United States. Other key sources of information on substance use and abuse target populations that are of specific interest, such as people requiring drug treatment or those accused of criminal offenses. One very useful data source in this area is the Arrestee Drug Abuse Monitoring (ADAM) study. There are also sources of information on drug use that compile data from various health, social service, and justice agencies. One of these is the Drug Abuse Warning Network (DAWN), which collects data on drug-related incidents from emergency room physicians and coroners.

Finally, ethnographic studies of drug use that rely on direct observation and/ or interviews of drug users and people in drug-related fields provide invaluable data on drug use and abuse. These data are particularly useful for examining drug use by populations that may be excluded from the data sources mentioned above. There are many individual studies of drug use that employ ethnographic data, and we draw on these throughout the book. However, one ongoing source of ethnographic data that deserves attention is Pulse Check. Pulse Check collects interview and ethnographic data on drug use from epidemiologists, field researchers, law enforcement officials, and drug treatment professionals to provide information on drug use from people who deal with these issues first hand.

Criminal justice data also provide important information on drug use, drug sales, and the consequences of these behaviors. Data on arrests and incarcerations for drug offenses are available from organizations such as the Bureau of Justice Statistics, but these data are more focused on the response to drug use than drug use per se. Therefore, we limit our discussion of these data sources.

We now turn our attention to a discussion of the primary sources of data on drug use, followed by a discussion of the key correlates of illegal drug use.

SELF-REPORT SURVEYS

The application of the self-report survey method to the study of deviant behavior began in the 1940s and 1950s, and these early surveys included measures of substance use (Porterfield, 1946; Short & Nye, 1957; Straus & Bacon, 1953). Survey research allowed the study of deviance by going "straight to the source" or by asking people about their illegal and deviant behavior. This was an important breakthrough in the study of crime and deviance and was especially significant for the study of victimless, though often illegal, behaviors such as drug use.

One of the major advantages of the self-report method is that it enables inferences to be drawn about a general population based on a relatively small sample of subjects, provided that every person in the population has an equal chance of being selected for the sample. With a properly drawn sample, we can examine numerous issues related to drug use with a relatively high degree of accuracy, including whether the use of a particular substance is increasing or decreasing, demographic differences in use and abuse patterns, how available and expensive the drug is on the street, whether treatment resources are available and adequate for those wanting help, attitudes about drugs and drug policy in the general population, and what the consequences of use and abuse are.

The flexibility of surveys also allows them to be used to examine substance use and abuse by those who may be most likely to have experience with drugs or drug-related problems, such as people in substance treatment centers or prison. Self-report surveys also provide a great deal of

flexibility in terms of the issues covered and questions asked. For example, major national surveys have added questions on the use and availability of drugs such as methamphetamine and ecstasy when it became clear that these drugs were an issue of growing concern to the public, and questions on the cost of particular drugs have also been added to surveys in the past as one measure of examining the success of interdiction efforts. In sum, the broad flexibility of surveys, and the fact that they allow us to study large populations relatively cheaply and accurately, makes them an extremely useful tool for social research in general and research on substance use in particular.

Despite the numerous benefits of the self-report method, there are a number of issues and limitations to survey research that must be considered when interpreting findings. One major concern with survey research on substance use is that some of the people who are most likely to use and abuse illegal drugs are also among the most difficult to contact. This problem is commonly referred to as **coverage error**, and it can hamper the ability of a survey to yield findings that are generalizable to the entire population (Dillman, 2000). For example, the most widely used sources of information on substance use by adolescents are based on middle and high school student populations. Although student-based drug surveys provide valuable data, because they are based on student populations they exclude high school dropouts and are less likely to capture students with high rates of absenteeism. This is important because the U.S. Department of Education estimates that 10% to 15% of students permanently drop out of school, and dropouts are more likely than enrolled students to use illegal drugs and alcohol (Johnston, O'Malley, & Bachman, 2003a). Dropouts are also more likely to use more serious drugs, such as

cocaine and heroin, and to use substances in more harmful ways (e.g., "daily" use) than are students who remain in school (SAMHSA, 2003e).

Because of these factors, surveys of student populations are likely to underreport the overall level of substance use and abuse by young people (SAMHSA, 2002e). Further complicating the interpretation of student-based data on drug use is the fact that dropout and absenteeism rates may also vary according to other sociodemographic characteristics. For example, Hispanics have been found to have significantly higher dropout rates at every age and social class, and because this affects their survey participation, it also affects the reported levels of substance use and abuse for this group (Johnston et al., 2003a; U.S. Department of Health and Human Services [DHHS], 2003).

Like surveys on students, general population surveys are also likely to underestimate levels of drug use and dependency as a result of coverage error. For example, household surveys will disproportionately miss people who use drugs, especially those who use "hard" drugs or are addicted to drugs, because these individuals are more likely to be homeless or to be living in various institutions, meaning they will be missed in samples of households (Ramsay & Partridge, 1999).

Another issue of concern in survey research on drug use is **underreporting** by respondents. Underreporting involves the tendency of survey respondents to lie, minimize, or fail to answer questions that are perceived to be "threatening" to the respondent (Aquilino & LoSciuto, 1990). Related to underreporting is the issue of **social desirability**, which is the tendency of respondents to reply to sensitive questions in ways that they believe to be more socially appropriate. For example, research has found people to be less likely to report sensitive and illegal behavior,

particularly as respondent anonymity decreases (e.g., answering the question in person rather than in an anonymous written survey) or as the respondent feels less in control of the interview process (Fendrich & Vaughn, 1994). These issues are further complicated by the fact that the underreporting of drug use is likely to vary not only by the survey mode but by a number of sociodemographic variables and the type of substance as well. For example, underreporting may be higher when questions are asked about "harder" drugs such as heroin, cocaine, and methamphetamine, ostensibly because the additional stigma (and legal consequences) associated with these drugs increases the pressure to respond in socially desirable ways (Fendrich & Vaughn, 1994). Similarly, research has indicated that members of racial/ethnic minority groups, members of the lower class, and those with lower levels of education may be more likely to underreport substance use even when controlling for other relevant variables (Mensch & Kandel, 1988).

Although survey data on drug use therefore should be regarded with caution, most researchers believe these data are reasonably valid indicators of substance use and abuse and that response validity can be held to a reasonably high level, provided the survey is properly conducted. An example of the relatively high validity potential in drug surveys is provided by the drugs component of the British Crime Survey (BCS), which has previously inserted a fictitious drug called "Semeron" into its measures of drug use as a validity check. In 1998, 9,988 people responded to the BCS, and of these, 4% claimed to have ever heard of Semeron, but only four respondents claimed to have used it in their lifetime and only one respondent claimed to have used it in the previous month (Home Office, 2001). In sum, there are limitations to the use of survey data for the study of drug use and abuse, but these data can be extremely valuable, provided that they are used cautiously and with their limitations in mind.

Monitoring the Future

The Monitoring the Future (MTF) study is perhaps the most commonly used source of information on legal and illegal drug use by American adolescents and young adults (Johnston et al., 2003b). With approximately 100 questions on substance use, MTF surveys address respondents' use of a variety of illegal drugs, alcohol, tobacco, psychoactive pharmaceuticals (nonmedical use), and inhalants during the last 30 days (both "daily" use and ever used in last 30 days), the last year, and in their lifetime. In addition to this, MTF includes questions regarding the age at first use for various drugs; the frequency and quantity of use; perceived availability of dugs; peer norms regarding drug use; beliefs about the health and social risks associated with drug use; and expected future use of drugs, among other things (Johnston et al., 2003b).

First implemented in 1975, MTF began as a cross-sectional survey of high school seniors alone, but quickly developed into a longitudinal project that has also expanded to include additional age groups. Beginning in 1991, MTF extended their study to include 8th and 10th graders, and now about 18,000 8th graders from 150 schools and 17,000 10th graders from 140 schools are surveyed annually (Johnston et al., 2003b). In all, each year the high school sample involves approximately 45,000 students from about 400 public and private secondary schools in the United States. Surveys of 8th and 10th graders are conducted anonymously, but 12th-grade respondents are asked to confidentially provide their names, enabling follow-up surveys of a random sample of graduating seniors for a number of years after their graduation (Johnston et al., 2003b).

Longitudinal information collected by the MTF project began with the graduating class of 1976. Today, from the original 15,000 to 17,000 senior respondents that participate in the survey each year, a representative sample of 2,400 persons is drawn and these individuals are then followed and surveyed by mail. The longitudinal data collected by the MTF allow researchers to examine the association of adolescent substance use with a number of outcomes in later life, including college enrollment and completion, marriage, parenthood, employment, and the use and abuse of substances in adulthood. The examination of adult substance use and abuse by MTF is also facilitated by oversampling procedures designed to include adequate numbers of frequent marijuana users (i.e., "daily users") and serious drug users in the sample (Johnston et al., 2003c).

Although the MTF study suffers from the limitations of school-based surveys discussed above, it is an excellent source of information on the prevalence and incidence of substance use by American adolescents. MTF data are especially adept at monitoring change in substance use over time. As illustrated in Figure 5.1, findings from the MTF survey demonstrate that the use of illicit drugs by American adolescents decreased significantly from the late 1970s (i.e., several years prior to the beginning of the "war on drugs") to the early 1990s. These data indicate that 54% of seniors reported some illicit drug use in 1979, but in the years to follow drug use
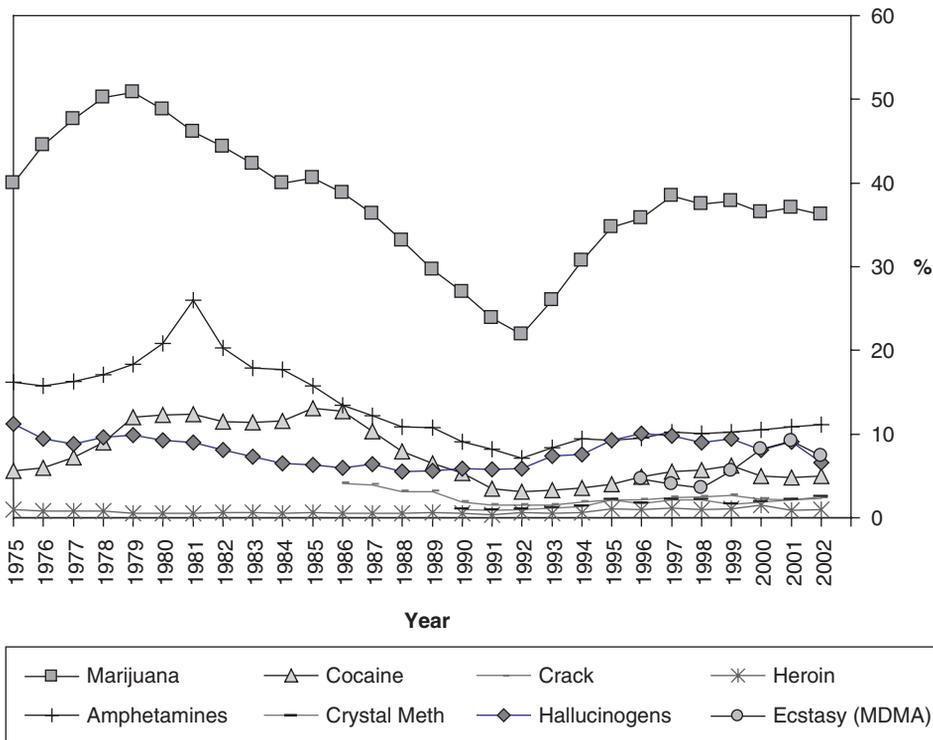

Figure 5.1   Annual Reported Illegal Drug Use by 12th Graders, 1975–2002

SOURCE: Data obtained from Johnston, O'Malley, & Bachman (2003b, tables D-2, D-6, D-10, D-16, D-18, D-20, D-24, D-35, D-40).

declined steadily, so that by 1992 only 27% reported illicit drug use (*half* the figure for 1979). After 1992, illicit drug use began to increase, and by 2002, 41% of seniors reported some illicit drug use in the past year (Johnston et al., 2003b).

Figure 5.1 also illustrates several "spikes" in drug use patterns over time. For example, in the 1970s, marijuana use increased substantially prior to peaking in the late 1970s and then declining. Similar trends are evident for amphetamine use in the early 1980s, cocaine and crack cocaine use in the mid- and late 1980s, and ecstasy and crystal methamphetamine use in the late 1990s and early 2000s.

Other Surveys on Adolescent Drug Use

Another useful source of information on adolescent substance use is the Youth Risk Behavior Survey (YRBS). Similar in many ways to the MTF study, the YRBS is a school-based study that is representative of American students enrolled in the 9th through 12th grades. The YBRS is implemented biennially by the Centers for Disease Control and Prevention, which developed the survey in order to monitor serious health risks posed to American adolescents and young adults (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention [DHHS-CDC], 2003a). Substance use is one of six categories of high-risk behavior targeted by the survey and is addressed by 14 questions on illegal drug use and 16 questions on alcohol and tobacco use in the 2003 survey. Because the YRBS has a particular focus on issues of risk and health, it examines some things that the MTF study does not (DHHS-CDC, 2003b). For example, questions included on substance use and risk in the YRBS address respondents' frequency of driving while intoxicated or riding in a car with an intoxicated driver and whether substance use was present at their last sexual intercourse. Measures such as these have enabled researchers to link forms of drug use with a variety of negative health outcomes including accidental death; suicide; unwanted pregnancy; and the transmission of disease, including HIV (Manski, Pepper, & Petrie, 2001).

An important source of data on substance use and abuse by adolescents in European countries is the European School Survey Project on Alcohol and Drugs (ESPAD; Hibell et al., 1999). Examining roughly 95,000 10th-grade students in 30 participating countries, the ESPAD was patterned after the MTF survey and is designed to enable comparisons between European countries and the United States. Recent findings identified by the ESPAD indicate that European youth are more likely to be current users of tobacco and alcohol, but less likely to be current users of illegal drugs, compared to youth in the United States. For example, approximately 17% of 10th graders in 30 European nations were found to have used cannabis in their lifetime, as compared to 41% in the United States (Hibell et al., 1999).

Comparisons of ESPAD data with data from the United States indicate that youth in the United States have higher rates of use for every illicit drug as compared to any of the 30 European countries participating in the ESPAD study. However, adolescents in the United Kingdom, the Netherlands, the Czech Republic, Estonia, and Poland reported rates of use for amphetamines, LSD, other hallucinogens, cocaine, ecstasy, and crack that were reasonably close to those reported in the United States (Hibell et al., 1999).

The National Survey on Drug Use and Health

Another key source of information on substance use in the United States is the

National Survey on Drug Use and Health (NSDUH). Formerly called the National Household Survey of Drug Abuse (NHSDA), the NSDUH is clearly the most representative source of data on drug use in the United States because it samples from the general United States civilian population aged 12 and above. Only 2% of this population is not represented by the NSDUH, and this is mainly persons who are in the military, correctional facilities, or residential treatment programs or persons who are homeless but not in shelters (Manski et al., 2001).

Drawing an annual sample of roughly 70,000 people, the NSDUH includes measures examining the lifetime, past year, and past month use of tobacco, alcohol, marijuana, cocaine, crack cocaine, hallucinogens (with separate measures included for PCP and LSD), heroin, inhalants, and the nonmedical use of prescription drugs (with separate measures included for stimulants, sedatives, tranquilizers, and analgesics) (SAMHSA, 2001). Summary measures are also provided that examine the use of any

illicit drug and the use of any illicit drug excluding marijuana (SAMHSA, 2001). Respondents are asked about the age at which they were first exposed to and used a particular drug; when they last used a particular drug; and their perceptions of the availability of drugs, the risks associated with drug use, and the behavioral and health consequences associated with use. Finally, the NSDUH also collects sociodemographic data on respondents, including age, gender, race, educational level, job status, income, and housing situation (SAMHSA, 2002b).

VALIDITY OF SURVEY FINDINGS ON DRUG USE

One way to assess the validity of survey findings on drug use is to compare results across surveys when measures allow. As can be seen in Table 5.1, findings on adolescent substance use reported by the NSDUH are very similar to those reported by the Monitoring

Table 5.1   Comparison of NSDUH and MTF Drug Use Prevalence Rates

Drug and Usage	NSDUH (Persons aged 18–25)		MTF (Persons aged 19–24)	
	Percentages 2001	Percentages 2002	Percentages 2001	Percentages 2002
Marijuana				
Lifetime	53.0	53.8	56.3	56.1
Past month	—	17.3	19.6	19.8
Cocaine				
Lifetime	14.9	15.4	12.4	12.9
Past month	—	2.0	2.5	2.5
Ecstasy				
Lifetime	13.5	15.1	15.0	16.0
Past month	—	1.1	2.2	1.6
LSD				
Lifetime	16.6	15.9	15.2	13.9
Past month	—	0.1	1.0	0.4

SOURCE: SAMHSA (2003e).

NOTE: — indicates data not available.

the Future study across a number of measures of drug use.

In general, data generated by the NSDUH are excellent for examining the prevalence of drug use in the general population. As noted, however, one limitation of these data is that they likely underreport the use of more serious drugs, such as heroin and cocaine, as well as the extent of drug problems and dependency. This is due to the fact that the individuals most likely to use heroin and cocaine and experience drug problems, such as the homeless, are not covered in household surveys. Despite its shortcomings, the NSDUH is a well-designed study and the data are widely used to examine drug use and abuse in America.

OTHER SURVEYS ON ADULT DRUG USE

A key source of international data on adult substance use is the self-reported drug use component of the British Crime Survey (BCS). The BCS is a large-scale household survey that provides information on experiences with crime, victimization, and drug use in England and Wales. First implemented in 1982, the BCS now interviews approximately 10,000 respondents between the ages of 16 and 59 annually. The drug-use component of the BCS includes measures of the lifetime, previous year, and previous month use of cannabis, cocaine, crack cocaine, amphetamines, ecstasy, LSD, "magic mushrooms," heroin, methadone (not prescribed by a doctor), tranquilizers, amyl nitrite, steroids, inhalants, and two "catch-all" questions for drug use (Home Office, 2001). The BCS is the primary source of information on drug use in the United Kingdom, and these data have yielded some very interesting findings. For example, data indicate that one-third of respondents acknowledged having ever used an illicit drug, but only 11% had used in the past year and only 6% had used in the past month (Home Office, 2001). Other findings, which reflect patterns seen in the United States, indicate that unemployment is strongly associated with drug use by young people, with 40% of unemployed young people reporting use in the past year as compared to 25% for those with jobs (Home Office, 2001).

Another key source of international data on drug use, of which the BCS is a regular contributor, is the European Monitoring Center for Drugs and Drug Addiction (EMCDDA). The EMCDDA developed when many countries in the European Union agreed that it made little sense to focus solely on drug use and policy in their own country to the neglect of those around them. According to the EMCDDA (1997), "the multifaceted and changing nature of illicit drug use, and its intercontinental and European character, imply that it transcends political, economic, and geographical

Underreporting is always a concern in survey research on drug use, but alternative methods of measuring drug use may be even more problematic. One example of this is a recent study that estimated cocaine use in Italy by measuring the presence of benzoylecgonine, a urinary byproduct of cocaine that has no other source, in a local river. Using water samples collected from the Po River and waste treatment facilities in the cities located along the river, researchers concluded that the levels of benzoylecgonine in the water indicated that approximately 27 in 1,000 young people in the region were daily cocaine users, a rate which far exceeded the estimates derived from official surveys (Zucatto et al., 2005).

boundaries" (p. 3). In recognition of this, the EMCDDA examines drug use and problems across several countries by collecting existing national survey data and comparing cross-nationally where possible (EMCDDA, 2002b). As it was initiated only recently, the EMCDDA is still developing, and only certain countries have provided data that are sufficiently uniform to allow for cross-national comparisons. As of 2002, the countries providing data suitable for comparison are England and Wales, Spain, Germany, and Greece. However, several other countries, including Denmark, Finland, Ireland, Italy, and Portugal, are expected to submit comparable data soon, and other countries are expected to participate in the more distant future (EMCDDA, 2002b).

Among the cross-national analyses released by the EMCDDA is a comparison of cannabis use by birth cohorts in Germany, Greece, and Spain from 1938–1982 (Kraus & Augustin, 2002). Results of this study indicated that the percentage of people who report ever using cannabis has increased substantially over time, but that the pattern of increase has varied by country. For example, sharp increases in use were seen in Spain in the 1970s, and similar increases were seen in the 1990s in Germany. The average age for first use of cannabis also varied: 18 in Germany and Spain but 20 in Greece. Across all three countries, age was found to be a key protective factor because after the age of 25 very few people will initiate the use of cannabis (Kraus & Augustin, 2002).

Another interesting study that employed EMCDDA data examined cannabis use in the general populations of England and Wales, Germany, Spain, and Greece. Korf and Benschop (2002) found cannabis use patterns to have increased substantially in each of these countries in the last four decades, with the most pronounced change occurring in the new federal states of Germany, where cannabis use rapidly increased with the fall of the Berlin Wall.

DATA ON SUBSTANCE USE BY ADULT OFFENDERS— ADAM AND I-ADAM

The data sources described above are designed to examine substance use in the general population, and as a consequence, they miss certain "high risk" populations. This is important because data on high-risk populations (e.g., criminal offenders) are essential for a complete understanding of drug use and its consequences. A particularly valuable source of information for examining these issues is the Arrestee Drug Abuse Monitoring (ADAM) program, which collects self-reported information on drug use by recent arrestees. ADAM grew out of the Drug Use Forecasting (DUF) program, which was developed by the National Institute of Justice (NIJ) in 1987 to provide information about illegal drug use among persons who had been arrested (Manski et al., 2001). Although DUF was "virtually the only source of continuous information on drug use within an offender population," serious problems with its sampling procedures resulted in the restructuring of the DUF program into the ADAM program in 1997 (p. 84).

Unfortunately, the collection of new data by the ADAM program was discontinued by the NIJ in January 2004, but in 2002, 35 sites provided data to the program, reporting on over 30,000 adult male, 10,000 adult female, and 3,000 juvenile arrestees (ADAM, 2003b). As with the DUF program that preceded it, the ADAM program uses trained interviewers to administer a structured questionnaire to arrestees within 48 hours of the individual arriving in a booking facility, and also collects a urine specimen from the arrestee, enabling verification of the self-reported drug use.

Interview participation rates are quite high in the ADAM program, with more than 80% of approached arrestees agreeing to be interviewed (ADAM, 2003a). Numerous topics are addressed by ADAM surveys, with arrestees asked which drugs they used and how often they used them, their age at first use of each substance, what their housing situation was in the previous year, how they supported themselves, whether they had health insurance, and how and where they purchased their drugs. There are also measures addressing the respondents' mental health and any heavy use of alcohol and drugs, which might be useful in developing treatment programs. Basic demographic data on the subjects are also collected.

A distinguishing component of the ADAM data is that following the interview stage, subjects are asked to voluntarily provide a urine sample, which can then be used to verify self-reported substance use and estimate levels of over- or underreporting. The ADAM urinalysis can detect 10 different drugs, but focuses on the so-called **NIDA-5**, or the five most commonly used illegal drugs as identified by the National Institute of Drug Abuse: marijuana, cocaine, methamphetamine, opiates, and phencyclidine (PCP) (ADAM, 2003a). ADAM protocol requires that arrestees be interviewed and tested within 48 hours of their booking because all of the NIDA-5 drugs that ADAM tests for, with the exception of marijuana, remain detectable in the urine for no more than three days following ingestion (marijuana remains detectable for up to 30 days). The validity of ADAM data is bolstered by the fact that the vast majority of arrestees who agree to be interviewed also agree to provide a urine sample. For example, a recent ADAM report indicated that 34 of 35 sites reported urinalysis completion rates above 80%, with rates ranging from a respectable 74.7% in Albany, NY to as high as 97.9% in Oklahoma City, OK (ADAM, 2003a).

In addition to their ability to assess the validity of self-reported drug use through urinalysis, ADAM data provide valuable information on the extent of substance use by known offenders. A key finding identified through the use of ADAM data is that a majority of male arrestees used at least one of the NIDA-5 drugs shortly before their arrest, with figures ranging from 52.2% of arrestees in Anchorage, Alaska to 79.9% in New York (ADAM, 2003a). These data have also been used to examine change in drug use patterns over time and to demonstrate differences in the use of particular substances by region. One example of this is that a significant portion of arrestees tested positive for methamphetamine use in certain cities—including 35.9% in Honolulu, Hawaii and 29.3% in Sacramento, California—but in Eastern cities, almost no arrestees tested positive for the drug. Indeed, of the 13 ADAM sites located east of the Mississippi River, the city with the highest percentage of arrestees testing positive for methamphetamine use was Charlotte, NC, with 1.4%, and in Albany, Chicago, Detroit, Fort Lauderdale, Miami, and Philadelphia there were no arrestees who tested positive for methamphetamine in 2002 (ADAM, 2003a).

In recognition of the increasingly global nature of the drug trade, the National Institute of Justice launched the International Arrestee Drug Abuse Monitoring (I-ADAM) program in 1998 (ADAM, 2002). Efforts at understanding substance use across national borders are often confounded by the fact that laws, penalties, and recording procedures vary greatly depending upon the country in question. I-ADAM attempted to address this problem by implementing a common survey, similar to the ADAM survey used in the United States, in a number of different countries. Australia, Chile, England, Malaysia, Scotland, South Africa, the Netherlands, Taiwan, and the

United States all participated in the I-ADAM program at some point, and these data have enabled international comparisons of substance use among arrestees (ADAM, 2002).

DRUG ABUSE WARNING NETWORK STATISTICS

Another valuable source of official information on substance use and abuse is the Drug Abuse Warning Network (DAWN). DAWN provides data on drug-related emergency department (ED) visits and deaths that are related to substance use by collecting data from hospitals and coroners/medical examiners. So, unlike the data sources described above, DAWN data are aimed at investigating negative health *outcomes* associated with drug use.

The DAWN program recently revised its data collection procedures and, as a result, DAWN data collected in 2003 and after are not comparable with data obtained prior to 2003 (SAMHSA, 2005b). Currently, DAWN collects emergency department data on all persons who have received treatment in the emergency department of a hospital sampled by DAWN for a problem that the hospital medical staff determined was related to drug use. Information is also provided on the specific condition that prompted the drug-related visit, such as whether the individual came to the emergency department as the result of a drug overdose, suicide attempt, or an adverse reaction to pharmaceuticals (SAMHSA, 2003d).

Drug-related incidents are reported by DAWN if they involve one or more of the following drug categories:

- Illicit drugs
- Prescription and over-the-counter medications
- Dietary supplements
- Non-pharmaceutical inhalants

- Alcohol in combination with any of the drugs mentioned above
- Alcohol alone for patients aged 21 and older

Emergency department data reported by DAWN are also grouped into *drug episodes* and *drug mentions*, due to the fact that alcohol and up to six other drugs can be included on the report corresponding to a single emergency room visit. A drug episode is defined as "an [emergency department] visit that was induced by or related to the use of an illegal drug(s) or the non-medical use of a legal drug," while a drug mention "refers to a substance that was recorded ('mentioned') during a drug-related episode" (SAMHSA, 2003e, p. 25). As a result of these recording procedures, findings reported by DAWN include many more mentions than episodes, and this tends to artificially inflate the level of drug-related health problems reported.

In addition to data on drug-related emergency room visits, data on deaths that are either directly or indirectly related to substance use are collected by DAWN from participating medical examiners and coroners across the country (SAMHSA, 2005b). Using the same drug categories employed for the collection of ED data (mentioned above), drug-related deaths are tabulated by DAWN under the following categories:

- Suicide
- Homicide by drugs
- Adverse reaction to medication
- Overmedication
- Accidental ingestion
- All other accidental
- Could not be determined

Recent findings reported by DAWN indicate that legal drugs were involved in far more emergency department visits than illegal drugs. As can be seen in Figure 5.2, in 2002, psychotherapeutic drugs (e.g.,
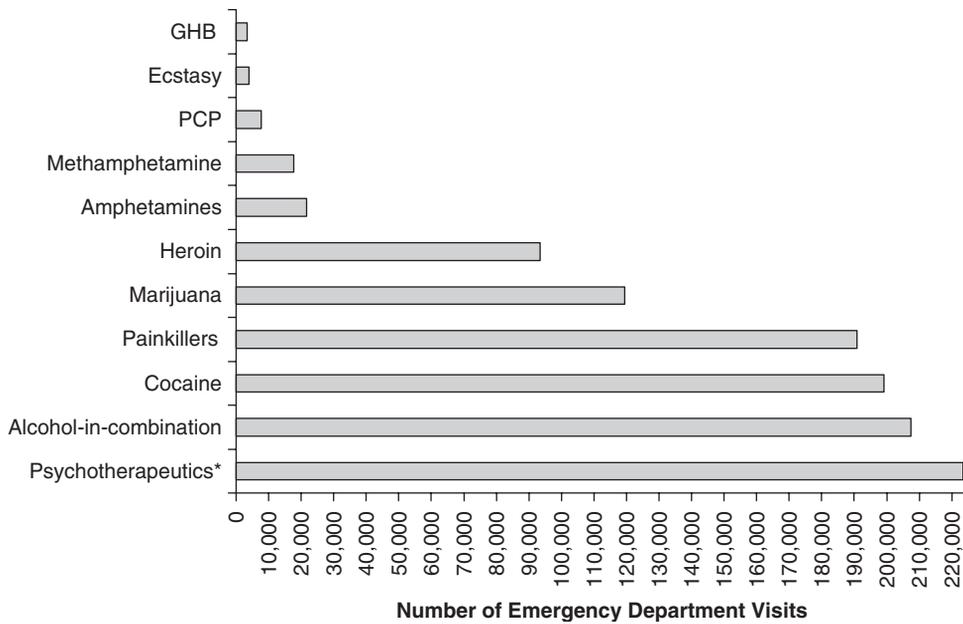
Figure 5.2   Emergency Department Visits by Drug Mention, United States
SOURCE: SAMHSA (2003b).

NOTE: Psychotherapeutics include the antidepressants, antipsychotics, anxiolytics, sedatives and hypnotics, and CNS stimulants.

antidepressants), alcohol in combination with some other substance, and painkillers represented three of the four leading causes of drug-related emergency department visits, being mentioned in over 621,000 cases.

A crucial factor to consider when using DAWN data is that they examine only one key consequence of drug use and abuse: health-related problems that result in an emergency department visit and/or death. Thus, DAWN data measure "events" (emergency department incidents and deaths), which can tell us about drug-related problems such as overdose (particularly among high-risk populations) but not about drug use in the general population. Only a small fraction of drug users ever wind up in an emergency department for a drug-related problem, so these data are in no way representative of drug use in the general population. Further, a single individual may wind up in an emergency department several times in a year for a drug-related problem, a situation that is probably most likely among certain (again, nonrepresentative) populations such as drug addicts. As each of these emergency department visits would be recorded without any mention that the visits involved the same person, they can only be used to estimate the incidence of drug-related emergency department episodes, not the prevalence of such events.

An additional issue to consider is that DAWN data focus on acute drug-related problems (e.g., overdose) and not the chronic types of drug-related medical problems (e.g., cancer, cirrhosis) that are more likely to be generated by legal drugs such as alcohol and tobacco (Faupel et al., 2004).

Finally, there are several factors likely to influence whether a person who is experiencing a drug-related health problem seeks medical help at an emergency department, including whether the individual has insurance coverage, what his or her educational level is, and his or her proximity to a hospital. Thus, it is important for those who use DAWN data to interpret these data cautiously and with an awareness of these limitations.

PULSE CHECK

Quite distinct from the data sources discussed above is Pulse Check, published by the Office of National Drug Control Policy (ONDCP) since 1992. Pulse Check is unusual in that it collects ethnographic information and interview data from a variety of sources working in diverse areas of the drug-use field and compiles and synthesizes this information into a single semi-annual report. For example, in 2002, Pulse Check was based on one-hour interviews with 78 epidemiologists, ethnographers (researchers who spend extensive time in "the field" studying drug use first hand), law enforcement officials, and drug treatment providers located throughout the United States (ONDCP, 2002d). While Pulse Check results cannot be taken as representative of the United States, in part because sites were not randomly selected, the roughly 20 cities that currently participate are quite diverse in terms of region, size, and demographic composition.

The diversity of cities studied by Pulse Check increases confidence in the findings and enables researchers to examine trends and differences in drug use and abuse by region and city. This is interesting, given the fact that certain drugs appear to be concentrated in particular regions. For example, in 2002, Pulse Check found methamphetamine to be considered "the most

serious drug problem" in Western and Midwestern cities such as Honolulu, HI, Billings, MT, and Sioux Falls, SD, but the drug is hardly mentioned in interviews with Pulse Check representatives in Southern and Northeastern cities.

Consistent with the ethnographic approach, Pulse Check data are more descriptive in nature, asking experts about drug use, emerging drug problems, the availability of different drugs, changes in need/demand for treatment, and drug-related crime, among other topics. Respondents are also asked about their experiences with drug-related issues in terms of the age, gender, and race/ethnicity of drug users and sellers.

One interesting finding from a recent Pulse Check report is that purchasing illegal drugs appears to be much easier in some cities than in others. This issue was examined by interviewing undercover police and drug users about how easy they believed it was to buy illegal drugs. Often, police and drug users agreed on how difficult it was to buy drugs, but sometimes they differed significantly. For example, ranking the difficulty of obtaining a substance from 0–10, with 10 representing "extremely difficult," undercover police in Boston ranked accessibility to methamphetamine as 4, while users ranked it as extremely inaccessible, with a 10. Conversely, in Detroit, police ranked accessibility to cocaine as 8, while users thought it to be much more accessible, ranking it with a 3. These differences are interesting and may be useful to policy makers in evaluating drug control strategies.

Findings from Pulse Check are useful in terms of their simplicity, timeliness, and ability to incorporate the perspectives of different professionals in the drug field. As the name indicates, these data are designed to keep a finger on the "pulse" of the drug problem, and they tap information that would otherwise be unavailable. It is clear

that these data provide a unique perspective and are rich in detail, but they are less adept at providing representative information on the prevalence and incidence of drug use in large populations. Accordingly, they are best used in conjunction with broad sources of data such as NHDUH.

The data sources discussed above enable us to examine both legal and illegal substance use. It is important to note that there are significant differences between these data sources that must be considered in order to properly interpret findings from studies using these sources. For example, some sources of data focus on adults, while others target high school students, and some data sources don't examine drug use in the general population at all, but focus on drug-related incidents such as arrests or health problems resulting from drug use. Each of these data sources is valuable and provides a unique contribution to our knowledge of substance use, but data must be interpreted carefully because the specific focus and methodology behind each data source has a great deal to do with the findings reported. This caution should be kept in mind as we use these data to examine the patterns and correlates of illegal drug use.

CORRELATES OF ILLEGAL DRUG USE

The data sources discussed above enable research on several sociodemographic factors that are associated with illegal drug use. Important correlates of drug use include age, gender, race/ethnicity, social class, and residence characteristics such as urbanity. In our discussion of the correlates of drug use we will predominately rely on information provided by general population drug surveys (MTF, NSDUH), although we include findings from ADAM, DAWN, and other sources where appropriate. Research

findings on the correlates of drug use illustrate that there is significant variation in the use of both legal and illegal drugs, with some populations being much more likely to use drugs and to experience negative consequences associated with use.

Age

The relationship between age and illegal drug use varies somewhat depending upon the data source and type of substance, but drug use is typically highest in late adolescence and early adulthood. Illegal drug use remains relatively common through the mid-twenties, but patterns of use tend to decrease rapidly as people age into middle and late adulthood (see Figure 5.3).

As can be seen in Tables 5.2 and 5.3, adolescence represents a time during which illicit drug use increases rapidly, but it is during early adulthood that illegal drug use is at its highest. In our discussion of the theoretical explanations for substance use, we examined some of the reasons for this. However, one key reason for these relatively high use patterns during adolescence and early adulthood is the independence of users during this time period. During this period of the lifecourse, people are relatively free from the constraints and responsibilities that inhibit drug use. For adolescents, this is a period during which there is typically less and less time spent with family, which generally acts as a protective factor against substance use, and an increasing amount of time spent with peers, which is generally a risk factor for substance use (Hoffman, 1994). This general lack of attachments and responsibilities, which serve to occupy time, may also be important for substance use due to the boredom that may potentially result. Recent research from Columbia University's National Center on Addiction and Substance Abuse indicates that boredom plays a key
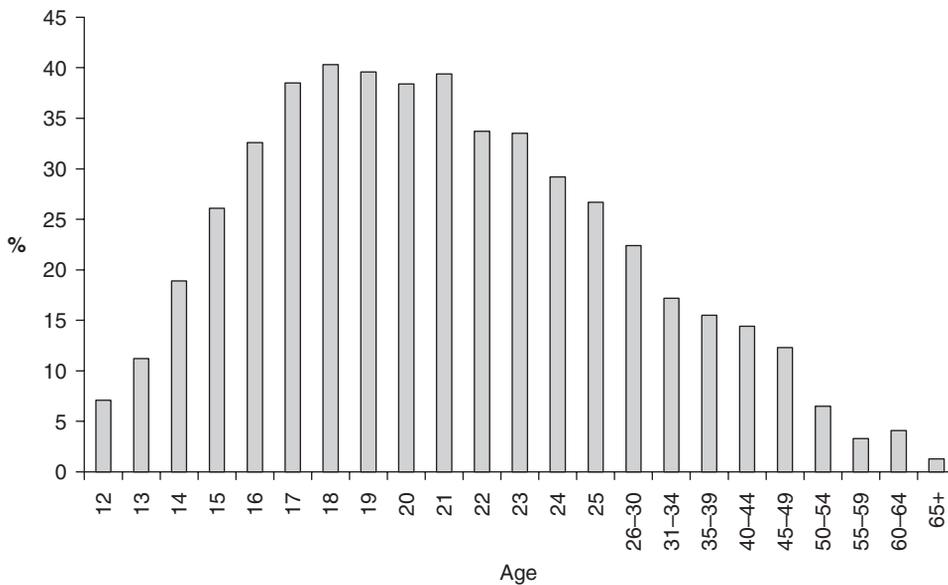
Figure 5.3 Illicit Drug Use in the Past Year by Age
SOURCE: SAMSHA (2003e).

role in substance use among adolescents, with those who reported being "frequently bored" 50% more likely to get drunk and use illegal drugs (National Center on Addiction and Substance Abuse, 2004).

Similarly, for young adults, many of whom are enrolled in college, this age typically represents a time of independence from parental authority and a relative lack of serious commitments such as a family or career. A relative abundance of free time, living on one's own, meeting new people through education or work, and generally experiencing life as an adult for the first time tends to encourage experimentation with a variety of things, including the use of illegal drugs (Schulenberg, O'Malley, Bachman, Johnston, & Laetz, 2004). The experimental use of substances among young people is very common, and perhaps experimentation, at this point in the life-course, should not be viewed as necessarily or inevitably bad or harmful. Although research has concluded that the abuse

of psychoactive substances, both legal and illegal, may pose serious risks to health and well-being, limited experimental use may also serve some positive functions. For example, research has concluded that experimental substance use during late adolescence may be constructive in the developmental process, particularly in relation to peer bonding, independence, and identity experimentation (Schulenberg et al., 2004).

Regardless, the use of legal and illegal drugs is most prevalent during early adulthood, but use declines as people age into their middle and late twenties and constraints on time and behavior become increasingly prevalent. In the mid- and late twenties, people often graduate from college, move on to more serious career-track jobs, get married, have children, and spend less time socializing with friends. All of these factors have a preventative effect on substance use (Hirschi, 1969; Kandel, 1980) and are important in understanding

Table 5.2   Percentages Reporting Past Year Illegal Drug Use, by Age

Drug	8th Grade		10th Grade		12th Grade		College		19–28 Years	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Marijuana/hashish	15.4	14.6	32.7	30.3	37.0	36.2	35.6	34.7	29.2	29.3
Hallucinogens	3.4	2.6	6.2	4.7	9.1	6.6	7.5	6.3	5.4	4.7
LSD	2.2	1.5	4.1	2.6	6.6	3.5	4.0	2.1	3.4	1.8
PCP	—	—	—	—	1.8	1.1	—	—	0.6	0.3
MDMA (ecstasy)	3.5	2.9	6.2	4.9	9.2	7.4	9.2	6.8	7.5	6.2
Rohypnol	0.7	0.3	1.0	0.7	0.9	1.6	—	—	—	—
GHB	1.1	0.8	1.0	1.4	1.6	1.5	—	0.6	—	0.8
Ketamine	1.3	1.3	2.1	2.2	2.5	2.6	—	1.3	—	1.2
Cocaine	2.5	2.3	3.6	4.0	4.8	5.0	4.7	4.8	5.8	5.9
Crack	1.7	1.6	1.8	2.3	2.1	2.3	0.9	0.4	1.3	1.0
Amphetamines	6.7	5.5	11.7	10.7	10.9	11.1	7.2	7.0	5.8	5.9
Methamphetamine	2.8	2.2	3.7	3.9	3.9	3.6	2.4	1.2	2.8	2.5
Crystal meth ("ice")	—	—	—	—	2.5	3.0	0.6	0.8	1.1	1.4
Heroin	1.0	0.9	0.9	1.1	0.9	1.0	0.4	0.1	0.5	0.2
Other narcotics	—	—	—	—	6.7	7.0	5.7	5.9	5.0	5.1

SOURCE: Adapted from Johnston et al. (2003c, Table 2–2, pp. 39–44).

NOTE: — indicates data not available.

the relatively low and declining patterns of illegal drug use through middle adulthood and the later lifecourse.

An interesting paradox regarding age and drug use is that while adolescents and young adults are much more likely to use illegal drugs, they are far less likely than older users to experience serious health-related *problems* with drug use. For example, data collected by the Drug Abuse Warning Network (DAWN) on the more than 670,000 drug-related visits to hospital emergency departments in 2002 indicate that only 30% of drug-related emergency department intakes were for persons aged 25 and younger, with almost 50% of all emergency department visits involving persons who were aged 35 and older (SAMHSA, 2003c). Deaths due to drug use are even more likely to occur among older

populations, which, again, make up a much smaller portion of all drug users. Of the more than 1,600 drug-related emergency department fatalities reported to DAWN in 2002, over 70% involved persons aged 35 and over and approximately 35% involved persons who were at least 45 years of age (SAMHSA, 2003c).

Another interesting finding on age and substance use is that there is a resurgence of substance use and abuse among the elderly. Substance use problems among the elderly are somewhat distinct, in that they almost universally involve the abuse of alcohol and/or prescription drugs, with illegal drug use being very rare. Substance use and addiction among the elderly has been regarded as an "invisible epidemic" by some (Levin & Kruger, 2000) and is apt to be increasingly problematic in the future because the number

Table 5.3   Percentages Reporting Past 30-Day Illegal Drug Use, by Age

Drug	8th Grade		10th Grade		12th Grade		College		19–28 Years	
	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
Marijuana/hashish	9.2	8.3	19.8	17.8	22.4	21.5	20.2	19.7	16.7	16.9
Hallucinogens	1.6	1.2	2.1	1.6	3.3	2.3	1.8	1.2	1.2	0.9
LSD	1.0	0.7	1.5	0.7	2.3	0.7	1.0	0.2	0.7	0.3
PCP	—	—	—	—	0.5	0.4	—	—	0.0	0.1
MDMA (ecstasy)	1.8	1.4	2.6	1.8	2.8	2.4	1.5	0.7	1.8	1.3
Rohypnol	0.4	0.2	0.2	0.4	0.3	—	—	—	—	—
GHB	—	—	—	—	—	—	—	—	—	—
Ketamine	—	—	—	—	—	—	—	—	—	—
Cocaine	1.2	1.1	1.3	1.6	2.1	2.3	1.9	1.6	2.2	2.2
Crack	0.8	0.8	0.7	1.0	1.1	1.2	0.1	0.3	0.4	0.3
Amphetamines	3.2	2.8	5.6	5.2	5.6	5.5	3.3	3.0	2.4	2.5
Methamphetamine	1.3	1.1	1.5	1.8	1.5	1.7	0.5	0.2	1.0	1.0
Crystal meth ("ice")	—	—	—	—	1.1	1.2	0.1	0.0	0.4	0.5
Heroin	0.6	0.5	0.3	0.5	0.4	0.5	0.1	0.0	0.3	*
Other narcotics	—	—	—	—	3.0	3.1	1.7	1.6	1.7	1.7

SOURCE: Adapted from Johnston et al. (2003c, Table 2-2, pp. 39–44).

NOTE: — indicates data not available.

* Less than .05% but greater than 0%.

of substance abusers over the age of 50 is expected to double between 1999 and 2020 (Korper & Council, 2002).

Increased substance use and abuse in old age is consistent with many of the explanations for substance use discussed above. Similar to the young, senior citizens typically have a great deal of free time because retirement has often relieved them of employment commitments. For most, their children have grown up and left the house, and if the individual then suffers an illness or the loss of a spouse, this may further isolate him or her and result in increased time spent alone and detachment from society in general. Significant life changes in late adulthood, particularly those that are traumatic, may encourage substance use and abuse in a variety of

ways. For example, research has indicated that following retirement or the loss of a spouse, individuals may abuse substances because of the despair they feel over the unwanted life change, due to their inability to manage unstructured free time, or some combination of these factors (Benshoff, Harrawood, & Koch, 2003).

As noted, substance use by geriatric populations is expected to increase substantially in the future as members of the "baby boomer" generation move into their senior years. In the 20 years following WWII, more than 77 million babies were born in the United States and consequently, record numbers of people will turn 65 in the next decade. This has important implications in terms of substance use and treatment as this cohort came of age in the 1960s when

Figure 5.4   Annual Reported Marijuana Use, 12th Graders, by Gender, 1975–2002

SOURCE: Johnston et al. (2003b).

illegal drug use was more common and attitudes towards drug use were more lenient. Research has found that baby boomers have maintained a comparatively liberal attitude toward drug use as they have aged (particularly when compared to cohorts who came of age in the 1950s), and this more liberal attitude is likely to result in higher levels of substance use by this group in their senior years (Patterson, Lacro, & Jeste, 1999).

Gender/Sex

In general, males are more likely to use and abuse illegal drugs than are females, although the magnitude of the gender gap varies over time, by substance, and also by the point in the lifecycle (Kandel, 1980). As can be seen in Figures 5.4 and 5.5, patterns of illegal drug use by gender are very similar over time, indicating that many of the same factors influence drug use by adolescent males and females. Boys are more likely to report first drug use at younger ages, but by late adolescence, illegal drug use is relatively similar for males and females for most substances (DHHS-CDC, 2003b; Johnston et al., 2003c). As illustrated in Table 5.4, data indicate that across several different illegal drugs, use in the past year is virtually identical for adolescent boys and girls (SAMHSA, 2003b). However, the similar use patterns evidenced in adolescence quickly change as people age into adulthood. For example, looking at the findings on cocaine use reported in Table 5.4, there are virtually no gender differences during adolescence, but in young adulthood men become considerably more likely to use cocaine, and for adults aged 26 and over, men are nearly three times as likely to use the drug.

The fact that the gender gap in illegal drug use becomes increasingly pronounced with age may be, in part, because the social stigma
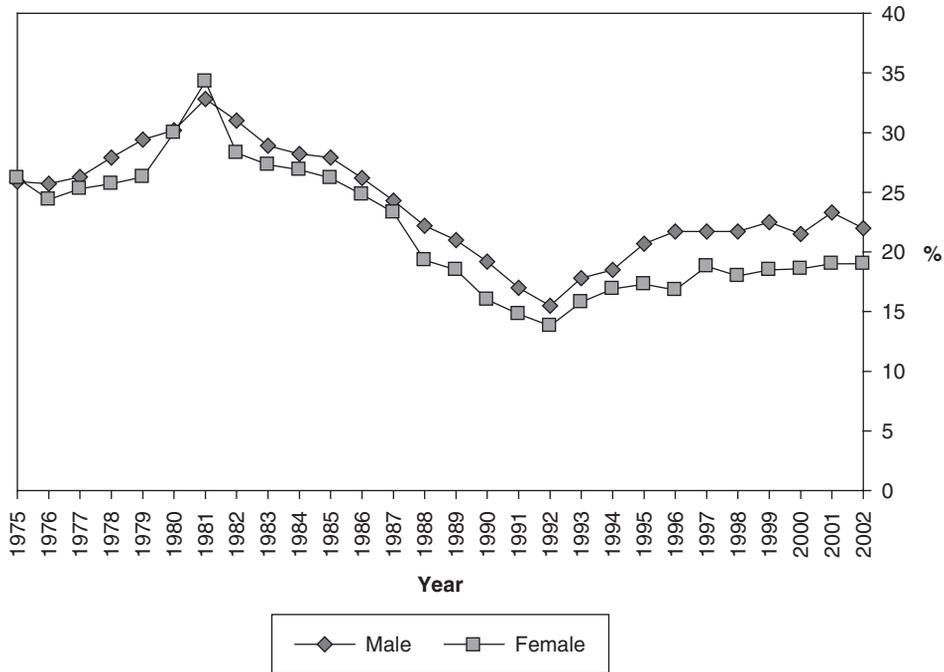
Figure 5.5   Annual Reported Use of Illicit Drugs Other Than Marijuana, 12th Graders, by Gender, 1975–2002

SOURCE: Johnston et al. (2003b).

Table 5.4   Percentages Reporting Past Year Drug Use by Age Category and Gender, 2002

Drug and Sex	Age 12–17	Age 18–25	Age 26 and Older
Marijuana			
Male	16.3	33.8	9.6
Female	15.2	25.7	4.7
Any illicit drug			
other than marijuana			
Male	13.3	22.4	7.0
Female	13.7	18.0	5.1
Cocaine			
Male	2.1	8.4	2.8
Female	2.0	5.1	1.0
Hallucinogens			
Male	4.0	9.9	0.9
Female	3.7	7.0	0.4

SOURCE: SAMHSA (2003e).

and perceived consequences associated with substance use become more salient for women than men as age increases. Indeed, women generally view substance use and abuse more negatively, seeing it as more risky, and report being less tolerant of it as compared to men (Kauffman, Silver, & Poulin, 1997). This is not surprising given the distinctly different ways in which males and females are typically socialized. Specifically, men are expected to be more self-reliant, risk-taking, and assertive, while women have traditionally been expected to be more nurturing and deferential. Societal institutions such as the family, education, the economy, and religion, as well as everyday interpersonal interaction, reinforce these social norms and influence gender differences in virtually all forms of social behavior, including substance use (Ensminger & Everett, 2001).

The use of psychoactive substances for pleasure or recreational purposes seems especially contrary to the "traditional female role," particularly as it relates to motherhood. Because of this, substance use is less likely to be tolerated for women than for men (Ensminger & Everett, 2001; Lemle & Mishkind, 1989). Conversely, substance use and even abuse by males is more likely to be excused as "boys being boys," and research has found men to be more likely to report using drugs for recreational purposes (Ensminger & Everett, 2001). Thus, the fact that drug-using behavior is much more similar for males and females in adolescence than later in the lifecourse is perhaps due to the fact that, for females, the perceived and actual consequences of drug use are relatively minor during adolescence as compared to adulthood.

However, it is important to note that even during adolescence, boys are much more likely than girls to use drugs in the ways most likely to generate problems. This includes the heavy or daily use of alcohol and illegal drugs, the use of certain "hard" drugs, or

the use or sale of alcohol and illegal drugs on school property (DHHS-CDC, 2003b; Robbins, 1989). These measures may reflect the general tendency of women to be more conservative about substance use even during adolescence, when gender differences are smallest. As age increases, the social consequences of drug use increase for both men and women, but consequences become more severe for women, and thus the gender gap in *illegal* drug use becomes more pronounced.

Patterns of drug use by gender can be misleading if substance use is only considered in terms of illegal drugs. For example, research has found women to be more likely to use and abuse legal, medically prescribed psychoactive drugs, ostensibly for therapeutic purposes such as the relief of mental distress (Ensminger & Everett, 2001; Merline, O'Malley, Schulenberg, Bachman, & Johnston, 2004). These gendered motivations for drug use may be important because perhaps the only difference between taking Valium to "relieve mental distress" and having some drinks with the guys after work "to blow off steam" is that the behaviors are thought to be more, or less, socially appropriate for one gender or the other. Perhaps women, particularly later in the lifecourse, are more likely to abuse pharmaceuticals as compared to other drugs because placing their substance use/abuse in a medical context gives it a degree of legitimacy, and thus enables them to conform more closely to societal expectations of femininity. Accordingly, gender differences in substance use may be more likely to involve the type and pattern of substance use rather than the general tendency to use consciousness-altering substances per se.

Race/Ethnicity

Similar to the variation in illegal drug use across age and gender, there are substantial

differences in the use of illegal substances among racial/ethnic groups. Our focus in this section is on the five major ethnic groups in the United States: whites, blacks, Hispanics, Native Americans, and Asian and Pacific Islanders. However, we understand that significant heterogeneity exists within each of these groups and that this diversity has important implications. Accordingly, where available data allow, we discuss within-group differences in drug use as well.

A common misperception is that blacks and Hispanics are more likely to use illegal drugs than are whites, but extensive research has demonstrated that this is not the case. Indeed, the most striking finding identified regarding racial/ethnic differences in drug use is the consistently low patterns of use reported by African Americans through adolescence and young adulthood (see Figure 5.6). Excepting Asians, among adolescents and young adults, African Americans are the group least likely to report nearly all forms of drug use (Bachman, Wallace, O'Malley, Johnston,

Kurth, & Neighbors, 1991; Johnston et al., 2003b, 2003c; Wallace & Bachman, 1991).

Conversely, when examining racial/ethnic differences in drug use among adults, whites, blacks, and Hispanics tend to demonstrate very similar patterns of use, with Asians again reporting the lowest patterns of use and American Indians typically reporting the highest levels of use (see Table 5.5). Thus, patterns of substance use tend to vary substantially by racial/ethnic group and by age within each racial/ethnic group. We provide specific theoretical explanations for these different patterns of substance use and abuse by racial/ethnic group below.

As noted earlier, there are some methodological concerns relating to the survey method that may influence reported drug use by race/ethnic group. One of these concerns is specific to school surveys (such as the MTF, YRBS) and the differential dropout rates that are evidenced by racial/ethnic groups. Some have suggested that the higher levels of drug use reported by white adolescents may be accounted for by the fact that disadvantaged minority students who
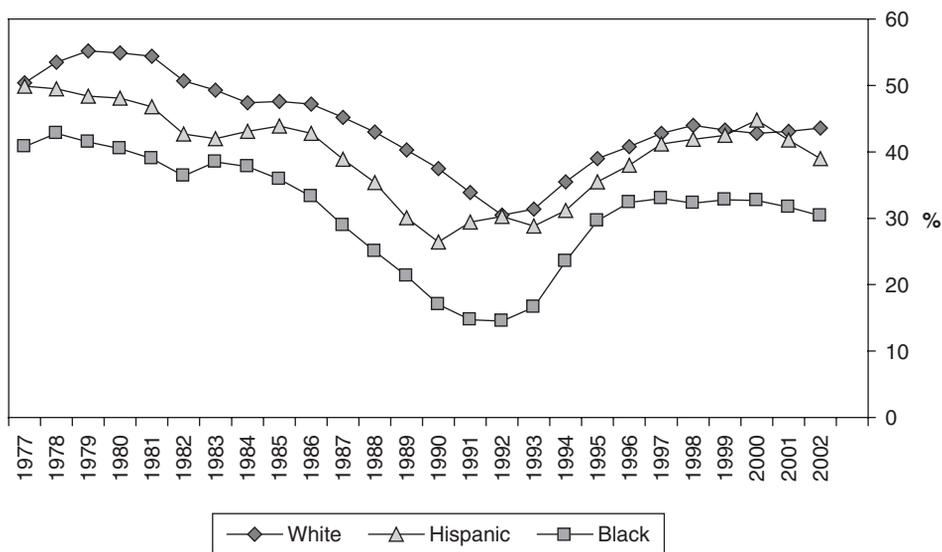

Figure 5.6   Annual Reported Use of Any Illicit Drug by Race, 12th Graders, 1977–2002
SOURCE: Johnston et al. (2003b).

Table 5.5   Past Year Reported Use of Illicit Drugs by Race and Age Category, 2002

Age and Race	Any Illicit Drug	Any Illicit Drug Other Than Marijuana	Marijuana	Cocaine	Hallucinogens
Adolescents aged 12–17					
Total	22.2	13.5	15.8	2.1	3.8
Whites	24.0	14.9	17.6	2.5	4.7
Blacks	18.5	8.8	12.0	0.2	1.0
Hispanics	20.8	13.3	14.1	2.4	3.3
Asians	10.6	6.7	5.1	0.2	1.2
Native Americans	35.5	20.6	29.4	*	*
Adults aged 18–25					
Total	35.5	20.2	29.4	6.7	8.4
Whites	39.6	24.3	33.8	8.5	10.9
Blacks	30.9	10.2	27.0	1.3	3.6
Hispanics	27.0	15.8	20.0	5.7	3.9
Asians	18.6	10.0	15.8	2.2	5.6
Native Americans	49.4	26.2	39.0	5.4	10.1
Adults aged 26 and older					
Total	10.4	6.0	7.0	1.8	0.7
Whites	10.2	5.8	7.2	1.6	0.7
Blacks	13.5	6.7	10.1	3.7	0.4
Hispanics	10.5	7.4	5.0	1.7	0.4
Asians	4.8	4.3	1.3	0.2	0.7
Native Americans	10.5	5.7	6.2	1.8	1.7

SOURCE: Adapted from SAMHSA (2003g, tables 1.32B, 1.35B, 1.37B, 1.40B, 1.42B, 1.45B, 1.47B, 1.50B, 1.52B, 1.55B).

* Low precision, no estimate reported.

become heavily involved with both legal and illegal drugs may be more likely than comparable white students to drop out of school or display high rates of truancy. Hispanics do have considerably higher dropout rates than blacks or whites (Johnston et al., 2003b), and this is likely to influence reported use by Hispanics in later grades (especially 12th grade). Consequently, actual drug use by Hispanic adolescents is likely higher than revealed in school-based surveys (Johnston et al., 2003b). However, the fact that blacks demonstrate a lower prevalence of substance use beginning with 8th-grade students is

significant, as truancy and dropouts are quite modest at this point and are thus unlikely to substantially affect survey response (Johnston et al., 2003b).

Another issue of concern is that both adolescent and adult minorities may be more likely to underreport sensitive behaviors such as substance use (Fendrich & Vaughn, 1994), perhaps because they perceive the survey process to be more threatening than do whites (Aquilino & LoSciuto, 1990). For example, Mensch and Kandel (1988) compared responses to drug use questions over two response periods and

found that blacks, Hispanics, and those with less than a high school education were more likely to deny previously reported substance abuse. However, Mensch and Kandel (1988) also noted that underreporting occurred at only the lowest levels of use, and others have found few differences in underreporting by race/ethnicity and social class (Bachman et al., 1991; Tittle, Villemez, & Smith, 1978). Regardless, there is reason to treat findings of racial/ethnic differences in substance use with a healthy degree of skepticism.

Despite the relatively similar patterns of substance use demonstrated across racial/ethnic groups, the consequences of substance use and abuse are felt most acutely by disadvantaged minorities. Indeed, as noted by Wallace (1999b), "the cost that substance use exacts from Americans is not distributed equally across the population; rather, its impact is experienced disproportionately by black and Hispanic adults, families, and children" (p. 1122). The extremely high costs associated with minority substance use, coupled with relatively modest use patterns, have prompted researchers to suggest that there are "two worlds" of minority substance use—a relatively large population practicing temperance or abstinence and a smaller population that uses drugs and alcohol much more heavily (Wallace, 1999b). As will be discussed in depth below, although motivations for substance use and abuse vary to some degree across the groups, issues of social and economic disadvantage appear to be very important for understanding why these "two worlds" of minority substance use exist.

African Americans

Despite the rhetoric and media attention to the contrary, African Americans report comparatively low patterns of illegal drug use. Conservative patterns of use are particularly evident among adolescent subjects, with black adults reporting substance use patterns that are more similar to those of whites. Research examining these distinct patterns over the lifecourse has focused on the unique set of environmental and social circumstances affecting many black youth. This includes studies on racial segregation and urban poverty, which have demonstrated that, regardless of social class, blacks are much more likely to live in areas characterized by a variety of social problems, including a greater visibility and access to both licit and illicit drugs (E. Anderson, 1990, 1999; Massey & Denton, 1993; Wilson, 1987). For example, Lillie-Blanton et al. (1993) examined racial differences in crack cocaine use and found that once environmental conditions, including drug availability, were controlled for, the use of crack did not differ significantly by race/ethnicity.

Other research on African American substance use has examined the **hyperavailability** of both legal and illegal drugs in predominately black communities. For example, Wallace (1999a) points to existing research that has found black youth, as compared to white youth, to be more likely (1) to perceive that marijuana, cocaine, and heroin are fairly easy or very easy to obtain in their community, (2) to have seen someone selling drugs in their community occasionally or often, and (3) to report seeing someone drunk or high in their community occasionally or often. Paradoxically, the hyperavailability of drug use in minority communities may have both a negative and positive effect on levels of African American substance use. Research has found that partly *because* of this hyperavailability, some black youth may actually be deterred from substance use (Wallace, 1999b). Although exposure and availability will increase access and the probability of

substance use for some, this hyperavailability also means that black youth are apt to witness or experience the numerous social ills that accompany substance abuse (Wallace, 1999b). Ironically, these problems may actually serve an indirect protective function for some black youth because the threat posed by illegal drugs is likely to be more immediate and less likely to be viewed as an abstraction, as it may be for many white youth.

Perhaps due in part to the more deleterious environmental conditions facing many black youth, the relationship between black parents and adolescents has been found to be particularly strong (Giordano, Cernkovich, & DeMaris, 1993). In regards to substance use, research on adolescents has found blacks to be more concerned about parental disapproval while whites report being more concerned about peer disapproval (Warheit, Vega, Khoury, Gil, & Elfenbein, 1996). Possibly due in part to this fact, young blacks are typically less peer-oriented than are whites. Research has demonstrated that black adolescents score lower in terms of peer intimacy, indicate lower levels of need for peer approval, experience less peer pressure, and consider it less important to associate with a group of friends (Giordano et al., 1993; Wallace, 1999b). As existing research has found parental and peer relationships to be among the most important factors for understanding substance use (Wallace & Bachman, 1991), with parental bonds more likely to be a protective factor and peer bonds (as compared to parental) to be a risk factor, these differences may have important implications for understanding racial/ethnic differences in substance use.

As noted above, although substance use by African American adolescents is relatively modest, illegal drug use by African American adults is comparatively high. Depending upon the substance and data source, rates of illegal drug use among African American adults rival and even exceed those of whites. As Wallace (1999a) summarizes these different patterns of use by race and age,

> Among adolescents, black youth are no more likely, and in many instances have been found to be less likely, than white youth to be past, present, or heavy users of licit or illicit drugs. As black and white young people make the transition into young adulthood, however, there is evidence that drug use declines significantly among white young adults while it continues to increase among black young adults. (pp. 21–22)

Research examining these contrasting patterns of substance use has found socioeconomic status to be especially salient. For example, Barr et al. (1993) examined the effects of race and class on substance use and found poverty and educational level to be central to explaining differences in substance use among African Americans. When analyses examined illicit drug use by white and black males making over $25,000 per year (a relatively modest figure), the drug use patterns were very much the same, with blacks slightly less likely to use illicit drugs than whites. However, differences in drug use increased as income declined, to the point that for those making less than $7,000 per year, blacks used illicit drugs at five times the rate for comparably impoverished whites.

Similar findings were identified by Barr and colleagues (1993) when social class differences in drug use were compared using education as the measure of social class. Again, among college-educated black and white males, there were few differences, with blacks slightly less likely to use illicit drugs than whites. However, as educational attainment declined, racial differences in drug use increased, to the point that black males with less than a high school degree

used drugs at more than three times the rate of comparable whites.

Findings such as these suggest that poverty, joblessness, and a lack of educational opportunity may be more likely to result in illicit drug use and abuse by blacks than comparably disadvantaged whites. Perhaps this is because blacks experiencing these conditions are very likely to be among the "truly disadvantaged," and this is not the case for whites. Research on the truly disadvantaged by Wilson (1987, 1996) and others has noted that while the number of middle class blacks has increased in recent years, due in part to an increasing commitment to civil rights and programs such as affirmative action, inner-city minority communities have grown more isolated and impoverished because they have lost the most successful members of their communities to the suburbs (Massey & Denton, 1993; Wilson, 1987). The cumulative disadvantage present in these communities clearly distinguishes minority poverty from white poverty. As Wilson (1987) has noted regarding the difference between poor whites and poor blacks, poor whites live "in areas which are ecologically and economically very different from poor blacks . . . with respect to jobs, marriage opportunities, and exposure to conventional role models" (pp. 59–60). Accordingly, drug use and abuse may be one of the many negative consequences these social conditions have for impoverished minorities.

Other research examining the comparatively high rate of substance use by African Americans in early adulthood as compared to adolescence has suggested that this change may in part "reflect their response to the harshness of the racialized social system from which their parents had previously shielded them" (Wallace, 1999a, p. 30). That is, racism, poverty, and limited opportunities for employment, education, and advancement may increasingly act as

stressors and sources of emotional strain on minorities once they have left the relatively sheltered environment provided by their parents. Additionally, because class and race are inexorably linked in American society, minorities are not only more likely to encounter these numerous sources of strain, but are also less likely to have access to social institutions and coping resources that help people manage these problems (Peterson et al., 2000). For example, protective factors such as employment (especially professional), educational participation and success, and family stability are less prevalent in impoverished minority communities (Anderson, 1990; Wilson, 1987). Residence in a disadvantaged community also provides minorities with less access to conventional coping resources. This includes medical care; mental health resources; substance abuse treatment centers; and outlets for conventional leisure such as shopping malls, recreation centers, and libraries (Peterson et al., 2000; Wallace, 1999b; Wallace & Bachman, 1991; Williams & Collins, 1995). Accordingly, substance use may be one outlet for people who "self-medicate" to cope with the stress and problems these impoverished conditions generate in their lives.

Hispanics

As compared to African Americans, Hispanics tend to report patterns of illegal drug use that are similar to those reported by whites. Currently, the Hispanic population in the United States is rapidly growing, and Hispanics now constitute the second largest racial/ethnic group in America (U.S. Census Bureau, 2002). Many sources of information on substance use, as well as the U.S. Census, use the term "Hispanic" to refer to a diverse group of Americans who have either immigrated to the United States themselves or whose ancestors immigrated

from Mexico (approximately 60% of all Hispanics), Puerto Rico, Cuba, or Central and South America. Although this is a very heterogeneous group, "the Spanish language and certain cultural customs and traditions that are based on Catholicism and old Spanish culture bind many Hispanics with a sense of common culture" (Castro, Proescholdbell, Abeita, & Rodriguez, 1999). However, because of the diversity present in this group, many of those who are identified as Hispanic prefer to be called Spanish Americans or Latinos, as the term "Hispanic" refers to the colonizing nation of Spain. As Castro et al. (1999) point out with regard to this, Americans would likely resent being referred to as "English people" simply because they speak English and reside in areas that were once colonized by Great Britain. The diversity in these Hispanic subgroups is also reflected in their relatively distinct patterns of substance use. Accordingly, we first examine the use of illegal drugs by Hispanics as a group and then examine and contrast patterns of illegal drug use by Mexican Americans, Puerto Rican Americans, Cuban Americans, and Hispanic Americans identifying with various countries in Central and South America.

Patterns of illegal substance use evidenced by Hispanics are quite similar to the patterns of whites, and are similar to rates of use by African Americans in adulthood. As noted earlier, data on adolescents obtained from school surveys such as MTF and YRBS tend to underestimate the level of substance use by Hispanics, particularly for older adolescents, because of high Hispanic dropout rates. For example, among families in the bottom 20% of yearly income, dropout figures were 13.9% for whites, 21.9% for blacks, and 42.4% for Hispanics (DHHS, 2003). Even within the upper class, dropout rates were much higher for Hispanics, with figures of 2.0% for whites,

2.5% for blacks, and 11.0% for Hispanics (DHHS, 2003). Although dropout rates are likely to influence findings on adolescent substance use by Hispanics, available data indicate that whites remain more likely to use illegal drugs than Hispanics (see Figure 5.6 and Table 5.5).

Exposure and access to drugs are important factors for understanding Hispanic substance use, particularly among adolescents. As with African Americans, Hispanics are more likely than whites to reside in areas where illegal drug use is frequently witnessed and where drugs are more easily obtained (Wallace, 1999b). Data also indicate that Hispanic adolescents are significantly more likely than whites to be offered, sold, or given illegal drugs on school property (DHHS-CDC, 2003b). In part, these factors may account for the finding that Hispanics are more likely to report drug use at young ages (Johnston et al., 2003b). Despite the greater exposure of Hispanic adolescents to drugs, research has concluded that drug use by this group is predicted largely by the same risk factors that influence drug use among other adolescents: things such as family disruption, low school commitment or achievement, and delinquent peers (Moore, 2001).

Hispanic patterns of drug use are likely to vary with a number of cultural, environmental, and economic factors. Indeed, some Hispanic populations have been much more adversely affected by illegal drug use than others have, and a drug that has been particularly harmful to certain Hispanic communities is heroin. For example, the highest drug mortality rates in the nation are not found in Los Angeles or New York, but in the heavily Hispanic Rio Arriba County in northern New Mexico. This extremely poor county is located along the drug smuggling route from Mexico to Denver and is characterized by exceptionally high rates of black tar heroin use. This is the primary

reason that the drug-related mortality rate in Arriba County is 35 per 100,000 when the US average is 2.5 per 100,000 ("Helping Addicts," 2001).

Partially in response to the situation in Arriba County and similarly affected areas, New Mexico Governor Gary Johnson has called for and instituted more progressive drug policies on substance use, focusing on treatment and harm reduction rather than punishment. This has included giving families of heroin addicts overdose kits that include the drug Narcan, which is used to keep victims of heroin overdose alive. In Española, a city in Arriba County, Police Chief Wayne Salazar has even argued that his officers should carry Narcan while on duty: "It would be no different than if we responded to the scene of a bad accident where we had to perform CPR or first aid. We're trying to save a life" ("Helping Addicts," 2001).

Reflecting the considerable diversity in Hispanic populations, there is significant variation in the use of illegal substances among Hispanic subgroups. Perhaps the best ongoing source of data on these trends is the NSDUH, which provides information on substance use by Mexican Americans, Puerto Rican Americans, Cuban Americans, and Hispanic Americans identifying with various countries in Central and South America. Although the 2002 NSDUH did not report findings on Cuban respondents out of concerns with data precision, there were significant differences in the use of marijuana among the other subgroups. As Tables 5.6 and 5.7 illustrate, Puerto Ricans were more likely to report the use of marijuana than any other Hispanic subgroup, and this trend was particularly evident for adult respondents.

Similar findings were identified by Zayas, Rojas, and Malgady (1998), who

Table 5.6   Percentages Reported for Marijuana Use by Hispanic Subgroup: Persons 12 to 17 Years Old

Hispanic Subgroup	Lifetime	Past Year	Past Month
Mexican	19.2	13.1	6.3
Puerto Rican	22.1	17.0	8.4
Central or South American	17.5	14.0	6.6
Cuban	*	*	*

SOURCE: SAMHSA (2003g).

* Low precision; no estimate reported.

Table 5.7   Percentages Reported for Marijuana Use by Hispanic Subgroup: Persons 18 Years and Older

Hispanic Subgroup	Lifetime	Past Year	Past Month
Mexican	32.1	7.6	3.6
Puerto Rican	45.1	13.8	6.2
Central or South American	22.7	6.9	3.8
Cuban	20.7	7.3	4.0

SOURCE: SAMHSA (2003g).

examined various Hispanic populations (Colombian, Puerto Rican, Dominican) and found Puerto Ricans to be more likely to use illegal drugs than other Hispanic men. However, these findings are not universal and are likely to vary with a number of other factors. For example, a study by Warheit et al. (1996) examined 5,370 adolescents in Dade County, Florida, of which over 3,400 were Hispanic, and found Colombians to be more likely than Cubans, Nicaraguans, and Puerto Ricans to use illegal drugs. The authors concluded the differences in substance use evidenced by these groups were mostly due to differences in levels of acculturation.

Acculturation involves the adoption of new cultural information and social skills by an immigrant group, which often replace traditional cultural beliefs, practices, and interaction patterns to some degree (Vega, Alderete, Kolody, & Aguilar-Gaxiola, 1998; Vega & Gil, 1998). Acculturation is typically measured with indicators such as language use and preference, ethnic identification, and nativity of both the respondent and the respondent's parents (Randolf, Stroup-Benham, Black, & Markides, 1998). Acculturation is particularly relevant for Hispanic groups with a relatively high percentage of recent immigrants, and it has been found to be important for understanding substance use by Hispanics as compared to the general population.

Although low acculturation can be stressful due to the social isolation brought on by factors such as communication difficulties, it can also serve a protective function (Vega, Gil, & Wagner, 1998). This is the case with the use and abuse of drugs and alcohol, as many Hispanic groups are traditionally more conservative in terms of substance use than American society more generally. For example, surveys on drug use in Latin American countries have consistently identified very low patterns of illegal drug use,

even in countries that are key producers and exporters of illegal drugs (Vega, Alderete, et al., 1998; Vega, Gil, et al., 1998). This includes research on Mexico, the country in which most Hispanic Americans originated, which has lower rates of use for alcohol and other drugs than does the United States (Caetano & Medina-Mora, 1989; Vega, Gil, et al., 1998).

Much of the effect of acculturation has focused on alcohol use and abuse (discussed in detail in Chapter 6), but numerous studies have also identified an association between acculturation and illegal drug use (Amaro, Whitaker, Coffman, & Heeren, 1990; Vega, Alderete, et al., 1998; Vega, Gil, et al., 1998; Warheit et al., 1996). This includes research that has found crack cocaine smoking to be higher among more acculturated Hispanics (e.g., those who choose to speak English rather than Spanish) (Wagner-Etchegaray, Schultz, Chilcoat, & Anthony, 1994). Other research on the effect of acculturation on drug use has concluded that Hispanics are often frustrated with their social acceptance and unmet expectations of success and achievement, especially Hispanic men born in the United States (Vega, Gil, et al., 1998). Additional research has found that acculturated Hispanics, particularly Hispanic females, are exposed to values that tend to encourage or be more tolerant of drug use and abuse than are their traditional values (Vega, Alderete, et al., 1998; Vega, Gil, et al.,1998). As Vega, Gil, et al. (1998) note, "there is something about American society that engenders experimentation and addiction at a much higher rate than experienced in other nations" (p. 125).

American Indians

Similar to Hispanics, American Indians are a tremendously diverse population. Although many people believe American Indians to be a relatively homogeneous

group, the more than two million Aboriginal North Americans living in the continental United States, Alaska, and Canada are dispersed into over 500 tribes with over 200 distinct languages (Caetano, Clark, & Tam, 1998). Existing research has found American Indians to demonstrate among the highest patterns of substance use and abuse, particularly among adolescents and young adults, as compared to all other racial/ethnic groups (Beauvais, 1998; Beauvais, Oetting, & Edwards, 1985; Mail & Johnson, 1993; May, 1982; Oetting, Edwards, Goldstein, & Garcia-Mason, 1980; Plunkett & Mitchell, 2000; Young, 1988). For example, as can be seen in Table 5.5 above, household survey data examining adolescents and young adults have found American Indians to report much higher levels of lifetime, yearly, and recent use for marijuana and illicit drugs. American Indians are also the only racial/ethnic group to evidence few, if any, gender differences in the use of certain substances. Research on American Indian females has found them to be as or even more likely than American Indian males to use a number of legal and illegal drugs (Bachman et al., 1991; Beauvais, Oetting, Wolf, & Edwards, 1989; Wallace & Bachman, 1991).

High patterns of substance use among American Indians can be attributed largely to the fact that, as a group, American Indians experience extreme levels of social and economic disadvantage (Akins, Mosher, Rotolo, & Griffin, 2003; Wallace & Bachman, 1991). Data from the Indian Health Service (2001) indicate that American Indians fare much worse than the general population across key economic, social, and health indicators and this disadvantage results, at least in part, from the nature and quality of reservation lands allotted Indians by the federal government. Although only one-third of all American Indians currently live on reservations, the conditions of disadvantage characterizing many American Indians are due, at least in

part, to this legacy (Beauvais, 1998). Reservation lands are often socially and geographically isolated, and although unemployment and poverty rates for Indians are extremely high in general, this is particularly the case on reservations (Beauvais, 1998). The high levels of unemployment experienced by Indians is important for understanding their patterns of substance use and abuse because research has linked substance abuse with unemployment in the general population (Kandel & Yamaguchi, 1987; Kandel & Davies, 1990; Wilson, 1996).

Another consequence of life on reservations is limited access to health care. For example, a recent report by Surgeon General Dr. David Satcher indicated that American Indians and indigenous Alaskans living in isolated, rural communities have "severely" limited mental health treatment options ("Report: Minorities Lack," 2001). This may be particularly important for American Indian substance use, as a lack of access to mental health resources may encourage substance use and abuse as a form of coping and it may inhibit recovery should addiction result. Perhaps partly due to these factors, American Indians who live on reservations have higher rates of alcohol and drug use than those who live off reservations (Beauvais et al., 1985).

The extreme socioeconomic disadvantage experienced by American Indians has been found to be crucial for understanding their patterns of substance use and abuse. For example, research by Wallace and Bachman (1991) concluded that the effect of socioeconomic status was central in accounting for higher levels of substance use by American Indian adolescents: "Once background differences are adjusted, the white versus American Indian differences in drug use are virtually eliminated" (p. 343). Research examining American Indian adults has reached similar conclusions, finding that the higher rates of substance use among

American Indians were "at least partially explained by the disadvantaged situation of American Indians, particularly with respect to socio-demographic and individual risk/protective factors" (Akins et al., 2003, pp. 64–65). Accordingly, when interpreting findings on substance use and abuse by American Indians, it is important to take into account the unique economic and social circumstances characterizing this group.

Asians and Pacific Islanders

Similar to Hispanics and American Indians, those who are classified as Asian and Pacific Islanders (API) are extremely diverse. In the 2000 U.S. Census, the term "Asian" was used to refer to people identifying origins with any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent, including Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam (Barnes & Bennett, 2002). At the time of the 2000 Census, the API population in the United States was 11.9 million people or 4.2% of the total population, with Chinese comprising roughly 23% of all API; Filipinos 20%; Asian Indians 16%; and Japanese, Korean, and Vietnamese comprising roughly 10% each (U.S. Census Bureau, 2002).

API typically report the lowest use patterns for virtually all forms of legal and illegal drugs. For example, research examining illegal drug use by high school seniors from 1976–2000 found Asian youth to report the lowest levels of marijuana use across this entire time period (Wallace et al., 2003). These trends of low use by Asian adolescents have been found across other substances as well, and for both males and females (Bachman et al., 1991; Wallace & Bachman, 1991). Similar patterns have been identified in household surveys of adults (see Table 5.5 above), with Asian adults reporting the lowest levels of illegal drug use, whether measured as past month, past year, or lifetime use (SAMHSA, 2003e).

Although there is some concern regarding the representativeness of the Asian population captured by drug surveys (Castro et al., 1999), with more affluent and acculturated Asian populations (e.g., Japanese) potentially overrepresented, other data support the conclusion that Asians are the group least likely to use illegal drugs. For example, data from the Drug Abuse Warning Network on emergency department visits involving drugs and alcohol found that in the year 2000, there were over 632,000 reports for whites, 235,000 for blacks, and 120,000 for Hispanics, but Asians were involved in only 6,227 substance-related emergency department visits (DHHS, 2003). Although Asians constitute just over 4% of the U.S. population, this figure still represents very low levels of substance use problems given their national population figures.

In part, the relatively modest substance use evidenced by API may reflect their relatively high social standing in the United States. As a group, Asians report income and educational levels that are very similar to whites and dissimilar to other minority groups. For example, U.S. Census data indicate that the per capita income for Asians was $22,352 in the year 2000, as compared to $25,278 for whites, $15,197 for blacks, and $12,306 for Hispanics. The relatively high income levels reported by Asians reflect their high educational attainment and relative overrepresentation in high-paying professional/managerial occupations. Asians reported the highest level of educational attainment in the United States in 2000, with 44.1% having obtained a bachelor's degree or more and 17.4% having obtained an advanced degree, figures that are nearly double the rates reported by whites, the second highest category at 26.1% and 9.5%, respectively (Bauman & Graf, 2003). Some have speculated that the commitment to

education among Asian families may also result in lower levels of adolescent and young adult substance use because Asian youth, devoting more time to their studies, spend less time in peer-oriented activities that facilitate substance use (Wallace & Bachman, 1991). As noted earlier, this tendency to spend less time with peers during adolescence is also demonstrated by African Americans, who similarly report low levels of adolescent substance use.

Despite the low levels of substance use reported by Asians as a group, it is important to note that there is significant variation in substance use among API subgroups. These distinct patterns of drug use are indicative of the marked differences in income, education, and culture evidenced by the distinct peoples classified as Asian or Pacific Islanders. As Yu and Whitted have noted on the complexities of measuring differences in Asian subgroups, "lumping diverse ethnic groups which do not even share a common history, linguistic roots, or religious belief" causes important differences in health patterns to be glossed over (cited in Castro et al., 1999). So while many have labeled Asians a "model minority" in terms of their success and integration in American society, this label is overly simplistic because it refers to only some Asian groups while ignoring the many disadvantaged Asian populations in America (Niedzwiecki & Duong, 2004; Yin, 2000).

The limited data available on Asian subgroup differences in illegal substance use makes broad conclusions difficult, but some Asian groups do appear to use substances at higher rates than others. For example, it appears that Pacific Islanders may be the most likely of the API group to use illegal drugs (SAMHSA, 2003a). Japanese, Asian Indians, and Filipinos are also more likely than other API to report illegal substance use, although at levels that are still modest in comparison to the general population (SAMHSA, 2003b).

Variation in income, education, and especially acculturation may be important for understanding substance use differences across Asian subgroups. Specifically, in addition to their comparatively high substance use, Japanese, Filipinos, and Asian Indians are also among the most affluent and socially integrated of Asian subgroups, particularly in comparison to Southeast Asian groups. While 12.4% of the U.S. population lived in poverty in 2000, poverty rates for Japanese, Filipino, and Indian Americans were 9.2%, 7.0%, and 10.4%, respectively. Conversely, these figures were 19.1% for Laotians, 29.3% for Cambodians, and 37.6% for Hmongs (Niedzwiecki & Duong, 2004). Similar findings are identified with education, as over 60% of Asian Indians and 40% of Japanese and Filipinos had obtained a bachelor's degree or higher in 2000, while only 7% of Hmongs, 8% of Laotians, 9% of Cambodians, and 20% of Vietnamese had reached this educational level (Niedzwiecki & Duong, 2004).

To account for the pronounced differences in income and educational attainment among Asian subgroups, it is important to understand the historical context of Asian immigration to the United States. Some Asian populations have constituted a significant portion of the U.S. population for over a century (as is the case with the Chinese, Japanese, and Filipinos). As a consequence, these groups are considerably more assimilated and acculturated to mainstream American life and the relatively high prevalence of substance use that accompanies this. Conversely, groups originating from Southeast Asia primarily immigrated to the United States following the Vietnam War and corresponding unrest in Southeast Asia generally (Makimoto, 1998). Unlike other Asian groups, most notably the Japanese, the more recent immigrants were largely illiterate in both their native language and in English, and were extremely poor as well. These

factors have slowed the assimilation of Southeast Asian immigrants into mainstream America, and this has impacted their patterns of substance use (Makimoto, 1998).

Census data on "linguistic isolation" support this, finding that although 4.1% of the general U.S. population may have difficulty communicating in English, this figure is roughly 24% for Asians in general, 32% for Cambodians and Laotians, 35% for Hmong, and 45% for Vietnamese (Niedzwiecki & Duong, 2004). Conversely, linguistic isolation is relatively low for Japanese, Chinese, and Asian Indians, in part due to their high average educational attainment (Makimoto, 1998).

The linguistic and social isolation of certain Asian groups has implications for our understanding of their substance use. First, this isolation is likely to mean that these groups will be more apt to use substances in a manner consistent with their native culture (which, although quite high for alcohol, is less so for illegal drugs) (Makimoto, 1998). As noted in our discussion of Hispanic differences above, foreign cultural groups are typically more conservative in terms of substance use than American society in general (Castro et al., 1999). As the Asian groups with some of the highest use patterns are also some of the most affluent and educated, perhaps it is their level of acculturation that accounts for these use patterns. Indeed, among immigrant groups, higher levels of income and education typically accompany acculturation (Castro et al., 1999), and it may be that the influence of acculturation on substance use outweighs the protective effect of high income and education experienced by some minorities.

Social Class

As noted in our discussion of racial/ethnic differences in illegal drug use, social class is an important factor in understanding substance use and abuse. As with race/ethnicity, the relationship between social class and substance use is often misunderstood. For example, common measures of social class, such as income and educational level, do not reveal, as many assume, that members of the lower class are more likely to use illegal drugs. As can be seen in Figure 5.7, data from the Monitoring the Future Study, which uses parents' educational attainment to measure socioeconomic status, indicate that social class does not predict illegal drug use in a general sense. Although adolescents with parents reporting the lowest levels of education were more likely than any other group to report the use of heroin and cocaine, middle class adolescents were most likely to report the use of any illicit drug, marijuana, amphetamines, and narcotics other than heroin.

Similar findings on drug use and social class have been identified for adults. Again, using educational attainment as the measure of social class, data from the NSDUH indicate that those with a relatively high educational level report the highest use of illegal drugs, followed by those with little education. For example, adults reporting "some college" as their highest level of educational attainment also reported the highest past year marijuana use (at 12.7%), followed by those with less than a high school education (10.4%) and high school graduates (10.2%), with college graduates being least likely to report use in the past year (8.2%) (SAMHSA, 2003b).

Similarly, poverty, in and of itself, is not strongly related to drug use in the general U.S. population (Johnston et al., 2003b). This finding has been identified in overseas studies as well. For example, the British Crime Survey (BCS), which includes numerous measures of substance use, has found drug use by young people from the "poorest and richest of households" to vary only slightly, with yearly use rates being 33% and 26%, respectively (Home Office, 2001).
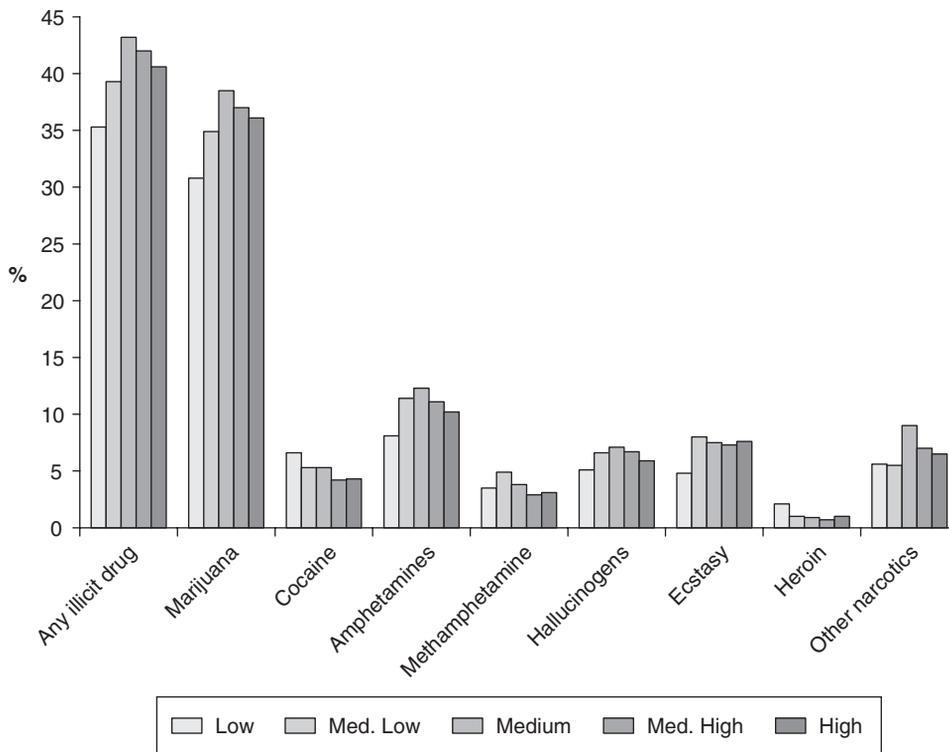
Figure 5.7   Past Year Drug Use of 12th Graders by Parents' Education
SOURCE: Johnston et al. (2003b).

Despite the fact that poverty and low educational attainment do not appear to be related to higher levels of drug use in the general population, there are important qualifications to this finding. One of these is that extreme poverty (e.g., income at 200% below the federal poverty level or more) may be associated with substance use and abuse, possibly due to the limited availability of coping and treatment resources in very poor communities (Wallace, 1999a). Additionally, the effect of social class on drug use does not appear to be consistent across racial/ethnic groups. Because samples of the general U.S. population (like the population itself) are disproportionately white, research findings based on such data tend to reflect relationships that are specific to whites. This is important because research has found that

although social class is largely irrelevant for understanding white patterns of substance use and abuse (i.e., among whites, rates of use are relatively high across all social classes), this is not the case for other racial/ethnic groups. For example, as noted earlier, Barr et al. (1993) demonstrated the importance of income and educational level for illegal drug use by African Americans, but found these variables to be largely irrelevant for understanding drug use by whites. In part, these findings may be because poverty, especially extreme poverty, typically involves exposure to numerous sources of disadvantage, and this cumulative or extreme poverty is most commonly seen in predominately minority communities (E. Anderson, 1990; Massey & Denton, 1993; Wilson, 1987). This is important because research on drug use

often studies poverty by examining only one critical feature of poverty in isolation (e.g., income or educational level) rather than examining it in its cumulative context (Barr et al., 1993). However, when poverty is considered along with the many other social disadvantages that typically accompany it, such as unemployment or underemployment, welfare dependency, low educational attainment or success, family disruption, and isolation and alienation from the broader society, it has been found to be an important predictor of illegal drug use (Boardman, Finch, Ellison, Williams, & Jackson, 2001).

Rural/Urban Location

The size of place in which one resides has been found to be associated with illegal substance use. Although there are many exceptions to this based on age and type of substance, larger places typically have higher rates of illegal drug use, especially when comparing large metropolitan areas to very small towns or rural areas (see Table 5.8). One reason for this general trend is that access to particular drugs may be limited for those living in rural areas. In part, this is because small towns may not have sufficient numbers of people interested in certain drugs (e.g., those less commonly used) for drug sales to occur there. This may make it more difficult for rural residents to obtain illegal drugs, thereby affecting their use of these substances.

As will be discussed in more detail in the next chapter, the use of psychoactive substances in rural areas is more similar to use in urban areas than would appear to be the case if only illegal drug use is considered. This is because drug use in small towns and rural areas disproportionately involves the use of legal substances such as alcohol or the illicit use of substances such as prescription drugs or inhalants. National surveys have found the illicit use of prescription

Table 5.8   Percentages Reported of Lifetime Prevalence of Use of Various Illegal Drugs by Size of Place, Individuals Aged 19–30

Drug	Farm/Country	Small Town	Medium City	Large City	Very Large City
Marijuana	46.2	56.4	57.4	59.4	60.8
Hallucinogens	14.1	17.3	19.2	22.1	25.7
LSD	12.2	13.4	15.5	16.8	19.2
PCP	2.8	1.4	3.6	1.6	4.1
MDMA (ecstasy)	8.8	9.8	13.4	17.4	19.1
Cocaine	10.4	12.9	12.3	15.2	17.7
Crack cocaine	5.1	4.8	3.7	4.0	4.9
Heroin	1.2	1.5	1.7	1.9	2.1
Other narcotics	8.8	11.1	12.3	12.6	14.4
Amphetamines	14.4	14.5	15.0	14.0	16.3
Crystal methamphetamine	2.9	4.0	3.3	4.6	5.6
Steroids	2.0	2.2	1.5	1.5	2.2

SOURCE: Adapted from Johnston et al. (2003c, table 4-2).

NOTE: A small town is defined as having less than 50,000 inhabitants; a medium city as 50,000–100,000; a large city as 100,000–500,000; and a very large city as having more than 500,000 residents. Within each level of population density, suburban and urban respondents are combined.

drugs and inhalants to be very similar among rural areas, small towns, and larger metropolitan areas, despite the more common use of other drugs in larger areas (Johnston et al., 2003c). Similar findings were identified by Cronk and Sarvela (1997), who found cocaine and marijuana to be more commonly used in urban than rural areas, but that the use and especially abuse of legal drugs (e.g., binge drinking) in rural areas exceeded that in urban areas.

Another reason illegal drug use is less common in rural areas is the more prominent role of social institutions such as religion and family. Being raised in a conventional family and participation in religious activities have both been found to act as protective factors for illegal drug use (Hawkins, Jenson, Catalano, & Lishner, 1988; Jang & Johnson, 2001; Thomas, Farrell, & Barnes, 1996). These protective factors more commonly characterize those living in rural areas, and research has found them to be important for understanding lower levels of substance use by rural residents (Albrecht, Amery, & Miller, 1996; Bachman et al., 1991).

Although the use of certain drugs, for example ecstasy, may be much more likely to occur in large cities as compared to small towns and rural areas, this trend is not universal. Indeed, some "hard drugs" have been found to be comparatively common in rural areas and small towns—as was the case with heroin in rural Arriba County, New Mexico (covered earlier in our discussion of Hispanic drug use). Similarly, data provided by the MTF study (Table 5.8 above) indicate that young adult rates of use for crack cocaine, crystal methamphetamine, and steroids in smaller areas may rival or even surpass those found in large cities (Johnston et al., 2003c).

Research specifically investigating the use and production of methamphetamine in rural Nebraska used ADAM data to conclude that arrestees in some rural Nebraska counties were more likely to test positive for methamphetamine use than those arrested in the neighboring metropolitan area of Omaha (Herz, 2000). In part, this may be due to the relatively inexpensive cost of the drug and the relative poverty of these rural areas, as well as the fact that methamphetamine is often produced in isolated rural locations (U.S. Department of Justice, 2003).

The physical and social isolation of rural communities may also influence both legal and illegal substance use, and especially abuse patterns. Although spatial isolation may make access to certain illegal drugs more difficult, analogous to the isolation of minorities in disadvantaged urban communities, substance abuse treatment resources are likely to be more limited for rural residents should they need them. For example, research by Warner and Leukfeld (2001) indicates that rural residents often find themselves forced to travel large distances in order to obtain health-related services. Rural people may also be more likely to be characterized by cultural traits that make seeking treatment for substance abuse more difficult or less likely, most notably conservatism and a strong belief in self-reliance (Warner & Leukfeld, 2001). Thus, although the isolation and more conservative nature of most small/rural areas may serve a protective function against some forms of illegal drug use, this effect appears to be decreasing over time, and differences in illegal drug use patterns may simply indicate that rural residents are more likely to use and abuse legally available substances (Cronk & Sarvela, 1997).

CONCLUSION

This chapter has discussed several correlates of illegal drug use as well as provided an overview of the primary sources of information available on substance use and abuse.

The two most widely used and perhaps the best sources of information on substance use and abuse are the Monitoring the Future Study and the National Survey on Drug Use and Health, which have collected data on substance use and abuse in the United States for decades. Similar data sources provide us with information on substance use in nations abroad. Other key sources of information on substance use and abuse target populations that may be of specific interest, such as those accused of criminal offenses (ADAM) or those seeking help at hospital emergency departments for drug-related problems (DAWN). Finally, ethnographic and interview data, such as those collected by Pulse Check, provide a "front line" look at persons and issues sometimes missed by other sources of data. All of these data sources are extremely valuable for an understanding of substance use and abuse, but every one also has methodological limitations that must be considered when interpreting findings on drug use.

These data sources have enabled researchers to document and examine why drug use is more common among some populations than others. One correlate of illegal drug use is age; the use of drugs is much more common in late adolescence and early adulthood than at any other point in the lifecourse. Research has found that the amount of free time and relative lack of constraints (e.g., career, spouse, kids) during this period of life may be important for understanding these patterns of high use. Gender is another predictor of illegal drug use, with males being more likely than females to use illegal drugs. However, gender differences in drug use vary significantly with age. During adolescence, differences are minimal, although males may be more likely to use drugs in harmful ways. At the stage of late adulthood, gender differences in illegal drug use also increase, although this may, at least partially, reflect a tendency of women to use more socially accepted drugs, such as psychoactive pharmaceuticals. It is possible that this is because with age, the social condemnation of illegal drug use becomes greater for females as compared to males, possibly due to an association with motherhood.

Drug use also varies significantly by race/ethnicity, and in contrast to what is portrayed by the media and believed by many in the general population, whites are among the most likely to use illegal drugs. Among adolescents and young adults, extensive research has found Asians to demonstrate the lowest patterns of substance use, followed by blacks, then Hispanics and whites, with Native Americans demonstrating the highest patterns of use. However, age is also important in understanding racial/ethnic differences in illegal drug use: Among adults, use patterns by Native Americans, blacks, whites, and Hispanics are somewhat similar, with Asians again reporting the lowest patterns of use. Several factors are important for understanding these patterns, including poverty, education, employment, access to societal resources and opportunities, alienation, stress, and acculturation. Social class is also an important factor for understanding drug use and problems associated with use, although the importance of social class varies across race/ethnicity and age.

Finally, whether one lives in an urban as opposed to a more rural area or small town is an important predictor of illegal drug use. However, rates of drug use and abuse in urban, semi-urban, and rural areas may be quite similar if one considers all psychoactive substances rather than just illegal drugs.

REVIEW QUESTIONS

1. What are the two most useful surveys on drug use in the United States? What are the strengths and limitations of these surveys?

2. Aside from surveys, what other sources of data on drug use in the United States are available? What are the advantages and disadvantages of these sources, compared to surveys?

3. At what point in the lifecourse does illegal drug use peak, and why is this the case?

4. What is known about gender differences in the use of illegal drugs? How does the gender gap in illegal drug use differ over the lifecourse?

5. Which racial/ethnic groups are most likely to use illegal drugs during adolescence? Do these patterns change when considering adult populations?

6. What is hyperavailability, and how does it help explain racial/ethnic differences in drug use?

7. What factors account for the modest levels of illegal drug use by black adolescents as compared to white adolescents?

8. What is the relationship between social class and substance use? Are there instances in which poverty is strongly related to drug use and abuse? What are the implications of this for understanding racial differences in illegal drug use?

9. What is acculturation and what effect does it have on levels of illegal drug use among Hispanics?

10. What factors are associated with the comparatively high levels of illegal drug use reported by American Indians?

11. What factors account for differences in patterns of drug use across Asian subgroups?

12. What is the relationship between rural/urban location and drug use?

INTERNET EXERCISES

1. Access data on patterns of adolescent drug use provided by the current Monitoring the Future study at http://www.monitoring thefuture.org/pubs/monographs/overview 2005.pdf.

Scroll down to Table 2 (p. 48) and compare patterns of past year use from 1991 to 2004. What percentage of 12th graders used marijuana during the past year? What percentage used cocaine? What percentage of 12th graders reported use of methamphetamine in 1999? What percentage reported use last year? Do these trends surprise you?

2. Recall that Pulse Check provides data on drug use and abuse by interviewing "front line" sources on drug use, such as law enforcement officials, drug treatment providers, and ethnographic researchers. Access the Pulse Check reports for Boston and Los Angeles at http://www.whitehouse drugpolicy.gov/publications/drugfact/pulsec hk/january04/index.html. (You'll need to click on the "city snapshot" link for each city to get the report.)

What do these reports indicate about problems with cocaine and methamphetamine in each city? What does this tell you about the use of particular drugs by region?