



# DRUGS, SOCIETY & HUMAN BEHAVIOR

SIXTEENTH EDITION

CARL L. HART  
CHARLES KSIR

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Graw  
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Education

# Drugs, Society & Human Behavior

Sixteenth Edition

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*Columbia University*

**Charles Ksir**  
*University of Wyoming*





DRUGS, SOCIETY AND HUMAN BEHAVIOR, SIXTEENTH EDITION

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# About the Authors

Dr. Hart is an associate professor of psychology in both the Departments of Psychiatry and Psychology at Columbia University. He is the author or coauthor of dozens of peer-reviewed scientific articles in the area of neuropsychopharmacology and a member of the National Advisory Council on Drug Abuse. He has lectured on the topic of psychoactive drug use throughout the world and has

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Dr. Ksir is professor emeritus of psychology and neuroscience at the University of Wyoming. Now retired after 35 years of research and teaching, he has authored or coauthored *Drugs, Society and Human Behavior* since 1984. He continues to teach a class based on this text via the Internet.

# Preface

Today's media-oriented college students are aware of many issues relating to drug use. Nearly every day we hear new concerns about methamphetamine, club drugs, legal pharmaceuticals, and the effects of tobacco and alcohol, and most of us have had some personal experience with these issues through family, friends, or co-workers. This course is one of the most exciting students will take because it will help them relate the latest information on drugs to their effects on society and human behavior. Students will not only be in a better position to make decisions to enhance their own health and well-being, but they will also have a deeper understanding of the individual problems and social conflicts that arise when others misuse and abuse psychoactive substances.

Much has changed in the 40 plus years since *Drugs, Society and Human Behavior* was first published. The 1970s were a period of widespread experimentation with marijuana and hallucinogens, while the 1980s brought increased concern about illegal drugs and conservatism, along with decreased use of alcohol and all illicit drugs. Not only did drug-using behavior change, but so did attitudes and knowledge. And, of course, in each decade the particular drugs of immediate social concern have changed: LSD gave way to angel dust, then to heroin, then to cocaine. In the 1990s, we saw increased use of LSD and marijuana, but not to the levels of the 1970s.

## Recent Trends

The most alarming trend in recent years has been the increased misuse of heroin and prescription opioid pain relievers such as Oxycontin and Vicodin. This class of drug has now replaced cocaine as the leading cause

of drug overdose deaths in the United States (not counting alcohol overdoses), and it has joined methamphetamine and Ecstasy as leading causes of concern about drug misuse and abuse.

Meanwhile, our old standbys, alcohol and tobacco, remain with us and continue to create serious health and social problems. Regulations undergo frequent changes, new scientific information becomes available, and new approaches to prevention and treatment are being tested, but the reality of substance use and abuse always seems to be with us.

This text approaches drugs and drug use from a variety of perspectives—behavioral, pharmacological, historical, social, legal, and clinical—which will help students connect the content to their own interests.

## Special Features

### Updated Content in the Sixteenth Edition

Throughout each chapter, we have included the very latest information and statistics, and the Drugs in the Media feature has allowed us to comment on breaking news right up to press time. In addition, we have introduced many timely topics and issues that are sure to pique students' interest and stimulate class discussion.

The following are just some of the new and updated topics in the sixteenth edition. For a complete, chapter-by-chapter list of changes, please visit the Online Learning Center for the sixteenth edition ([www.mhhe.com/hart16e](http://www.mhhe.com/hart16e)).

- Statistics on drug use trends, new drug treatments, and drug-related mortality statistics from National Survey on Drug Use and Health and DAWN (Chapter 1 and throughout)

- Toxicity data from the Drug Abuse Warning Network (Chapter 2)
- Information on state versus federal regulation of marijuana, legalization in Colorado and Washington (Chapter 3)
- Expanded information on how racism helped to ensure passage of the first national drug laws (Chapter 6)
- Information on how the cocaine-related deaths of two prominent young athletes facilitated passage of the Anti-Drug Abuse Act of 1986 (Chapter 6)
- DSM-5 table that describes Panic and Agoraphobia disorders separately (Chapter 8)
- Updated statistics on Per Capita Ethanol Consumption by Beverage Type (Chapter 9)
- Information on the Surgeon General’s 2014 Report on Smoking and Health (Chapter 10)
- Updated information on Caffeine in Non-prescription Drugs and Dietary Supplements (Chapter 11)
- Section explaining how heroin users can prevent overdoses (Chapter 13)
- Detailed explanation of how to determine the functional significance of tetrahydrocannabinol (THC) blood levels (Chapter 15)
- Explanation of how steroids work to increase muscle strength and mass (Chapter 16)
- Discussion of factors that cause drug addiction (Chapter 17)
- Latest information on the Treatment Episode Data Set (Chapter 18)

**Focus Boxes**

Boxes are used in *Drugs, Society and Human Behavior* to explore a wide range of current topics in greater detail than is possible in the text itself. The boxes are organized around key themes.



**Drugs in the Media** Our world revolves around media of all types—TV, films, radio, print media, and the Web. To meet students on familiar ground, we have included Drugs in the Media boxes, which take an informative and critical look at these media sources of drug information. Students can build their critical thinking skills while reading about such topics as alcohol advertising, media coverage of prescription drugs, and the presentation of cigarette smoking in films.



**Taking Sides** These boxes discuss a particular drug-related issue or problem and ask students to take a side in the debate. This thought-provoking material will help students apply what they learned in the chapter to real-world situations. Taking Sides topics include potential medical uses of marijuana, current laws relating to drug use, and the issue of government funding for research on hallucinogens.



**Targeting Prevention** The Targeting Prevention boxes offer perspective and provoke thought regarding which drug-related behaviors we, as a society, want to reduce or prevent. Topics include syringe exchange programs, criminal penalties for use of date rape drugs, and non-drug techniques for overcoming insomnia. These boxes help students better evaluate prevention strategies and messages.

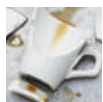


**Drugs in Depth** These boxes examine specific, often controversial, drug-related issues such as the extrapolation of animal studies to humans, and the growing number of people in prison for drug-related offenses. Drugs in Depth boxes are a perfect starting point for class or group discussion.



**Life Saver** These boxes provide simple and specific information that can reduce many negative effects associated with drug use harms, such as

avoiding the combination of sleeping pills with alcohol or opioids and getting sufficient amounts of sleep if taking amphetamines. Life Saver boxes are concise harm reduction tips.



**Unintended Consequences** Students quickly learn that drugs have multiple effects, including unwanted negative ones. The same is true for drug policy. The Unintended Consequences boxes highlight unexpected negative consequences of policies aimed at controlling drug use and/or sales. These boxes provide students with opportunities to think critically about such topics as whether restricting the sale of hypodermic needles and syringes increase the risk for contracting a blood-borne disease.



**Myth Buster** There are many misconceptions about psychoactive drugs use. The Myth Buster boxes present a popular drug use myth and systematically dissect it using the best available empirical information. These boxes provide an excellent example of how to think through information critically. Topics covered include the “meth mouth” phenomenon and the “real” performance-enhancing drug in Major League Baseball.

### Check Yourself! Activities

These self-assessments, found at the end of most chapters, help students put health concepts into practice. Each Check Yourself! activity asks students to answer questions and analyze their own attitudes, habits, and behaviors. Self-assessments are included in such areas as sleep habits, daily mood changes, alcohol use, caffeine consumption, and consideration of consequences.

### Attractive Design and Illustration Package

The inviting look, bold colors, and exciting graphics in *Drugs, Society and Human Behavior* draw the reader in with every turn

of the page. Sharp and appealing photographs, attractive illustrations, and informative tables support and clarify the chapter material.

### Pedagogical Aids

Although all the features of *Drugs, Society and Human Behavior* are designed to facilitate and improve learning, several specific learning aids have been incorporated into the text:

- **Chapter Objectives:** Chapters begin with a list of objectives that identify the major concepts and help guide students in their reading and review of the text.
- **Definitions of Key Terms:** Key terms are set in boldface type and are defined in corresponding boxes. Other important terms in the text are set in italics for emphasis. Both approaches facilitate vocabulary comprehension.
- **Chapter Summaries:** Each chapter concludes with a bulleted summary of key concepts. Students can use the chapter summaries to guide their reading and review of the chapters.
- **Review Questions:** A set of questions appears at the end of each chapter to aid students in their review and analysis of chapter content.
- **Appendices:** The appendices include handy references on brand and generic names of drugs and on drug resources and organizations.
- **Summary Drugs Chart:** A helpful chart of drug categories, uses, and effects appears on the back inside cover of the text.

### Supplements

A comprehensive package of supplementary materials designed to enhance teaching and learning is available with *Drugs, Society and Human Behavior*.



## Online Learning Center www.mhhe.com/hart16e


The following instructor resources are available for download from the Online Learning Center; to obtain a password to download these teaching tools, please contact your local sales representative.

- **Instructor's Manual:** Organized by chapter, the Instructor's Manual includes chapter outlines, key points, suggested class discussion questions and activities, and video suggestions.
- **Test Bank:** Test bank questions are available as Word files and with the **EZ Test computerized testing software**. EZ Test provides a powerful, easy-to-use test maker to create printed quizzes and exams. For secure online testing, exams created in EZ Test can be exported to multiple course management systems and EZ Test Online. EZ Test comes with a Quick Start Guide, user's manual, and Flash tutorials. Additional help is available online at [www.mhhe.com/eztest](http://www.mhhe.com/eztest).
- **PowerPoint Slides:** Updated with new art from the text, the PowerPoint slides include key lecture points and images from the text and other sources.
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The sixteenth edition of *Drugs, Society and Human Behavior* is now available as a SmartBook™—the first and only adaptive reading experience designed to change the way students read and learn:

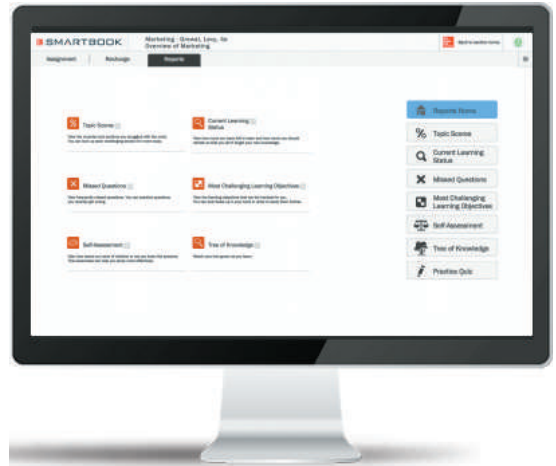
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## Drug Use in Modern Society

The interaction between drugs and behavior can be approached from two general perspectives. Certain drugs, the ones we call “psychoactive”, have profound effects on behavior. Part of what a book

on this topic should do is describe the effects of these drugs on *behavior*, and later chapters do that in some detail. Another perspective, however, views drug taking as *behavior*. The psychologist sees drug-taking behaviors as interesting examples of human behavior that are influenced by many psychological, social, and cultural variables. In the first section of this text, we focus on drug taking as behavior that can be studied in the same way that other behaviors, such as aggression, learning, and human sexuality, can be studied.

- 1 Drug Use: An Overview**  
Which drugs are being used and why?
- 2 Drug Use as a Social Problem**  
Why does our society want to regulate drug use?
- 3 Drug Policy**  
What are the regulations, and what is their effect?

# 1

## Drug Use: An Overview



### “The Drug Problem”

#### Talking about Drug Use

Drug use is an issue that affects individuals, families, communities, and all levels of government, not just in the United States, but around the world. Of course, the simple term *drug use* represents a complex mix of behaviors, scientific questions, legal issues, moral dilemmas, and more. In fact, this entire book provides an opportunity to examine the many kinds of substances involved, the biology underlying their effects, the psychology of various drug-using behaviors, and societal influences on drug use and reactions to drug issues. What we began by calling *drug use* is not a simple thing at all. In this first chapter, as we take an overview of drug use, there are some general principles that we can always rely on:

**Use Is Not Abuse** Most users of any given substance do not use it in ways that can be defined

### Objectives

*When you have finished this chapter, you should be able to:*

- Develop an analytical framework for understanding any specific drug-use issue.
- Apply five general principles of psychoactive drug use to any specific drug-use issue.
- Explain the differences between misuse, abuse, and dependence.
- Describe the general trends of increases and decreases in drug use in the United States since 1975.
- Remember several correlates and antecedents of adolescent drug use.
- Describe correlates and antecedents of drug use in the terminology of risk factors and protective factors.
- Discuss motives that people may have for illicit and/or dangerous drug-using behavior.

as either abuse or dependence (see definitions on page 5). We know that many people drink alcohol in ways that do not cause problems for them or their families, but about 10 percent of drinkers do have significant problems such as missing work due to a hangover or having multiple arrests for driving under the influence, and some require treatment for alcohol dependence. The same principle applies to all drugs. The single most common type of illicit drug use is marijuana smoking, and the vast majority of those users are what some have called “recreational” or “social” or “casual” users. The last three U.S. presidents and at least one current member of the U.S. Supreme Court have admitted to using



**Our concern about the use of a substance often depends on who is using it, how much is being used, and when, where, and why it is being used.**

marijuana when they were young. A small fraction of marijuana users seek admission to treatment programs because they want to quit and have not been able to do so without help. Even for drugs such as heroin, crack cocaine, and methamphetamine, which the media consistently portray as producing “instant addiction,” the actual experiences of most users of those substances do not support such claims. We will learn much more about these drugs and their use in later chapters. Some have argued that if a substance like methamphetamine is illegal, then any use at all should be considered abuse. Not only does that not fit the accepted definition of abuse, it ignores and trivializes one of the most important questions about substance abuse: Why do some people develop serious problems while most avoid them?

**Every Drug Has Multiple Effects** Although a user might be seeking only one effect (relaxation, or alertness, or feeling “high”), every psychoactive drug acts at multiple sites, both in the brain and on other organs. So relaxation might be accompanied by slower reaction time, or alertness might be produced along with an increase in heart rate.

**Amount Matters** This may seem obvious, but it’s important to point out that large doses, frequent doses, or taking the drug by a method that results in a lot of the drug getting to the

brain quickly can produce very different effects, and generally more problems, than taking the same drug in a single lower dose. Not only are a drug’s effects often increased with higher drug concentrations, but additional effects tend to show up as well. This principle is easily illustrated with alcohol, as the increased talkativeness of low doses becomes accompanied by slower reaction times, then slurred speech and difficulty walking, and eventually unconsciousness as blood alcohol rises.

**Psychoactive Drug Effects Are Powerfully Influenced by the User’s History and Expectations** Experienced users may react differently than new users, for example, showing less disruption in a driving simulator test after drinking alcohol (the same happens with marijuana). Experienced users may also report more of the positive effects of a drug, partly because of associations from their prior use. But even people who have never used a substance have learned a lot about what they are supposed to expect from it, and those expectations can influence what they do experience. It’s easy to imagine that if someone has to take a drug for medical reasons but has been told that it will produce an unpleasant side effect, that person might be fearful and have a much worse reaction than if he or she had not been warned. But you probably didn’t know this: The more a person believes that alcohol makes people more sociable, the more



## Unintended Consequences

### Reporting on the “Drug du Jour”

One of the most common types of drug stories appearing in news media has to do with prescription drug abuse. Over the years there have been several “waves” of drug topics that grow to dominate the news media for a period of time and then slowly give way to the next wave. Google News has an archives site that lets you put in any word or phrase and then shows a timeline graph of the number of news articles on that topic over the years. Doing this allows you to see the wave of crack cocaine articles starting in the mid 1980s, then the wave of articles on “Ecstasy,” “GHB,” and “methamphetamine.” Although there is overlap, it almost seems that at any given time the news media all tend to be focused on the *drug du jour* (drug of the day).

One question that doesn’t get asked much is this: What role does such media attention play in popularizing the current drug fad, perhaps making it spread farther and faster than would happen without the publicity? About 40 years ago, in a chapter titled “How to Create a Nationwide Drug Epidemic,” journalist E. M. Brecher described a sequence of news stories that he believed were

the key factor in spreading the practice of sniffing the glues sold to kids for assembling plastic models of cars and airplanes (see *volatile solvents* in Chapter 7). He argued that, without the well-meant attempts to warn people of the dangers of this practice, it would probably have remained isolated to a small group of youngsters in Pueblo, Colorado. Instead, sales of model glue skyrocketed across America, leading to widespread restrictions on sales to minors.

Thinking about the kinds of things such articles often say about the latest drug problem, are there components of those articles that you would include if you were writing an advertisement to promote use of the drug? Do you think such articles actually do more harm than good, as Brecher suggested? If so, does the important principle of a free press mean there is no way to reduce the impact of such journalism?

For an interesting look at the 2014 wave of media reports on the “flesh-eating Zombie drug” Krokodil, see <http://www.forbes.com/sites/jacob-sullum/2014/01/10/krokodil-crock-how-rumors-of-a-flesh-eating-zombie-drug-swept-the-nation/>.

talkative and friendly that person will become after drinking even a small amount.

**Drugs, Per Se, Are Not Good or Bad** There are no “bad drugs.” When drug abuse, drug dependence, and deviant drug use are talked about, it is the behavior, the way the drug is being used, that is being referred to. This statement is controversial to many, and even offensive to some. It therefore requires some defense. To a chemist, it is difficult to view the drug, the chemical substance itself, as somehow possessing evil intent. It sits there in its bottle and does nothing until we put it into a living system. As a pure chemical it would seem illogical to ascribe morality to the substance itself. On the other hand, a psychologist who has spent years treating drug users, or a police officer whose job it is to arrest them, finds it difficult to imagine what

good there might be in a drug like heroin or cocaine or methamphetamine, and easily views the substance as an enemy of the good work he or she is trying to perform. The truth is that any drug that produces effects might produce some benefit when used carefully and has the potential to produce harm when abused. For example, heroin is a perfectly good painkiller, as effective as any of the widely prescribed opioid analgesics, and it is used medically in many countries. Cocaine is a good local anesthetic and is still used for medical procedures, even in the United States. Methamphetamine is available as a prescription drug in the United States, approved to treat ADHD and obesity. Each of these drugs can also produce bad effects when people abuse them. In the cases of heroin and cocaine, our society has weighed its perception of the risks of bad consequences against the



## Drugs in Depth

### Important Terms—and a Caution!

Some terms that are commonly used in discussing drugs and drug use are difficult to define with precision, partly because they are so widely used for many different purposes. For each of the following terms we have pointed out some of the “gray areas” that help us to clarify our understanding of the term, as well as to make us leery of hard-and-fast labeling of someone’s behavior.

The word **drug** will be defined as “any substance, natural or artificial, other than food, that by its chemical nature alters structure or function in the living organism.” One obvious difficulty is that we haven’t defined *food*, and how we draw that line can sometimes be arbitrary. Alcoholic beverages, such as wine and beer, may be seen as drug, food, or both. Are we discussing how much sherry wine to include in beef Stroganoff, or are we discussing how many ounces of wine can be consumed before becoming intoxicated? Since this is not a cookbook but, rather, a book on the use of psychoactive chemicals, we will view all alcoholic beverages as drugs.

**Illicit drug** is a term used to refer to a drug that is unlawful to possess or use. Many of these drugs are available by prescription, but when they are manufactured or sold illegally they are illicit. Traditionally, alcohol and tobacco have not been considered illicit substances even when used by minors, probably because of their widespread legal availability to adults. Common household chemicals, such as glues and paints, take on some characteristics of illicit substances when people inhale them to get “high.”

**Deviant drug use** is drug use that is not common within a social group and that is disapproved of by the majority, causing members of the group to take corrective action when it occurs. The corrective action may be informal (making fun of the behavior, criticizing the behavior) or formal (incarceration, treatment). Some examples of drug use might be deviant in the society at large but accepted or even expected in particular subcultures. We still consider this behavior to be deviant, since it makes more sense to apply the perspective of the larger society.

**Drug misuse** generally refers to the use of prescribed drugs in greater amounts than, or for purposes other than, those prescribed by a physician or dentist. For nonprescription drugs or chemicals such as paints, glues, or solvents, misuse might mean any use other than the use intended by the manufacturer.

**Abuse** consists of the use of a substance in a manner, amounts, or situations such that the drug use causes problems or greatly increases the chances of problems occurring. The problems may be social (including legal), occupational, psychological, or physical. Once again, this definition gives us a good idea of what we’re talking about, but it isn’t precise. For example, some would consider any use of an illicit drug to be abuse because of the possibility of legal problems, but the majority of marijuana users do not meet the clinical criteria for substance abuse. Also, the use of almost any drug, even under the orders of a physician, has at least some potential for causing problems. The question might come down to how great the risk is and whether the user is recklessly disregarding the risk. For someone to receive a diagnosis of having a *substance-use disorder* (see the DSM-5 feature in Chapter 2), the use must be recurrent, and the problems must lead to significant impairment or distress.

**Addiction** is a controversial and complex term that has **different** meanings for different people. Some want to reserve the term only for people whose lives have been completely taken over by substance use, whereas others will apply the term broadly to anyone who is especially interested in watching television, reading, running, skiing, or any other activity. When it comes to substance use, we will use *addiction* only to refer to cases in which people have struggled to control their use and have suffered serious negative consequences from that use.

Drug **dependence** refers to a state in which the individual uses the drug so frequently and consistently that it appears that it would be difficult for the person to get along *without* using the drug. For some drugs and some users, there are clear withdrawal signs when the drug is not taken, implying a *physiological dependence*. Dependence can take other forms, as shown in the DSM-5 feature in Chapter 2. If a great deal of the individual’s time and effort is devoted to getting and using the drug, if the person often winds up taking more of the substance than he or she intended, and if the person has tried several times without success to cut down or control the use, then the person meets the behavioral criteria for dependence. This behavioral dependence is what we mean when we use the term *addiction*.





**The effects of drugs are influenced by the setting and the expectations of the user.**

potential benefits and decided that we should severely restrict the availability of these substances. It is wrong, though, to place all of the blame for these bad consequences on the drugs themselves and to conclude that they are simply “bad” drugs. Many people tend to view some of these substances as possessing an almost magical power to produce evil. When we blame the substance itself, our efforts to correct drug-related problems tend to focus exclusively on eliminating the substance, perhaps ignoring all of the factors that led to the abuse of the drug.

## How Did We Get Here?

### Have Things Really Changed?

Drug use is not new. Humans have been using alcohol and plant-derived drugs for thousands of years—as far as we know, since *Homo sapiens* first appeared on the planet. A truly “drug-free society” has probably never existed, and might never exist. Psychoactive drugs were used in rituals that we could today classify as religious in nature, and Chapter 14 provides several examples of hallucinogenic drugs reported to enhance spiritual experiences. A common belief in many early cultures was that illness results from invasion by evil spirits, so in that context it makes sense that psychoactive drugs were often used as part of a purification ritual to rid the body of those

spirits. In these early cultures the use of drugs to treat illness likely was intertwined with spiritual use so that the roles of the “priest” and that of the “shaman” (medicine man) often were not separate. In fact, the earliest uses of many of the drugs that we now consider to be primarily recreational drugs or drugs of abuse (nicotine, caffeine, alcohol, and marijuana) were as treatments for various illnesses.

Psychoactive drugs have also played significant roles in the economies of societies in the past. Wine was a significant trade item among Greek, Turkish, Egyptian, and Italian people via the Mediterranean Sea over 2,000 years ago. Chapter 10 describes the importance of tobacco in the early days of European exploration and trade around the globe as well as its importance in the establishment of English colonies in America; Chapter 6 discusses the significance of the coca plant (from which cocaine is derived) in the foundation of the Mayan empire in South America; and Chapter 13 points out the importance of the opium trade in opening China’s doors to trade with the West in the 1800s.

One area in which enormous change has occurred over the past 100-plus years is in the development and marketing of legal pharmaceuticals. The introduction of vaccines to eliminate smallpox, polio, and other communicable diseases, followed by the development of antibiotics that are capable of curing some types of otherwise deadly illnesses, laid the foundation for our current acceptance of medicines as the cornerstone of our health care system. The introduction of birth control medications in the early 1960s were important not only for the enormous implications they had for women’s opportunities to pursue educational and career goals, but also because millions of young, healthy people were taking drugs for reasons other than illness. During this same time period, mental health treatment began to shift dramatically as new drugs were introduced to reduce symptoms of schizophrenia, anxiety, mania, and depression (Chapter 8).

Another significant development in the past 100 years has been government efforts to limit

access to certain kinds of drugs that are deemed too dangerous or too likely to produce dependence to allow them to be used in an unregulated fashion. The enormous growth, both in expenditures and in the breadth of substances now controlled, has led many to refer to this development as a “war on drugs.” These laws are also outlined in Chapter 3, but we will trace their effect throughout the chapters on different drug classes, and the chapters on prevention and treatment of drug abuse and dependence.

With both of these developments, the proportion of our economy devoted to psychoactive drugs, both legal and illegal, and to their regulation, has also expanded considerably. So drug use would be an important topic for us to understand if only for that fact. In addition, drug use and its regulation are reflective of changes in our society and in how we as individuals interact with that society. Also, drug problems and our attempts to solve them have in turn had major influences on us as individuals and on our perceptions of appropriate roles for government, education, and health care. Therefore, the topic of psychoactive drugs provides a window through which we can study our own current psychology, sociology, and politics.

## Drugs and Drug Use Today

### Extent of Drug Use

In trying to get an overall picture of drug use in today’s society, we quickly discover that it’s not easy to get accurate information. It’s not possible to measure with great accuracy the use of, let’s say, cocaine in the United States. We don’t know exactly how much is imported and sold, because most of it is illegal. We don’t know exactly how many cocaine users there are in the country, because none of the measures we do have (survey results, arrest data, admissions to treatment programs) captures every single one. For some things, such as prescription drugs, tobacco, and alcohol, we have a wealth of sales information and can make much better estimates of rates of use. Even there, however,

our information might not be complete (home-brewed beer would not be counted, for example, and prescription drugs might be bought and then left unused in the medicine cabinet).

Just because we can’t get precise answers to these questions doesn’t mean that we should give up and conclude that we don’t know anything about how much drug use is going on. We do have information about which drugs are more widely used than others and also whether the use of a particular drug is increasing or decreasing. So let us look at some of the kinds of information we do have. A large number of survey questionnaire studies have been conducted in junior highs, high schools, and colleges, partly because this is one of the easiest ways to get a lot of information with a minimum of fuss. Researchers have always been most interested in drug use by adolescents and young adults, because this age is when drug use usually begins and reaches its highest levels.

This type of research has a couple of drawbacks. The first is that we can use this technique only on the students who are in classrooms. We can’t get this information from high school dropouts. That causes a bias, because those who skip school or have dropped out are more likely to use drugs.

A second limitation is that we must assume that most of the self-reports are done honestly. In most cases, we have no way of checking to see if Johnny really did smoke marijuana last week, as he claimed on the questionnaire. Nevertheless, if every effort is made to encourage honesty (including assurances of anonymity), we expect that this factor is minimized. To the extent that tendencies to overreport or underreport drug use are relatively constant from one year to the next, we can use such results to reflect trends in drug use over time and to compare relative reported use of various drugs.

Let’s look first at the drugs most commonly reported by young college students in a recent nationwide sample. Table 1.1 presents data from one of the best and most complete research programs of this type, the Monitoring the Future Project at the University of Michigan.

**Table 1.1**  
**Percentage of College Students One to Four Years beyond High School Reporting Use of Seven Types of Drugs (2012)<sup>1</sup>**

Drug	Ever Used	Used in Past 30 Days	Used Daily for Past 30 Days
Alcohol	81	68	3.9
Cigarettes	NA	12	5.2
Marijuana/hashish	49	20	4.8
Inhalants	6	0.2	0.0
Amphetamines	14	4.6	0.0
Hallucinogens	8	1.1	0.0
Cocaine (all)	5	1.1	0.0
Crack	0.7	0.0	0.0

Source: Monitoring the Future Project, University of Michigan 2013.

Data are collected each year from more than 15,000 high school seniors in schools across the United States, so that nationwide trends can be assessed. Data are also gathered from 8th- and 10th-graders and from college students. Three numbers are presented for each drug: the percentage of college students (one to four years beyond high school) who have *ever* used the drug, the smaller percentage who report having used it within the past *30 days*, and the still smaller percentage who report *daily* use for the past 30 days.<sup>1</sup> Note that most of these college students have tried alcohol at some time in their lives. Half have tried marijuana, and most students report never having tried the rest of the drugs listed. Also note that daily use of any of these drugs may be considered rare.

### Populations of Users

One very important thing to remember about the people who use a particular substance is that there is a wide range of rates and amounts



## Drugs in Depth

### Determining the Extent of Substance Use and Abuse

Imagine that you have been asked to participate in a task force in the community where you are living. This group is specifically looking into substance abuse, and one of the group members, a parent of two teenagers, has heard that high-school students have been using *Salvia divinorum*, also called diviner's sage. We will learn more about this substance and its effects in Chapter 14, but for now let's just ask ourselves how your group can get an idea of the actual extent of its use. What kinds of agencies would you turn to for information they might have? What kinds of information would each of them be likely to have? What else could your task force do to gather even more information? Given all these sources, how close do you think you could come to estimating the size of the problem in your community?

of use, even within the using population. Look again at Table 1.1. Starting with alcohol, we can see that over 80 percent of college students have used alcohol at some time in their lives, and about two-thirds report drinking within the month prior to the survey. The difference between those two figures includes some who might have tried drinking at one time but never plan to drink again, but a larger number who have no real objection to drinking but only do so on rare occasions throughout a given year, such as a wedding or New Year's Eve. Then there is a big drop in numbers down to the 4 percent or so who reported daily drinking. So, when we think about those who have reported drinking in the past 30 days, some of them might only have had one drink in that month. Others might have one or two drinks in a typical week. Others might have a few drinks on one occasion and then not drink again for a month. Others might regularly have two or three drinks on Friday and Saturday nights and not drink at all during the week. Others might start their weekend on Wednesday or Thursday and drink pretty

heavily several nights each week, but still not drink daily. Most of us have some familiarity with this wide range of behavior when it comes to alcohol, because we probably know some people in each of these categories: never used, used at one time but won't use again, use rarely, use regularly but in small amounts, and so on.

What is harder for most people to understand is that the same wide range of behavior is found among users of every psychoactive drug. Not every marijuana user, crack smoker, or heroin user is the same. Given the wide range of human behavior when it comes to everything else in life, this should not be a surprise, but we often forget that there are many types of users of any kind of drug. Look at Table 1.1 for amphetamines. The 14 percent who report ever using includes what? In these surveys, we exclude the legitimate use of prescribed amphetamines for treating ADHD, for example. But, if you have a friend who has a prescription and she gives you an Adderall pill to stay awake and study, then that nonmedical use would be included in this figure, along with someone who was smoking or injecting methamphetamine. As we dig more specifically into even the use of illicit methamphetamine, we find the same range of users: Some have tried it and will never use again, some might use it on rare occasions, some might use it more regularly but in small doses, and so on. And we see that when we ask college students about daily (nonmedical) use of amphetamines, the percentage drops to virtually zero.

This range of users has important implications for our prevention efforts, treatment efforts, law enforcement, and must be kept in mind when we discuss the nature of dependence. We are going to look at more data on the proportions of users of various substances, but remember this wide variety of behavior as we look at trends over time.

### Trends in Drug Use

The Monitoring the Future study, which has now been conducted annually for almost 40 years, allows us to see changes over time in

the rates of drug use. Figure 1.1 displays data on marijuana use among 12th-graders.<sup>2</sup> Look first at the line labeled "Use." In 1975, just under 30 percent of high school seniors reported that they had used marijuana in the past 30 days (an indication of "current use"). This proportion rose each year until 1978, when 37 percent of 12th-graders reported current marijuana use. Over the next 13 years, from 1979 to 1992, marijuana use declined steadily so that by 1992 only 12 percent of 12th-graders reported current use (about one-third as many as in 1978). Then the trend reversed, with rates of current use climbing back to 24 percent of 12th-graders by 1997. Changes over the past 15 years have been small, with the 2012 rate at 23 percent. Because marijuana is by far the most commonly used illicit drug, we can use this graph to make a broader statement: Illicit drug use among high school seniors has not changed a great deal in the past 15 years. Currently, marijuana use is about half as common among 12th-graders as it was in 1978, but it is more common than it was at its lowest point 20 years ago. This is important because there always seem to be people trying to say that drug use is increasing among young people, or that people are starting to use drugs at younger and younger ages, but the best data we have provide no support for such statements (e.g., data from 8th-graders show the same trends as for 12th-graders).

How can we explain these very large changes in rates of marijuana use over time? Maybe marijuana was easier to obtain in 1978, less available in 1992, and so on. Each year the same students were asked their opinion about how easy they thought it would be to get marijuana if they wanted to do so. Looking at the "Availability" line, and using the scale on the right-hand side of Figure 1.1, we can see that back in 1975 about 90 percent of the seniors said that it would be fairly easy or very easy for them to get marijuana. The interesting thing is that this perception has not changed much, remaining above 80 percent for over 30 years. Thus, the perceived availability does