

# Drugs, Society & Human Behavior

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**Carl L. Hart**

*Columbia University*

**Charles Ksir**

*University of Wyoming*



# 2

## Drug Use as a Social Problem



As we look into the problems experienced by society as a result of the use of psychoactive drugs, we need to consider two broad categories. The first category is the problems directly related to actually taking the drug, such as the risk of developing dependence or of overdosing. Second, because the use of certain drugs is considered a deviant act, the continued use of those drugs by some individuals represents a different set of social problems, apart from the direct dangers of the drugs themselves. These problems include arrests, fines, jailing, and the expenses associated with efforts to prevent misuse and to treat abuse and dependence. We begin by examining the direct drug-related problems that first raised concerns about cocaine, opium, and other drugs. Problems related to law enforcement, prevention, and treatment will be examined more thoroughly in Chapters 3, 17, and 18.

### Objectives

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

- Distinguish between the federal government's regulatory approach before the early 1900s and now.
- Distinguish between acute and chronic toxicity and between physiological and behavioral toxicity.
- Describe the two types of data collected in the DAWN system and know the top four drug classes for emergency room visits and for mortality.
- Understand why the risks of HIV/AIDS and hepatitis are higher among injection drug users.
- Define tolerance, physical dependence, and behavioral dependence.
- Understand that the scientific perspective on substance dependence has changed in recent years.
- Differentiate between substance abuse and substance dependence using diagnostic criteria.
- Debate the various theories on the cause of dependence.
- Describe four ways it has been proposed that drug use might cause an increase in crime.

### Laissez-Faire

In the 1800s, the U.S. government, like the majority of countries around the world, had virtually no laws governing the sale or use of most drugs. The idea seemed to be that, if the seller wanted to sell it and the buyer wanted to buy it, let them do it—*laissez-faire*, in French. This term has been used to characterize the general nature of the U.S. government of that era. In

the 21st century, hundreds of drugs are listed as federally controlled substances, the U.S. government spends more than \$12 billion each year trying to control their sale and use, and 1.5 million arrests are made each year for violating controlled substance laws. What happened to cause the leaders of the “land of the free” to believe it was necessary to create especially restrictive regulations for some drugs?

Three main concerns aroused public interest: (1) *toxicity*: some drug sellers were considered to be endangering the public health and victimizing individuals because they were selling dangerous, toxic chemicals, often without labeling them or putting appropriate warnings on them; (2) *dependence*: some sellers were seen as victimizing individuals and endangering their health by selling them habit-forming drugs, again often without appropriate labels or warnings; and (3) *crime*: the drug user came to be seen as a threat to public safety—the attitude became widespread that drug-crazed individuals would often commit horrible, violent crimes. In Chapter 3, we will look at the roots of these concerns and how our current legal structures grew from them. For now, let’s look at each issue and develop ground rules for the discussion of toxicity, dependence, and drug-induced criminality.

## Toxicity

### Categories of Toxicity

The word **toxic** means “poisonous, deadly, or dangerous.” All the drugs we discuss in this text can be toxic if misused or abused. We will use the term to refer to those effects of drugs that interfere with normal functioning in such a way as to produce dangerous or potentially dangerous consequences. Seen in this way, for example, alcohol can be toxic in high doses because it suppresses respiration—this can be dangerous if breathing stops long enough to induce brain damage or death. But we can also consider alcohol to be toxic if it causes a person to be so disoriented that, for them,

otherwise normal behaviors, such as driving a car or swimming, become dangerous. This is an example of something we refer to as **behavioral toxicity**. We make a somewhat arbitrary distinction, then, between behavioral toxicity and “physiological” toxicity—perhaps taking advantage of the widely assumed mind-body distinction, which is more convenient than real. The only reason for making this distinction is that it helps remind us of some important kinds of toxicity that are special to psychoactive drugs and that are sometimes overlooked.

Why do we consider physiological toxicity to be a “social” problem? One view might be that if an individual chooses to take a risk and harms his or her own body, that’s the individual’s business. But impacts on hospital emergency rooms, increased health insurance rates, lost productivity, and other consequences of physiological toxicity mean that social systems also are affected when an individual’s health is put at risk, whether by drug use or failure to wear seat belts.

Another distinction we make for the purpose of discussion is **acute** versus **chronic**. Most of the time when people use the word *acute*, they mean “sharp” or “intense.” In medicine an acute condition is one that comes on suddenly, as opposed to a chronic or long-lasting condition. When talking about drug effects, we can think of the acute effects as those that result from a single administration of a drug or are a direct result of the actual presence of the drug in the system at the time. For example, taking an overdose of heroin can lead to acute toxicity. By contrast, the chronic effects of a drug are those that result from long-term exposure and can be present whether or not the substance is actually in the system at a given point. For example, smoking cigarettes can eventually lead to various types of lung disorders. If you have emphysema from years of smoking, that condition is there when you wake up in the morning and when you go to bed at night, and whether your most recent cigarette was five minutes ago or five days ago doesn’t make much difference.



## Drugs in Depth

### Drugged Driving

From the 2010 National Survey on Drug Use and Health (Chapter 1), it is estimated that over 10 million Americans reported driving under the influence of some illicit drug during the past year. Given the frequency of reported use of various drugs, we expect that most of those had been smoking marijuana. When combined with concerns about driving under the influence of legal prescription and nonprescription drugs, the National Highway Traffic Safety Administration (NHTSA) has put increased emphasis on impaired driving caused by a variety of drugs. One of their efforts has been supporting the training of police officers to become **drug recognition experts (DREs)**.

When a police officer suspects impaired driving, he or she will usually conduct a field sobriety test. These tests include nystagmus (jerky movements as the eyes track a moving target), walk and turn, and one-legged stand, and have been demonstrated to detect intoxication due to alcohol and some classes of drugs. If the person is arrested based on this test, many police departments are now able to conduct a more detailed examination using trained DREs, who check pulse rates, pupil dilation, and several other factors. Based on the results, these DREs can usually determine which major class of drugs is responsible for the impairment.

Using these definitions, Table 2.1 can help give us an overall picture of the possible toxic consequences of a given type of drug. However,

knowing what is *possible* is different from knowing what is *likely*. How can we get an idea of which drugs are most likely to produce adverse drug reactions?

**Table 2.1**  
Examples of Four Types of Drug-Induced Toxicity

Acute (immediate)	
Behavioral	“Intoxication” from alcohol, marijuana, or other drugs that impair behavior and increase danger to the individual
Physiological	Overdose of heroin or alcohol causing the user to stop breathing
Chronic (long-term)	
Behavioral	Personality changes reported to occur in alcoholics and suspected by some to occur in marijuana users (a motivational syndrome)
Physiological	Heart disease, lung cancer, and other effects related to smoking; liver damage resulting from chronic alcohol exposure

### Drug Abuse Warning Network

In an effort to monitor the toxicity of drugs other than alcohol, the U.S. government set up the Drug Abuse Warning Network (DAWN). This system collects data on drug-related emergency

- **laissez-faire (lay say fair)**: a hands-off approach to government.
- **toxic**: poisonous, dangerous.
- **behavioral toxicity**: toxicity resulting from behavioral effects of a drug.
- **acute**: referring to drugs, the short-term effects of a single dose.
- **chronic**: referring to drugs, the long-term effects from repeated use.
- **drug recognition expert**: a police officer trained to examine intoxicated individuals to determine which of several classes of drugs caused the intoxication.
- **DAWN**: Drug Abuse Warning Network. System for collecting data on drug-related deaths or emergency room visits.

room visits from hospital emergency departments in major metropolitan areas around the country. When an individual goes to an emergency room with any sort of problem related to drug misuse or abuse, each drug involved (up to six) is recorded. For each drug or drug type, staff members can add up the number of visits associated with that particular drug. The visit could be for a wide variety of reasons, such as injury due to an accident, accidental overdose, a suicide attempt, or a distressing panic reaction that is not life-threatening to the patient. The emergency room personnel who record these incidents do not need to determine that the drug actually *caused* the visit, only that some type of drug misuse or abuse was involved. This avoids many of the subjective judgments that would vary from place to place and from day to day, especially when (as is often the case) more than one drug is involved. If someone is in an automobile accident after drinking alcohol, smoking marijuana, and using cocaine, rather than trying to say which

one of these substances was responsible for the accident, each of them is counted as being involved in that emergency room visit.

Because not every emergency room in the U.S. participates in the DAWN system, for many years the sampled data were used to estimate the overall number of emergency room visits for the entire country. Because of concerns about the accuracy of those estimates, more recent results are not used in that way. The numbers for emergency room visits for 2009 shown on the left side of Table 2.2 are the totals from the sampled hospitals.<sup>1</sup>

The DAWN system collects another set of data on drug-related deaths, with the reports being completed by medical examiners (coroners) in the same metropolitan areas around the U.S. The agency responsible for the DAWN data (the Office of Applied Studies from the Substance Abuse and Mental Health Services Administration) became so concerned about the accuracy of national estimates that they have stopped providing overall national totals

**Table 2.2**  
**Toxicity Data from the Drug Abuse Warning Network (DAWN)**

DRUG-RELATED EMERGENCY ROOM VISITS, NATIONAL ESTIMATES (2009)			DRUG-RELATED DEATHS (2009)		
Rank	Drug	Number	Rank	Drug	Rate/100,000
1	Alcohol-in-combination	519,650	1	Prescription opioids	7.1
2	Cocaine	422,896	2	Alcohol-in-combination	3.7
3	Prescription opioids	416,458	3	Benzodiazepines	3.1
4	Marijuana	376,467	4	Cocaine	2.6
5	Benzodiazepines	312,931	5	Methadone	2.5
6	Heroin	213,118	6	Antidepressants	2.0
7	Antidepressants	89,070	7	Heroin	1.8
8	Methamphetamine	64,117	8	Sedative-Hypnotics	1.0
9	Antipsychotics	58,018	9	Stimulants (includes methamphetamine)	0.7
10	Acetaminophen	52,995	10	Antipsychotics	0.3

Source: Drug Abuse Warning Network<sup>1,2</sup>



The Drug Abuse Warning Network (DAWN) uses data from hospital emergency rooms to monitor drug toxicity.

and rankings by drug type. The numbers on the right side of Table 2.2 were derived calculating the rate of drug-associated deaths in 2009 related to each drug type from the 13 states that get reports from all of their medical examiners.<sup>2</sup>

Alcohol is treated somewhat differently than other drugs in the sample. Whenever an emergency room visit or a death is related only to alcohol use by an adult, the DAWN system does not keep track of that. Alcohol-related problems are counted when alcohol and some other drug are involved (alcohol-in-combination); in the latest report alcohol alone is recorded if the individual is under 21 years of age. Notice that alcohol-in-combination is near the top ranking in both types of data, a place it has held for many years. In fact, if alcohol were counted alone its numbers would be large enough to make the other drugs seem much less important beside it. This seems to indicate that alcohol is a fairly toxic substance. It can be, but let us also remember that about half of all adult Americans drink alcohol at least once a month, whereas only a small percentage of the adult population uses cocaine, a drug that is also at the top of both lists. The DAWN system does not correct for differences in rates of use, but rather gives us an idea of the relative impact of a substance on medical emergencies and drug-related deaths. Cocaine has vied with alcohol-in-combination for the top spot on these lists since the

mid-1980s. Legal drugs are found on both lists, with prescription opioids now at the top of the mortality data. Including the widely prescribed hydrocodone (Vicodin) and oxycodone (Oxycontin), these drugs are increasingly marketed through Internet pharmacies that might be contributing to the increased number of toxic reactions. Other groups of prescription drugs, such as benzodiazepine sedatives (e.g., Xanax) and sleeping pills (e.g., Halcion) and the antidepressants, are relatively important, especially in the category of drug-related deaths.

The importance of drug combinations, particularly combinations with alcohol, in contributing to these numbers cannot be overstressed. Typically about half of the emergency room visits involve more than one substance, and about three-fourths of the drug-related deaths include multiple drugs. By far the most common "other" drug is alcohol. It is very rare to find a "single-drug" death for several of the top ten drugs: For example, although benzodiazepines rank third among drug-associated deaths, they were never the only drug mentioned in the 13 states used to compile these rates. In such cases it's hard to tell how much those drugs contributed to the death. As we will see in Chapter 7, there are good reasons to suspect that benzodiazepines combined with alcohol can be dangerous. In the case of marijuana or antidepressants, the drugs might simply be widely enough used that some people who have the drug in their systems may die for reasons that have nothing to do with that particular drug's toxicity. So, while the DAWN system does give us important information about which drugs are associated the greatest number of deaths, and also allows us to monitor changes such as the recent increase in prescription-opioid related deaths, it does not provide a straightforward measure of a drug's toxicity.

### How Dangerous Is the Drug?

Now that we have some idea of the drugs contributing to the largest numbers of toxic reactions in these two sets of data, let's see if we

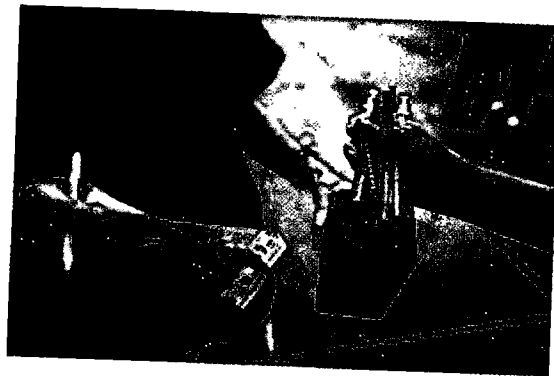
can use that information to ask some questions about the relative danger to a person taking one drug versus another. We mentioned that the DAWN data do not correct for frequency of use. However, in Chapter 1 we reviewed other sets of data that provide information on the relative rates of use of different drugs, such as the National Survey on Drug Use and Health discussed on pages 10–11. The populations and sampling methods are different, so we're not going to be able to make fine distinctions with any degree of accuracy. But we know, for example, that roughly eight times as many people report current use of marijuana as report current use of cocaine. The 2009 DAWN mortality report shows almost ten times as many cocaine-related deaths as marijuana-related deaths. If one-eighth as many users experience ten times as many deaths, can we say that the risk of death to an individual cocaine user is 80 times the risk of death to an individual marijuana user? That's too precise an answer, but it seems pretty clear that cocaine is relatively much more toxic than marijuana.

We cannot tell precisely from the DAWN data how many total deaths are related to the use of cocaine or heroin, because not all coroners are included in the system. But if we extrapolate the rates of drug-associated deaths from these 13 states to the entire U.S. population of about 300 million, we come up with about 21,000 for prescription opioids, 9,300 for benzodiazepines (also prescription drugs), and 7,800 for cocaine, the most frequently mentioned illicit drug.<sup>2</sup> We must keep in mind that these are not estimates of deaths actually caused by these drugs, but just drugs that have been used or are found in the blood when the person dies. The number of deaths actually caused by the drugs listed in Table 2.2 must be lower than the total number of mentions. For example, if a person is killed in a car wreck after using alcohol, how can we know whether the alcohol was at fault? We will see in Chapter 9 that we have good estimates as to the increased risk of an alcohol-related accident with increasing blood alcohol concentration, so for

alcohol we can get a statistical estimate based on that increased risk. The same is true for cigarette smoking and heart disease. So, when we say that alcohol use is responsible for about 100,000 total U.S. deaths annually (Chapter 9) and cigarettes for over 400,000 (Chapter 10), those are fairly good estimates of the mortality that results from using those substances. We do not have similar data for cocaine, heroin, marijuana, etc., but it should be clear that the numbers of deaths actually caused by these substances is much lower than the deaths caused by either alcohol or tobacco.

### Blood-Borne Diseases

One specific toxicity concern for users who inject drugs is the potential for spreading blood-borne diseases, such as HIV, AIDS, and the life-threatening liver infections hepatitis B and hepatitis C. These viral diseases can all be transmitted through the sharing of needles. Reported rates of these diseases vary widely from one city to another, and have changed over time. For example, one large drug detoxification program in New York City found HIV infections in more than 50 percent of injecting drug users in the early 1990s. However, education programs and an aggressive syringe exchange program have led to a steady reduction in those rates to just over 10 percent. In this population, sexual transmission is now more



Needles are collected through an exchange program in an effort to prevent the spread of HIV among intravenous drug users.

## Drugs in the Media

### Fear of Bath Salts?

Fear is a useful emotion. Being afraid of something that threatens you helps you to avoid the real dangers that do exist in our world. But, of course, fear also can be irrational, far out of proportion to any real threat. When that happens, as individuals we might be hampered by being unable to use elevators or ride in airliners, or fear of contamination might seriously interfere with our social lives. Fear is also a favorite tool of many politicians. If they can convince us that there is a real threat of some kind and they offer to protect us from it, we are likely to elect them and to give them the power or funding they seek to provide that protection. Again, this is a rational and perfectly appropriate governmental response to the extent that the threat is both real and likely to harm us, but sometimes it is difficult to get it right. Maybe the U.S. government has underestimated the threat of global climate change. Maybe because of the horrible televised images of the World Trade Center attack we overestimate the threat of Al Qaeda. Raising fears about specific types of drugs has been a staple of politics and government in the United States for more than 100 years, from the age of Demon Rum through heroin, marijuana, LSD, PCP, cocaine, MDMA (Ecstasy), and methamphetamine. How do we get it right?

Recently there has been quite a bit of media publicity about so-called bath salts, and the dangers associated with using them. Let's be clear that these are not actually chemicals designed and sold for

people to put into their bath water. The most common ingredient in these new bath salts is 4-methylmethcathinone, also called mephedrone. It's an old drug that was recently rediscovered, manufactured in China, and then packaged as **bath salts** for import into the United States and Europe. But the prices and the way they are sold make it clear that people are buying them to get high. Mephedrone is a stimulant, with effects similar to amphetamines (Chapter 6). The scariest news reports suggest that users risk insanity or even death to use them. But how toxic is this stuff, really? The truth is that we just don't know. Anecdotal reports found on the Internet indicate that people have swallowed the drug, snorted it, and injected it, in widely varying doses, and with various effects. Some toxic reactions have brought people to emergency rooms for treatment, but we don't have good data on how often these things happen or why.

Do the scary reports have an impact? Yes and no. The majority of people who would never try such an unknown drug in the first place probably are frightened by what they hear and wonder why anyone would be so stupid. But those who have friends who have tried it, and who are therefore more likely to consider using it themselves, probably only hear positive stories from their friends and will likely dismiss the scary reports as either untrue or overdone. That's why previous scare campaigns have not been effective in reducing the use of other drugs.

important than needle-sharing as far as transmitting new cases of HIV.<sup>3</sup>

This type of drug-associated toxicity is not due to the action of the drug itself, but is incidental to the sharing of needles, no matter which drug is injected or whether the injection is intravenous or intramuscular. An individual drug user may inject 1,000 times a year, and that represents a lot of needles. In several states and cities, drug paraphernalia laws make it illegal to obtain syringes or needles without a prescription, and the resulting shortage of new, clean syringes increases the likelihood that

drug users will share needles. One response to this has been the development of syringe exchange programs, in which new, clean syringes are traded for used syringes. Although the U.S. Congress had prohibited the use of federal funds to support these programs, based on the

**HIV:** human immunodeficiency virus.

**AIDS:** acquired immunodeficiency syndrome.

**bath salts:** mephedrone or a related stimulant packaged as bath salts but intended for use as a psychoactive drug.



## Unintended Consequences

### Syringe Access Laws

In the early days of concern about drug addiction (1911), New York was the first state to require a prescription to obtain hypodermic syringes. This was done in the belief that limiting access to syringes would reduce the number of injecting drug users. They certainly could not have foreseen one apparent consequence of that law when more than 70 years later, HIV began to spread rapidly among drug users who shared their syringes. Several studies have found that providing clean syringes reduces the spread of HIV, and that cities with over-the-counter sales of syringes have lower rates of HIV infection among drug users.<sup>3</sup> So, if laws restricting access to syringes,

increase blood-borne diseases, they should be repealed, right?

Before proposing such changes, we should ask what the unintended consequences might be of allowing over-the-counter sales of syringes. Might we see an increase in injecting drug users? So far, the studies done on syringe-exchange programs indicate that there is no increased recruitment of drug injectors just because syringes are more available. Ideally, at least one state will rescind their current syringe restrictions while monitoring any changes in the drug-using population, and we will begin to get a clear answer to our question.

theory that they provide moral encouragement for illegal drug use, exchange programs were funded by state and local governments, and many other countries support such programs. Evidence shows that given the opportunity, drug injectors increase their use of clean syringes, rates of infection are lowered, and the programs more than pay for themselves in the long run. In 2008 it was reported that the incidence of new HIV infections associated with intravenous drug use had declined by 80 percent in the past 20 years.<sup>4</sup> The authors pointed out that intravenous drug users have been acquiring clean needles from pharmacies and syringe exchange programs, and also limiting the number of people sharing their needles. In response to all the evidence favoring syringe exchange, in 2009 the U.S. Congress voted to lift the more than 20-year federal ban on funding for such problems.

## Substance Dependence: What Is It?

All our lives we have heard people talk about “alcoholics” and “addicts,” and we’re sure we know what we’re talking about when one of these terms is used. Years ago when people

first became concerned about some people being frequent, heavy users of cocaine or morphine, the term *habituation* was often used. If we try to develop scientific definitions, terms such as *alcoholic* or *addict* are actually hard to pin down. For example, not everyone who is considered an alcoholic drinks every day—some drink in binges, with brief periods of sobriety in between. Not everyone who drinks every day is considered an alcoholic—a glass of wine with dinner every night doesn’t match most people’s idea of alcoholism. The most extreme examples are easy to spot: the homeless man dressed in rags, drinking from a bottle of cheap wine, or the heroin user who needs a fix three or four times a day to avoid withdrawal symptoms. No hard-and-fast rule for quantity or frequency of use can help us draw a clear line between what we want to think of as a “normal drinker” or a “recreational user” and someone who has developed a dependence on the substance, who is compelled to use it, or who has trouble controlling his or her use of the substance. It would be nice if we could separate substance use into two distinct categories: In one case, the individual controls the use of the substance; in the other case, the substance seems to take control of the individual. However, the real world of substance use,

misuse, abuse, and dependence does not come wrapped in such convenient packages.

## Three Basic Processes

The extreme examples mentioned above, of the homeless alcohol drinker or the frequent heroin user, typically exhibit three characteristics of their substance use that distinguish them from first-time or occasional users. These appear to represent three processes that may occur with repeated drug use, and each of these processes can be defined and studied by researchers interested in understanding drug dependence.

**Tolerance** Tolerance refers to a phenomenon seen with many drugs, in which repeated exposure to the same dose of the drug results in a lesser effect. There are many ways this diminished effect can occur, and some examples are given in Chapter 5. For now, it is enough for us to think of the body as developing ways to compensate for the chemical imbalance caused by introducing a drug into the system. As the individual experiences less and less of the desired effect, often the tolerance can be overcome by increasing the dose of the drug. Some regular drug users might eventually build up to taking much more of the drug than it would take to kill a nontolerant individual.

**Physical Dependence** Physical dependence is defined by the occurrence of a **withdrawal syndrome**. Suppose a person has begun to take a drug and a tolerance has developed. The person increases the amount of drug and continues to take these higher doses so regularly that the body is continuously exposed to the drug for days or weeks. With some drugs, when the person stops taking the drug abruptly, a set of symptoms begins to appear as the drug level in the system drops. For example, as the level of heroin drops in a regular user, that person’s nose might run and he or she might begin to experience chills and fever, diarrhea, and other symptoms. When we have a drug that produces a consistent set of these symptoms in different individuals, we refer to the collection of

symptoms as a withdrawal syndrome. These withdrawal syndromes vary from one class of drugs to another. Our model for why withdrawal symptoms appear is that the drug initially disrupts the body’s normal physiological balances. These imbalances are detected by the nervous system, and over a period of repeated drug use the body’s normal regulatory mechanisms compensate for the presence of the drug. When the drug is suddenly removed, these compensating mechanisms produce an imbalance. Tolerance typically precedes physical dependence. To continue with the heroin example, when it is first used it slows intestinal movement and produces constipation. After several days of constant heroin use, other mechanisms in the body counteract this effect and get the intestines moving again (tolerance). If the heroin use is suddenly stopped, the compensating mechanisms produce too much intestinal motility. Diarrhea is one of the most reliable and dramatic heroin withdrawal symptoms.

Because of the presumed involvement of these compensating mechanisms, the presence of a withdrawal syndrome is said to reflect **physical** (or physiological) **dependence** on the drug. In other words, the individual has come to depend on the presence of some amount of that drug to function normally; removing the drug leads to an imbalance, which is slowly corrected over a few days.

**Psychological Dependence** Psychological dependence (also called *behavioral dependence*) can be defined in terms of observable behavior. It is

**tolerance:** reduced effect of a drug after repeated use.  
**withdrawal syndrome:** a consistent set of symptoms that appears after discontinuing use of a drug.  
**physical dependence:** drug dependence defined by the presence of a withdrawal syndrome, implying that the body has become adapted to the drug’s presence.  
**psychological dependence:** behavioral dependence; indicated by high rate of drug use, craving for the drug, and a tendency to relapse after stopping use.





Frequent drug use, craving for the drug, and a high rate of relapse after quitting indicate psychological dependence.

indicated by the frequency of using a drug or by the amount of time or effort an individual spends in drug-seeking behavior. Often it is accompanied by reports of *craving* the drug or its effects. A major contribution of behavioral psychology has been to point out the scientific value of the concept of **reinforcement** for understanding psychological dependence.

The term *reinforcement* is used in psychology to describe a process: A behavioral act is followed by a consequence, resulting in an increased tendency to repeat that behavioral act. The consequence may be described as pleasurable or as a "reward" in some cases (e.g., providing a tasty piece of food to someone who has not eaten for a while). In other cases, the consequence may be described in terms of escape from pain or discomfort. The behavior itself is said to be strengthened, or *reinforced*, by its consequences. The administration of certain drugs can reinforce the behaviors that led to the drug's administration. Laboratory rats and monkeys have been trained to press levers when the only consequence of lever pressing is a small intravenous injection of heroin, cocaine, or another drug. Because some drugs but not others are capable of serving this function, it is possible to refer to some drugs as having

"reinforcing properties" and to note that there is a general correlation between those drugs and the ones to which people often develop psychological dependence.

### Changing Views of Addiction

Until the 20th century, the most common view was probably that alcoholics and addicts were weak-willed, lazy, or immoral (the "moral model"). Then medical and scientific studies began of users of alcohol and opioids. It seemed as if something more powerful than mere self-indulgence was at work, and the predominant view began to be that dependence is a drug-induced illness.

**Early Medical Models** If heroin dependence is induced by heroin, or alcohol dependence by alcohol, then why do some users develop dependence and others not? An early guess was simply that some people, for whatever reasons, were exposed to large amounts of the substance for a long time. This could happen through medical treatment or self-indulgence. The most obvious changes resulting from long exposure to large doses are the withdrawal symptoms that occur when the drug is stopped. Both alcohol and the opioids can produce rather dramatic withdrawal syndromes. Thus, the problem came to be associated with the presence of physical dependence (a withdrawal syndrome), and enlightened medically oriented researchers went looking for treatments based on reducing or eliminating withdrawal symptoms. According to the most narrow interpretation of this model, the dependence itself was cured when the person had successfully completed withdrawal and the symptoms disappeared.

Pharmacologists and medical authorities continued into the 1970s to define "*addiction*" as occurring only when physical dependence was seen. Based on this view, public policy decisions, medical treatment, and individual drug-use decisions could be influenced by the question "Is this an addicting drug?" If some drugs produce dependence but others do not,

then legal restrictions on specific drugs, care in the medical use of those drugs, and education in avoiding the recreational use of those drugs are appropriate. The determination of whether a drug is or is not "addicting" was therefore crucial.

In the 1960s, some drugs, particularly marijuana and amphetamines, were not considered to have well-defined, dramatic, physical withdrawal syndromes. The growing group of interested scientists began to refer to drugs such as marijuana, amphetamines, and cocaine as "merely" producing psychological dependence, whereas heroin produced a "true addiction," which includes physical dependence. The idea seemed to be that psychological dependence was "all in the head," whereas with physical dependence actual bodily processes were involved, subject to physiological and biochemical analysis and possibly to improved medical treatments. This was the view held by most drug-abuse experts in the 1960s.

**Positive Reinforcement Model** In the 1960s, a remarkable series of experiments began to appear in the scientific literature—experiments in which laboratory monkeys and rats were given intravenous **catheters** connected to motorized syringes and controlling equipment so that pressing a lever would produce a single brief injection of morphine, an opioid very similar to heroin. In the initial experiments, monkeys were exposed for several days to large doses of morphine, allowed to experience the initial stages of withdrawal, and then connected to the apparatus to see if they would learn to press the lever, thereby avoiding the withdrawal symptoms. These experiments were based on the predominant view of drug use as being driven by physical dependence. The monkeys did learn to press the levers.

As these scientists began to publish their results and as more experiments like this were done, interesting facts became apparent. First, monkeys would begin pressing and

maintain pressing without first being made physically dependent. Second, monkeys who had given themselves only fairly small doses and who had never experienced withdrawal symptoms could be trained to work very hard for their morphine. A history of physical dependence and withdrawal didn't seem to have much influence on response rates in the long run. Clearly, the small drug injections themselves were working as positive reinforcers of the lever-pressing behavior, just as food can be a positive reinforcer to a hungry rat or monkey. Thus, the idea spread that drugs can act as reinforcers of behavior and that this might be the basis of what had been called psychological dependence. Drugs such as amphetamines and cocaine could easily be used as reinforcers in these experiments, and they were known to produce strong psychological dependence in humans. Animal experiments using drug self-administration are now of central importance in determining which drugs are likely to be used repeatedly by people, as well as in exploring the basic behavioral and biological features associated with drug dependence.<sup>5</sup>

### Which Is More Important, Physical Dependence or Psychological Dependence?

The animal research that led to the positive reinforcement model implies that psychological dependence is more important than physical dependence in explaining repeated drug use, and this has led people to examine the lives of heroin users from a different perspective. Stories

**reinforcement:** a procedure in which a behavioral event is followed by a consequent event such that the behavior is then more likely to be repeated. The behavior of taking a drug may be reinforced by the effect of the drug.

**catheters (cath a ters):** plastic or other tubing implanted into the body.

## DSM-IV-TR

### Psychiatric Diagnosis of Substance-Use Disorders

#### Diagnostic Criteria for Substance Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
  - a. A need for markedly increased amounts of the substance to achieve intoxication or desired effect
  - b. Markedly diminished effect with continued use of the same amount of the substance
2. Withdrawal, as manifested by either of the following:
  - a. The characteristic withdrawal syndrome for the substance
  - b. The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms
3. The substance is often taken in larger amounts or over a longer period than was intended.
4. There is a persistent desire or unsuccessful efforts to cut down or control substance use.
5. A great deal of time is spent in activities necessary to obtain the substance.
6. Important social, occupational, or recreational activities are given up or reduced because of substance use.

7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

- With physiological dependence: evidence of tolerance or withdrawal (i.e., either Item 1 or 2 is present)
- Without physiological dependence: no evidence of tolerance or withdrawal (i.e., neither Item 1 nor 2 is present)

#### Diagnostic Criteria for Substance Abuse

- A. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:
  1. Recurrent substance use resulting in failure to fulfill major role obligations at work, school, or home
  2. Recurrent substance use in situations in which it is physically hazardous
  3. Recurrent substance-related legal problems
  4. Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance
- B. The symptoms have never met the criteria for substance dependence for this class of substance.

Adapted from *Diagnostic and Statistical Manual of Mental Disorders Text Revision, DSM-IV-TR*®.

were told of users who occasionally stopped taking heroin, voluntarily going through withdrawal so as to reduce their tolerance level and get back to the lower doses of drug they could more easily afford. When we examine the total daily heroin intake of many users, we see that they do not need a large amount and that the agonies of withdrawal they experience are no worse than a case of intestinal flu. We have known for a long time that heroin users who have already gone through withdrawal in treatment programs or in jail have a high probability of returning to active heroin use. In other

words, if all we had to worry about was users' avoiding withdrawal symptoms, the problem would be much smaller than it actually is.

Psychological dependence, based on *reinforcement*, is increasingly accepted as the real driving force behind repeated drug use, and tolerance and physical dependence are now seen as related phenomena that sometimes occur but probably are not critical to the development of frequent patterns of drug-using behavior.

Researchers and treatment providers rely heavily on the definitions of *substance*

*dependence* and *substance abuse* developed by the American Psychiatric Association and presented in their *Diagnostic and Statistical Manual (DSM-IV-TR)*.<sup>6</sup> These are presented in outline form on the previous page. Notice that both substance dependence and substance abuse are complex behavioral definitions, and the exact set of behaviors seen may vary from person to person. Also, please note that three of the seven criteria must be met for substance dependence, and that five of the seven describe behaviors, such as taking more of the substance than was intended or giving up other important activities because of substance use. This again points out that these substance-use disorders are primarily seen as behavioral in nature, with tolerance and physical dependence being less important.

### Broad Views of Substance Dependence

If we define drug dependence not in terms of withdrawal but in more behavioral or psychological terms, as an overwhelming involvement with getting and using the drug, then might this model also be used to describe other kinds of behavior? What about a man who visits prostitutes several times a day; someone who eats large amounts of food throughout the day; or someone who places bets on every football and basketball game, every horse race or automobile race, and who spends hours each day planning these bets and finding money to bet again? Shouldn't these also be considered examples of dependence? Do the experiences of overeating, gambling, sex, and drugs have something in common—a common change in physiology or brain chemistry or a common personality trait that leads to any or many of these compulsive behaviors? Are all of these filling an unmet social or spiritual need? More and more, researchers are looking for these common threads and discussing “dependencies” as a varied set of behavioral manifestations of a common dependence process or disorder.

### Is Dependence Caused by the Substance?

Especially with chemical dependence, many people speak as though the substance itself is the cause of the dependence. Certainly some drugs are more likely than others to result in dependence. For example, it is widely believed that heroin and crack cocaine are both extremely likely to lead to compulsive use. In contrast, most users of marijuana report occasional use and little difficulty in deciding when to use it and when not to. We also know that some methods of taking a drug (e.g., intravenous injection) are more likely to result in repeated use than other methods of taking the same drug (by mouth, for instance). We can determine which drugs, or which methods of using those drugs, pose the greatest risk for dependence. One major study reviewed 350 published articles to come up with relative ratings, then had the preliminary tables reviewed by a panel of psychopharmacologists for suggested changes.<sup>7</sup> Based on that report, we can classify psychoactive drugs into seven categories of “dependence potential.” Smoked or injected methamphetamine would probably be in one of the top two categories in such a ranking (see Table 2.3). The range of risk of dependence



Alcohol causes dependence in some drinkers.



**Table 2.3**  
**Dependence Potential of**  
**Psychoactive Drugs\***

Very high:	Heroin (IV) Crack cocaine
High:	Morphine (injected) Opium (smoked)
Moderate/high:	Cocaine powder (snorted) Tobacco cigarettes PCP (smoked)
Moderate:	Diazepam (Valium) Alcohol Amphetamines (oral)
Moderate/low:	Caffeine MDMA* (Ecstasy) Marijuana
Low:	Ketamine (see Chapter 14)
Very low:	LSD† Mescaline Psilocybin

\*MDMA, methylenedioxy methamphetamine

†LSD, lysergic acid diethylamide

depends to some extent upon the drug itself, but also depends upon its method of use (as well as a variety of other biological, psychological, and social factors). Thus, the substance itself cannot be seen as the entire cause of the problem, even though some people would like to put all the blame on “demon rum” or on heroin or crack cocaine.

When we extend the concept of dependence to other activities, such as gambling, sex, or overeating, it seems harder to place the entire blame on the activity, again because many people do not exhibit compulsive patterns of such behaviors. Some activities might be more of a problem than others—few people become dependent on filling out income tax forms, whereas a higher proportion of all those who gamble become overwhelmingly involved.

Still, it is wrong to conclude that any activity is by its nature always “habit forming.”

When a chemical is seen as causing the dependence, there is a tendency to give that substance a personality and to ascribe motives to it. When we listen either to a practicing user’s loving description of his interaction with the drug or to a recovering alcoholic describe her struggle against the bottle’s attempts to destroy her, the substance seems to take on almost human characteristics. We all realize that is going too far, yet the analogy is so powerful that it pervades our thinking. **Alcoholics Anonymous (AA)** members often describe alcohol as being “cunning, baffling, and powerful” and admit that they are powerless against such a foe. And those seeking the prohibition of alcohol, cocaine, marijuana, heroin, and other drugs have over the years tended to demonize those substances, making them into powerful forces of evil. The concept of a “war on drugs” reflects in part such a perspective—that some drugs are evil and war must be waged against the substances themselves.

It might be emotionally satisfying to put the blame for dependence on a chemical, and for most people it makes sense to simply treat heroin or methamphetamine as something to be avoided at all cost. But in reality these drugs do have beneficial uses, and dependence does not develop in every user. Placing all the blame on the drug itself is not only illogical, it has caused the U.S. government to put most of our drug abuse control funding into efforts to control the drugs and too little into teaching people how to live in a world in which such drugs will continue to exist.

### Is Dependence Biological?

In recent years, interest has increased in the possibility that all compulsive behaviors might have some common physiological or biochemical action in the brain. For example, many theorists have recently focused on dopamine, one of the brain’s important neurotransmitters, which some believe to play a large role

in positive reinforcement. The idea is that any drug use or other activity that has pleasurable or rewarding properties spurs dopamine activity in a particular part of the brain. This idea is discussed more fully in Chapter 4. Although this theory has been widely tested in animal models and much evidence is consistent with it, considerable evidence also shows that this model is too simple and that other neurotransmitters and other brain regions are also important. A great deal of attention has been given to reports from various brain-scanning experiments done on drug users. For example, cues that stimulate craving for cocaine activate many areas that are widely separated in the brain, including some that are known to be dopamine-rich areas and some that are not.<sup>8</sup> Although these studies show some of the physiological *consequences* produced by cocaine or by even thinking about cocaine, they have not yet been useful in examining the possible biological *causes* of dependence. One important question that remains is whether the brains of people who have used cocaine intermittently show different responses, compared with the brains of dependent cocaine users. Ultimately, the strongest demonstration of the power of such techniques would be if it were possible to know, based on looking at a brain scan, whether a person had developed dependence. Many previous biological theories of dependence have failed this test: so far, no genetic, physiological or biochemical marker has been found that strongly predicts drug dependence.

### Is There an “Addictive Personality”?

Perhaps the explanation for why some people become dependent but others do not lies in the personality—that complex set of attributes and attitudes that develops over time, partly as a result of particular experiences. Is there a common personality factor that is seen in compulsive drug users but not in others? We’ve known for some time that people who are diagnosed with certain types of personality disorders, such as antisocial personality or conduct

disorder, are more likely to also have one of the substance-use disorder diagnoses (substance abuse or substance dependence). We’ve also known that people who have a long history of alcohol dependence or heroin dependence will demonstrate a variety of differences from the normal population on personality tests. But neither of these findings tells us anything about what caused these relationships. Conduct disorder and antisocial personality disorder reflect a general tendency for a person to violate social norms. Perhaps drug use is just one of many ways this person might choose to break the rules? And someone who has been drinking heavily for many years, has had health problems, perhaps lost a job and family, might well have developed personality differences due to the consequences of years of substance abuse. So we have not had much good information until fairly recently about personality differences that might predispose individuals to develop a substance-use disorder.

One personality trait that has frequently been associated with greater risk for abuse of stimulants such as amphetamine or cocaine is called “sensation-seeking.” The sensation-seeking scale measures the person’s preference for variety, risk, and various physical sensations. People who score higher on this scale tend to report a greater “high” and a greater “liking” for the drug when given amphetamine in a laboratory setting.<sup>9</sup>

Another, possibly related, personality factor is often referred to as impulsivity—the tendency to act quickly without as much regard to long-term consequences. The relationships between impulsivity and drug use are complex, and researchers are becoming more sophisticated in trying to understand the relationships among impulsivity, specific types of drug use, and the setting in which the drug is used. In

**Alcoholics Anonymous (AA):** a worldwide organization of self-help groups based on alcoholics helping each other achieve and maintain sobriety.

other words, being impulsive might have more to do with whether a person drinks heavily when away from home on a weekend night than it does with whether a person has a glass of wine with dinner.<sup>10</sup>

### Is Dependence a Family Disorder?

Although few scientific studies have been done, examination of the lives of alcohol-dependent individuals reveals some typical patterns of family adaptation to the problem. A common example in a home with an alcohol-dependent father is that the mother enables this behavior, by calling her husband's boss to say he is ill or by making excuses to family and friends for failures to appear at dinners or parties and generally by caring for her incapacitated husband. The children might also compensate in various ways, and all conspire to keep the family secret. Thus, it is said that alcohol dependence often exists within a dysfunctional family—the functions of individual members adjust to the needs created by the presence of excessive drinking. This new arrangement can make it difficult for the drinker alone to change his or her behavior, because doing so would disrupt the family system. Some people suspect that certain family structures actually enhance the likelihood of alcohol abuse or dependence developing. For example, the “codependent” needs of other family members to take care of someone who is dependent on them might facilitate drunkenness.

Much has been written about the effects on children who grow up in an “alcoholic family,” and there is some indication that even as adults these individuals tend to exhibit certain personality characteristics. The “adult children of alcoholics” are then perhaps more likely to become involved in dysfunctional relationships that increase the likelihood of alcohol abuse, either in themselves or in another family member. Again, the evidence indicates that such influences are statistical tendencies and are not all-powerful. It is perhaps unfortunate that some people with alcoholic parents have adopted the role of “adult children” and try to

explain their entire personalities and all their difficulties in terms of that status.

### Is Substance Dependence a Disease?

The most important reason for adopting a disease model for dependence is based on the experiences of the founders of AA and is discussed in Chapter 9. Psychiatrists had commonly assumed that alcohol dependence was secondary to another disorder, such as anxiety or depression, and often attempted to treat the presumed underlying disorder while encouraging the drinker to try to “cut down.” The founders of AA believed that alcohol dependence itself was the primary problem and needed to be recognized as such and treated directly. This is the reason for the continued insistence that alcohol dependence is a disease—that it is often the primary disturbance and deserves to stand in its own right as a recognized disorder requiring treatment.

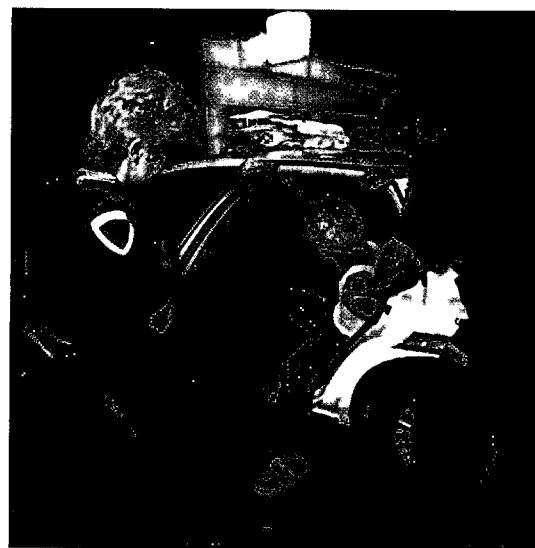
On the other hand, Peele<sup>11</sup> and others have argued that substance dependence does not have many of the characteristics of some classic medical diseases, such as tuberculosis or syphilis: We can't use an X-ray or blood test to reveal the underlying cause, and we don't have a way to treat the underlying cause and cure the symptoms—we don't really know that there is an underlying cause, because all we have are the symptoms of excessive involvement. Furthermore, if substance dependence itself is a disease, then gambling, excessive sexual involvement, and overeating should also be seen as diseases. This in turn weakens our normal understanding of the concept of disease. The disease model is perhaps best seen as an analogy—substance dependence is *like* a disease in many ways, but that is different from insisting that it *is* a disease. One reason for the conflict over the disease model of dependence may be differences in how we think of the term *disease*. For example, many would agree that high blood pressure is considered a disease—it's certainly viewed as a medical disorder. We know that high blood pressure can be produced by genetic factors, cigarette smoking, diet, lack of exercise, or by other medical conditions. In

that context, the idea that alcohol or drug dependence is like a disease doesn't seem so far-fetched. This is taking a broad, **biopsychosocial** perspective that dependence might be related to dysfunctions of biology, personality, social interactions, or a combination of these factors.

### Crime and Violence: Does Drug Use Cause Crime?

It might seem obvious to a reader of today's newspapers or to a viewer of today's television that drugs and crime are linked. There are frequent reports of killings attributed to warring gangs of drug dealers. Our prisons house a large population of people convicted of drug-related crimes, and several reports have revealed that a large fraction of arrestees for nondrug felonies have positive results from urine tests for illicit substances.

The belief that there is a causal relationship between many forms of drug use and criminality probably forms the basis for many of our laws concerning drug use and drug users. The relationship between crime and illegal drug use is complex, and only recently have



The are more 1.5 million drug-related arrests in the U.S. each year.

data-based statements become possible. Facts are necessary because laws are enacted on the basis of what we believe to be true.

The basis for concern was the belief that drug use *causes* crime. The fact that drug users engage in robberies or that car thieves are likely to also use illicit drugs does not say anything about causality. Both criminal activity and drug use could well be caused by other factors, producing both types of deviant behavior in the same individuals. There are several senses in which it might be said that drugs cause crime, but the most frightening possibility is that drug use somehow *changes the individual's personality in a lasting way*, making him or her into a “criminal type.” For example, during the 1924 debate that led to prohibition of heroin sales in the United States, a testifying physician asserted, regarding users, that heroin “dethrones their moral responsibility.” Another physician testified that some types of individuals will have their mental equipment “permanently injured by the use of heroin, and those are the ones who will go out and commit crimes.” Similar beliefs are reflected in the introductory message in the 1937 film *Reefer Madness*, which referred to marijuana as “The Real Public Enemy Number One!” and described its “soul-destroying” effects as follows:

emotional disturbances, the total inability to direct thought, the loss of all power to resist physical emotions, leading finally to acts of shocking violence . . . ending often in incurable insanity.

Such verbal excesses seem quaint and comical these days, but the underlying belief that drug use changes people into criminals still can be detected in much current political rhetoric. You should remember from Chapter 1 that longitudinal research on children and adolescents has led to the conclusion that indicators of criminal or antisocial behavior usually

**biopsychosocial:** a theory or perspective that relies on the interaction of biological, individual psychological, and social variables.

occur before the first use of an illicit drug. The interaction over time between developing drug-use “careers” and criminal careers is complex and interactive, but it is incorrect to conclude that using any particular drug will turn a person into a criminal.<sup>12</sup>

A second sense in which drug use might *cause* criminal behavior is when the person is *under the influence* of the drug. Do the acute effects of a drug make a person *temporarily* more likely to engage in criminal behavior? There is little good evidence for this with most illicit substances. In most individuals, marijuana produces a state more akin to lethargy than to crazed violence (see Chapter 15), and heroin tends to make its users more passive and perhaps sexually impotent (see Chapter 13). Stimulants such as amphetamine and cocaine can make people paranoid and “jumpy,” and this can contribute to violent behavior in some cases (see Chapter 6). The hallucinogen PCP causes disorientation and blocks pain, so users are sometimes hard to restrain (see Chapter 14). This has led to a considerable amount of folklore about the dangerousness of PCP users, although actual documented cases of excessive violence are either rare or nonexistent. A study of U.S. homicide cases found that every year about 5 percent are considered to be drug-related. However, most of these are murders that occur in the context of drug trafficking, so it cannot be said that increased violence results from the pharmacological actions of the drugs.<sup>13</sup>

While there is some question as to whether the direct influence of illicit drugs produces a person more likely to engage in criminal or violent behavior, there has been less doubt about one commonly used substance: alcohol. Many studies indicate that alcohol is clearly linked with violent crime. In many assaults and sexual assaults, alcohol is present in both assailant and victim. Most homicides are among people who know each other—and alcohol use is associated with half or more of all murders. Drinking at the time of the offense was reported in about 25 percent of assaults and

more than one-third of all rapes and sexual assaults, with drinking rates closer to two-thirds for cases of domestic violence.<sup>14</sup> Victims of violent crime report that they believe the offender had been using alcohol in 25 percent of the cases, compared to about 5 percent of the cases in which they believe the offender had been using drugs other than alcohol.<sup>12</sup> Even with such strong correlational evidence linking alcohol use with crime and violence, there is still debate about how much of the effect is related to the “disinhibitory” pharmacological action of alcohol, and how much is related to other factors. For example, several studies that have controlled for age, sex, and a generalized tendency to engage in problem behaviors have concluded that both drinking and criminal violence are associated with young males who exhibit a range of antisocial behaviors, and that the immediate contribution of being intoxicated might be small.

A third sense in which drug use may be said to cause crime refers to *crimes carried out for the purpose of obtaining money* to purchase illicit drugs. Among jail inmates who had been convicted of property crimes, about one-fourth reported that they had committed the crime to get money for drugs. Also, about one-fourth of those convicted of drug crimes reported that they had sold drugs to get money for their own drug use.<sup>13</sup>

From 1987 through 2003, and then beginning again in 2007, the U.S. Justice Department collected data on drug use from people arrested and booked into jails for serious crimes. All interviews and urine tests were anonymous; about 90 percent of arrestees who were asked agreed to an interview, and about 90 percent of those agreed to provide urine specimens. In 2010, in 10 sites around the country, between 50 and 80 percent of the adult male arrestees tested positive for the presence of at least one of the ten drugs of interest. Marijuana was the drug most frequently detected (35–50 percent), followed by cocaine (12–33 percent).<sup>15</sup> This level of drug use among those arrested for non-drug crimes is quite high; how can we account

## Taking Sides

### Prosecuting Pregnant Drug Users

Most people are aware of the potential for toxic effects on an unborn child if certain drugs are used during pregnancy. In the late 1980s, a series of news reports brought wide publicity to so-called crack babies, whose mothers had used cocaine during pregnancy. You will learn more in Chapter 6 about how this phenomenon was blown out of proportion, but it led hospital officials in Charleston, South Carolina, to test for drugs in blood and urine samples provided by women during prenatal visits. Positive drug tests were then turned over to police, and the women could be arrested for possession or for providing a controlled substance to a minor (the fetus). In 2001, the U.S. Supreme Court ruled in favor of 10 of these women that this use of their medical samples without their knowledge or consent was a violation of their Fourth Amendment rights protecting against unreasonable searches. While the case raised a complex issue relating to a woman's

right to privacy versus the welfare of the fetus, a very practical concern has to do with the unintended consequences, specifically, once women learned that they could be arrested, they might simply avoid seeking any prenatal care at all, thus putting the fetus at risk in other ways.

While this decision means that women cannot be arrested under these circumstances, in other parts of the country, positive prenatal tests are used to trigger family services investigations, sometimes leading to the woman losing custody of her other children.

What do you think is the proper course for our society to take in such circumstances? If you're not sure, what else would you need to know? How would your solution apply to the use of tobacco, or of legal prescription drugs, such as the widely prescribed benzodiazepines and antidepressants, that have been linked to possible risks to the fetus?

for it? First, those who adopt a deviant lifestyle might engage in both crime and drug use. Second, because most of these arrests were for crimes in which profit was the motive, the arrestees might have been burglarizing a house or stealing a car to get money to purchase drugs.

The commission of crimes to obtain money for expensive illicit drugs is due to the artificially high cost of the drugs, not primarily to a pharmacological effect of the drug. The inflated cost results from drug controls and enforcement. Both heroin and cocaine are inexpensive substances when obtained legally from a licensed manufacturer, and it has been estimated that if heroin were freely available it would cost no more to be a regular heroin user than to be a regular drinker of alcohol. The black-market cost of these substances makes the use of cocaine or heroin consume so much money.

The fourth and final sense in which drug use causes crime is that *illicit drug use is a crime*. At first that may seem trivial, but there

are two senses in which it is not. First, we are now making more than 1.5 million arrests for drug-law violations each year, and more than half of all federal prisoners are convicted on drug charges. Thus, drug-law violations are one of the major types of crime in the United States. Second, it is likely that the relationship between drug use and other forms of deviant behavior is strengthened by the fact that drug use is a crime. A person willing to commit one type of crime might be more willing than the average person to commit another type of crime. Some of the people who are actively trying to impress others by living dangerously and committing criminal acts might be drawn to illicit drug use as an obvious way to demonstrate their alienation from society. To better understand this relationship, imagine what might happen if the use of marijuana were legalized. Presumably, a greater number of otherwise law-abiding citizens might try using the drug, thus reducing the correlation between marijuana

use and other forms of criminal activity. The concern over possibly increased drug use is, of course, one major argument in favor of maintaining legal controls on the illicit drugs.

## Why We Try to Regulate Drugs

We can see that there are reasonable concerns about the potential toxicity and habit-forming nature of some drugs and even the criminality of some drug users. But the drugs that have been singled out for special controls, such as heroin, cocaine, and marijuana, are not unique in their association with toxicity, dependence, or criminal behavior. Tobacco, alcohol, and many legally available prescription drugs are also linked to these same social ills. At the beginning of the chapter we mentioned another important source of social conflict over drug use. Once a substance is regulated in any way, those regulations will be broken by some. This produces enormous social conflict and results in many problems for society. From underage drinking to injecting heroin, from Internet sales of prescription narcotics to “date-rape” drugs, the conflicts resulting from particular kinds of drug use lead to additional costs to American society (police, courts, prisons, treatment, etc.) beyond the direct drug effects of toxicity, dependence, and links to other kinds of criminal behavior. Our current laws do not represent a rationally devised plan to counteract the most realistic of these concerns in the most effective manner. In fact, most legislation is passed in an atmosphere of emotionality, in response to a specific set of concerns. Often the problems have been there for a long time, but public attention and concern have been recently aroused and Congress must respond. Sometimes members of Congress or government officials play a major role in calling public attention to the problem for which they offer the solution: a new law, more restrictions, and a bigger budget for some agency. This is what is known in political circles as “starting a prairie fire.” As we will see

in Chapter 3, often the prairie fires include a lot of emotion-arousing rhetoric that borders on the irrational, and sometimes the results of the prairie fire and the ensuing legislation are unexpected and undesirable.

## Summary

- American society has changed from being one that tolerated a wide variety of individual drug use to being one that attempts strict control over some types of drugs. This has occurred in response to social concerns about drug toxicity, dependence potential, and drug-related crime and violence.
- *Toxicity* can refer either to physiological poisoning or to dangerous disruption of behavior. Also, we can distinguish acute toxicity, resulting from the presence of too much of a drug, from chronic toxicity, which results from long-term exposure to a drug.
- Heroin and cocaine have high risks of toxicity per user, but their overall public health impact is low compared to tobacco and alcohol.
- Prescription drugs are also important contributors to overall drug toxicity figures.
- Drug dependence does not depend solely on the drug itself, but the use of some drugs is more likely to result in dependence than is the use of other drugs.
- The idea that opioid drugs or marijuana can produce violent criminality in their users is an old and largely discredited idea. Opioid users seem to engage in crimes mainly to obtain money, not because they are made more criminal by the drugs they take. One drug that is widely accepted as contributing to crimes and violence is alcohol.
- There are more than 1.5 million arrests each year in the United States for drug-law violations.
- Laws that have been developed to control drug use have a legitimate social purpose,

which is to protect society from the dangers caused by some types of drug use. Whether these dangers have always been viewed rationally, and whether the laws have had their intended results, can be better judged after we have learned more about the drugs and the history of their regulation.

## Review Questions

1. The French term *laissez-faire* is used to describe what type of relationship between a government and its people?
2. What three major concerns about drugs led to the initial passage of laws controlling their availability?
3. Long-term, heavy drinking can lead to permanent impairment of memory. What type of toxicity is this (acute or chronic; physiological or behavioral)?
4. What two kinds of data are recorded by the DAWN system?
5. What drugs other than alcohol are mentioned most often in both parts of the DAWN system?
6. Why has AIDS been of particular concern for users of illicit drugs?
7. What drugs and methods of using them are considered to have very high dependence potential?
8. What is the apparent dependence potential of hallucinogenic drugs, such as LSD and mescaline?
9. What are four ways in which drug use might theoretically cause crime?
10. About how many arrests are made each year in the United States for violations of drug laws?

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# Check Yourself

Name \_\_\_\_\_

Date \_\_\_\_\_

## Are You Hooked On an Activity?

Think of an activity other than substance use that you either really enjoy or find yourself doing a lot. This can be a hobby, such as playing video games or watching movies; something more energetic, such as skiing or mountain biking; or something that involves spending money, such as buying books, CDs, or clothing or shopping on the Internet or TV shopping channels. It can be sexual behavior or gambling, or it can even be working longer hours than most people. Now, with the most "addictive" of those activities in mind, go through the *DSM-IV-TR* diagnostic criteria one by one and ask whether your nondrug "habit" meets each criterion, obviously substituting the behavior in question for the words *the substance* and *substance use*. Probably the most informative questions in this context are the following (note the words in italics):

- Have you *often* done more of the behavior or for a longer period than you intended?
- Have you *persistently* tried to cut down or control the behavior?
- Have you given up *important* social, occupational, or recreational activities because of this behavior?
- Is the behavior continuing despite recurrent physical or psychological problems *caused or made worse* by the behavior?

If you answered yes to all four questions, then whether or not you agree that you meet abuse or dependence criteria, you should consider talking to a behavioral health professional to obtain some assistance in reducing the impact of this behavior on your life.

# Check Yourself

Name \_\_\_\_\_

Date \_\_\_\_\_

## What's Your Risk of Drug Toxicity?

Any drug that has the ability to affect you in any way also has the potential to be toxic if used in too great a quantity or in the wrong combination with other drugs. If you use alcohol or other drugs, use the following assessment to estimate the risk of toxicity to which your drug use exposes you.

1. When you take over-the-counter medications, including headache remedies, do you read the instructions carefully and make sure not to exceed the recommended dose?
2. If you are already taking some sort of medication on a regular basis, do you always check with your doctor or pharmacist about the safety of taking any additional drug along with your regular medication?

3. Do you check the expiration dates of drugs in your medicine cabinet before using them?
4. If you drink alcohol, do you drink only in moderation and check to make sure the alcohol won't interact with a drug you are also taking?
5. Do you avoid taking drugs prescribed for someone else and avoid the use of street drugs of unknown strength and purity?

If you answered yes to all these questions, you are probably a responsible consumer of alcohol, prescription, and over-the-counter drugs, and it is unlikely that you will suffer from drug toxicity.