

# DRUGS<sup>AND</sup> SOCIETY

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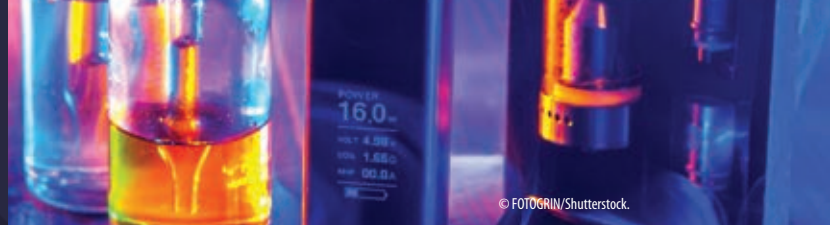
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# PREFACE

This *Fourteenth Edition* continues a long tradition of providing the most accurate, recent, and accessible information on drug use, misuse, and abuse, available in a form that is ideally suited for students at all college levels in the medical, social, and psychological fields. Thus, this new version of *Drugs and Society* further enhances its reputation as one of the leading texts on drug use and abuse. The authors have integrated their mastery in the fields of drug abuse, pharmacology, and sociology by using their expertise and knowledge of teaching, research experiences, and drug prevention and treatment to create an edition that reflects the most important and current information relative to drug abuse issues available in a textbook. For example, this edition includes new information on important topics, such as:

1. The potential value of genetics in assessing risk, consequences, and even the possible treatment of drug use disorder or addiction;
2. Discussion of the abuse and extent of performance-enhancing drugs in athletic and sport activity;
3. Statistics of use and the impact of drugs of abuse;
4. The most recent findings concerning the extent of vaping;
5. The relentless escalation of prescription abuse and related overdose deaths by opioid analgesics and the increased fatality when mixing opioids and other drugs with sedative properties, such as valium-type medications;
6. The characteristics of alcohol use and abuse including major costs to society;
7. The pattern of methamphetamine resurgence use in the United States and its trafficking patterns from Mexico;
8. The recent connections between methamphetamine and heroin/opioid use;
9. The status of clinical trials for the use of hallucinogenic drugs such as Ecstasy (MDMA) to treat mental conditions such as posttraumatic stress disorder and the use of ketamine to treat depression;
10. Update on the problems associated with rapidly escalating drug costs in the United States and how to address these challenges;
11. Tobacco regulation by the Food and Drug Administration and the continued increase in the popularity of e-cigarettes; and
12. Recent changes in most state marijuana laws in the United States that legally redefine marijuana as medicine for neurological and mental health issues and as a legal drug for recreational marijuana use.

*Drugs and Society* is an exceptionally comprehensive text on drug use and abuse and drug-related problems, with current and updated references to substantiate and support the latest findings about drug use and abuse information. This text is also written on a personal level, and directly addresses the drug information that college and university students need from the sociological, psychological, and pharmacological perspectives, addressing both micro- and macro-level drug use and abuse information. Many chapters include excerpts from personal experiences with recreational drug users, habitual (often addicted) drug users, and former drug users. Students will find these personal accounts interesting and insightful. This particular approach has been inspired by instructors, students, and reviewers, resulting in a truly unique text that combines comprehensive presentation of the latest drug information with personal accounts.

*Drugs and Society* is a multiperspective text offering university students from other disciplines a better understanding of drug use and abuse. Students in nursing, physical education or kinesiology, and other social sciences such as psychology, sociology, criminology or criminal justice, social work, history, and economics will find that our text provides useful and timely perspectives and information to help them understand the following:

- Social, psychological, pharmacological, and biological explanations for why drug use and abuse occur
- The outcomes of drug use and abuse
- How to prevent and treat drug use and abuse
- How drugs and medications can be effectively used for therapeutic purposes

To achieve these goals, we have presented the most current, objective, and authoritative views on drug abuse in an easily understood manner. The fourteenth edition of *Drugs and Society* continues to teach students from different disciplines how to understand the complexity of drug use and abuse from pharmacological, neurobiological, psychological, and sociological perspectives.

## What Is New and Improved?

*Drugs and Society, Fourteenth Edition* includes updated statistics and current examples of the key principles being taught in this text and frequently uses the new DSM-5 as a source for updated information. The new coverage includes discussion of the following topics.

- The most recent information on developments in states that have or intend to legalize recreational and medical marijuana use, as well as coverage of the major differences between the three main strains of marijuana; namely, *Cannabis sativa*, *Cannabis indica*, and *Cannabis ruderalis*.
- The current status of prescription abuse, including opiate painkillers, stimulants (e.g., performance enhancers), and the central nervous system (CNS) sedative-hypnotics.
- Details on public advertising of prescription products and resulting consumer controversies.
- The most recent information on the personal and social consequences of use of methamphetamine and narcotic analgesics.
- The latest status of over-the-counter (OTC) stimulants and decongestants as well as abuse of OTC products and the efforts to switch more prescription drugs to OTC status.
- Updated data and major drug use findings of drug abuse by junior high, high school, college and university students, adolescents, young adults, middle-aged adults, and senior citizens.
- Coverage of current topics such as steroid abuse in major professional sports, OxyContin abuse, restrictions on pain pills, marijuana legalization for medical and recreational use, heroin potency, designer drugs, synthetic drugs (Spice and K2), and marijuana wax.
- How risk and protective factors directly affect drug abuse.
- The most recent information on alcohol and other drug use problems in preadolescent, adolescent, college, and noncollege populations.
- Recent information on “vaping.”
- The most recent survey data from the National Household Survey on Drug Use and Health (NHSDUH), *Monitoring the Future* studies, the Centers for Disease Control and Prevention (CDC), the Center for Behavioral Health Statistics and Quality (CBHSQ), the Substance

Abuse and Mental Health Services Administration (SAMHSA), the U.S. Department of Justice (USDOJ), the National Council on Alcoholism and Drug Dependence (NCADD), the Bureau of Justice Statistics (BJS), the National Institute on Drug Abuse (NIDA), and the World Health Organization (WHO).

## Chapter Breakdown

The multidisciplinary material in the text encompasses pharmacological, biomedical, sociological, and social-psychological perspectives.

**Chapter 1** provides a thorough overview of the historical and current dimensions of drug use (statistics and trends) and the most common currently abused licit (such as OTC and prescription drugs) and illicit types of drugs. Included are the latest findings regarding the abuse of stimulants (including Ritalin and Adderall), bath salts, prescription and performance-enhancing drugs, hallucinogens and psychedelics and other similar drugs, depressants, alcohol, nicotine, cannabis (marijuana and hashish), synthetic cannabinoids, designer drugs and synthetic drugs or synthetic opioids, anabolic steroids, inhalants and organic solvents, and narcotics and opiates.

**Chapter 2** comprehensively explains drug use and abuse and addiction from multidisciplinary theoretical standpoints, including the latest theoretical, biological, psychological, social-psychological, and sociological perspectives. This chapter also theoretically explains the use and abuse of illicit drugs.

**Chapter 3** discusses new drug development (both OTC and prescription) and how the law deals with drugs of abuse and individuals who abuse them.

**Chapter 4** helps students understand the basic biochemical operations of the nervous and endocrine systems and explains how psychoactive drugs and anabolic steroids alter such functions.

**Chapter 5** instructs students about the factors that determine how drugs affect the body. This chapter also details the physiological and psychological variables that determine how and why people respond to drugs used for therapeutic and recreational purposes.

**Chapters 6 through 14** focus on specific drug groups that are commonly abused in the United States. Those drugs that depress brain activity are discussed in the following chapters:



- **Chapter 6** Sedative-hypnotic agents
- **Chapters 7** Alcohol use from a pharmacological perspective
- **Chapter 8** Alcohol use from a social scientific and behavioral perspective
- **Chapter 9** Opioid narcotics

Drugs that stimulate brain activity are covered in the following chapters:

- **Chapter 10** Amphetamines, bath salts
- **Chapter 11** Nicotine

The last major category of substances of abuse is hallucinogens, also known as *psychedelics*, which generally alter and distort sensory perception. These substances are discussed in the following chapters:

- **Chapter 12** Hallucinogens, such as LSD, mescaline, Ecstasy, and PCP
- **Chapter 13** Marijuana, marijuana wax, and synthetic cannabinoids (Spice-related types of drugs)
- **Chapter 14** Inhalants

Although most drugs of abuse cause more than one effect (e.g., cocaine can be a stimulant and have some hallucinatory properties), the classification we have chosen for this text is frequently used by experts and pharmacologists in the drug abuse field and is based on the most likely drug effect. All of the chapters in this section are similarly organized. They discuss the following:

- the historical origins and evolution of the agents so students can better understand society's attitudes toward, and regulation of, these drugs;
- previous and current clinical uses of these drugs to help students appreciate distinctions between therapeutic use and abuse;
- patterns of abuse and distinctive features that contribute to each drug's abuse potential; and
- nonmedicinal and medicinal therapies for drug-related dependence, withdrawal, and abstinence.

**Chapter 15** explores the topic of drugs and drug therapy. Like illicit drugs, nonprescription, prescription, and herbal drugs can be misused if not understood. This chapter helps students appreciate the benefits of proper drug use as well as recognize that licit (legalized) drugs also can be problematic—and a problem that has been declared by many experts, politicians, and news media to be the greatest drug abuse issue in the United States. This chapter also discusses the recent surge in abuse of prescription drugs such as opioid painkillers, stimulants, and CNS depressants; the dramatic increase in overdose deaths caused by these substances; and how to mitigate these problems.

**Chapter 16** focuses on and examines drug use, drug dependence, and drug abuse in the following seven major drug-using subcultural populations: (1) athletes involved in sports; (2) women; (3) adolescents; (4) college students; (5) HIV and AIDS subpopulations; (6) a percentage of professional actors, actresses, and music celebrities; and (7) Internet users seeking and purchasing illicit drugs.

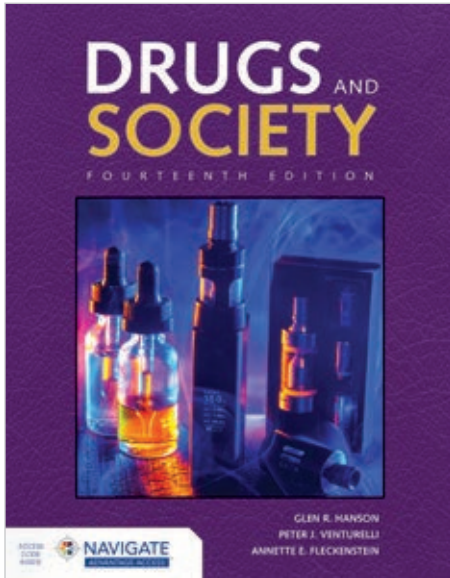
**Chapter 17** explains what is involved in prevention of drug use and abuse. This chapter focuses on the following topics: (1) major factors affecting an individual's use of drugs; (2) major types of drug abuse prevention programs; (3) major types of drug users who must be recognized before creating any effective prevention program; (4) the four levels of comprehensive prevention programs for drug use and abuse; (5) major family factors that can affect the use of drugs; (6) primary prevention programs in higher education; (7) four recent large-scale prevention programs; and (8) two additional prevention measures that may substitute for the attraction to drug use.

**Chapter 18** focuses on assessing addiction, the issue of comorbidity, and principles and forms of drug dependence treatment.

# HOW TO USE THIS BOOK



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Besides including the most current information concerning drug use and abuse topics, each chapter includes updated and helpful learning aids for both students and instructors. Utilizing these feature boxes for classroom or blog discussions and debates or as individual reflective writing assignments can drive stronger comprehension and retention of core concepts while reinforcing critical-thinking skills.

- **Holding the Line:** Vignettes that help readers assess efforts to deal with drug-related problems.

## HOLDING THE LINE

### States Are Allowing Cannabis Buyers' Clubs

Despite federal drug laws prohibiting the cultivation, possession, use, and sale of marijuana, 33 states plus the District of Columbia have recently enacted the legalization of recreational and medical marijuana. The 33 states are Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Illinois, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and West Virginia (ProCon.org, 2019). Out of 325,719,178 of U.S. population as of March 17, 2018 (ProCon.org, 2019), the estimated number of medical marijuana users would be 2,132,777 (ProCon.org, 2019).

Why should medically ill patients, those afflicted with AIDS and associated wasting, lack of appetite, nausea, arthritis, hepatitis C, migraines, multiple sclerosis, muscle spasms, chronic pain, glaucoma, and other illnesses (such as posttraumatic stress disorder, depression, or bipolar disorder) or those suffering the deleterious effects of chemotherapy or radiation not be able to legally purchase marijuana if they find relief from the effects of their illnesses? The first cannabis buyers' club began in 1996 when the voting citizens of Marin County, California, passed "Proposition 215, which authorized the use of medical marijuana . . . for those who have a doctor's recommendation" (Nolde, 2002). The main problem facing this club in Marin County, and all the other cannabis buyers' clubs throughout the United States, is that although these 23 states and DC have legalized such enterprises, they continue to violate federal drug laws, causing a conflict between federal and state law. At times, the clubs can be ordered closed by a superior court judge, resulting in federal agents raiding the clubs, confiscating the marijuana, and arresting the owners and operators of these establishments.

To date, this cyclical pattern of raids and arrests by federal officials continues to sporadically occur because of this rift between state and federal laws. The clubs are either for-profit or nonprofit organizations whose sole intent is to distribute marijuana for

medicinal purposes when prescribed by a licensed physician. Many of the buyers (known as patients) report relief and satisfaction from their use of marijuana. For example, a man named Clay Shinn, 46, was diagnosed with AIDS in 1992. At the time of his interview, he had been going to the Marin Alliance's Cannabis Buyers' Club for five years. "It's made a major difference in my life," he said. After taking his [AIDS] medication morning, afternoon, and evening, he said, "I was always getting nauseated. . . I could set my watch by it. I hate it. God, it's awful. Now I don't barf anymore" (Nolde, 2002). Another interviewee, who is an arthritic, HIV-positive cabaret performer, said, "After I leave here . . . I won't feel my pain" (Goldberg, 1996). Another man, the club's director, reiterated that, "You have to be sick or dying" . . . If you are, with a doctor's note to prove that you have AIDS or cancer or another condition with symptoms that marijuana is known to alleviate, Mr. Peron [the club's director] is willing to sell some relief" (Goldberg, 1996). Finally, Dennis Peron, the founder of the San Francisco Buyers' Club, stated, "We have over 400 senior citizens that come here for arthritis, glaucoma, pain, etc. We have an old woman trapped in her wheelchair, day in and day out. Marijuana makes her feel a little bit better. I don't require a letter of diagnosis for people 65 or older—things wear out—or for people who are blind or deaf, as they say it helps their other senses" (Fuhman, 1995).

What are your views regarding the prescribed use of marijuana, especially when these clubs or cooperatives provide seriously ill patients with a safe and reliable source of medical cannabis information and patient support? What about buying clubs for recreational use of marijuana—are your views similar to buying clubs selling marijuana only for medicinal purposes? Would you support a cannabis buyers' club or cooperative in your community that sells medical marijuana and recreational marijuana? What are your views regarding federal laws that prohibit such establishments while states pass laws allowing these establishments to legally operate? How do you think this current problem of the illegality on the federal level should be resolved? Finally, how do you think this dilemma will be resolved in your lifetime?

Data from Nolde, H. (2002, July 1). Medical pot war rages on. *Marin Independent Journal*. Retrieved from <http://cannabisnews.com/news/13/thread13278.shtml>; Fuhman, R.A. (1995). Cannabis buyers' club flourishes in 'Trisco'. *San Francisco, CA, Cannabis Buyers' Club*; Goldberg, C. (1996, February 26). Marijuana club helps those in pain. *The New York Times*. Retrieved from [http://query.nytimes.com/gst/fullpage.html?res=9C06E6D1139F926A15175103A960958260&sec=4&om=4&page=1&\\_r=1](http://query.nytimes.com/gst/fullpage.html?res=9C06E6D1139F926A15175103A960958260&sec=4&om=4&page=1&_r=1); ProCon.org. (2013). How many people in the United States use medical marijuana? Santa Monica, CA: Author. Retrieved from <http://medicalmarijuana.procon.org/view.answers.php?questionID=001199>; ProCon.org. (2018, May 17). Number of legal medical marijuana patients. Santa Monica, CA: Author; ProCon.org. (2019, July 24). Legal medical marijuana states and DC. Santa Monica, CA: Author.

## CASE IN POINT

### Specific Signs of Marijuana Use

This excerpt, from the author's files, illustrates labeling theory:

After my mom found out, she never brought it up again. I thought the incident was over—dead, gone, and buried. Well . . . it wasn't over at all. My mom and dad must have agreed that I couldn't be trusted anymore. I'm sure she was regularly going through my stuff in my room to see if I was still smoking dope. Even my grandparents acted strangely whenever the news on television would report about the latest drug bust in Chicago. Several times that I can't ever forget were when we were together and I could hear the news broadcast on TV from my room about some drug bust. There they all were whispering about me. My grandma asking if I "quitta the dope." One night, I overheard my mother reassure my dad and grandmother that I no longer was using dope. You can't believe how embarrassed I was that my own family was still thinking that I was a dope fiend. They thought I was addicted to pot like a junkie is addicted to heroin! I can tell you that I would never lay such a guilt trip on my kids if I ever have kids. I remember that for [two] years after the time I was honest enough to tell my mom that I had tried pot, they would always whisper about me, give me the third degree whenever I returned late from a date, and go through my room looking for dope. They acted as if I was hooked on drugs. I remember that for

a while back then I would always think that if they think of me as a drug addict, I might as well get high whenever my friends "toke up." They should have taken me at my word instead of sneaking around my personal belongings. I should have left syringes lying around my room!

Approximately 17 years after this interview was conducted, this author was able to revisit the same interviewee, who at the time of this second interview was 37 years of age. After showing him the preceding excerpt, he commented,

You know, Professor, while today marijuana use is no longer such a big deal, I can still tell you that it took years to finally convince my family that I was not a "big time drug user." Though my grandma is now dead, I can still remember how she would look at me when I would tell her that I just smoke it once in a while. I knew she never believed that I was just an occasional user by the look on her face, when she would ask ". . . and last night when you went out, did you smoke the dope again?" My mom, who is now living with her sister, still mentions how I went wild those days when I was drugging it up! Yes, I have to say it had a big impact on me when my own family believed I was a drug addict back then. I will never forget those looks from my family every time I would walk into the house on weekends when I would return from a night out with my friends.

Interview with a 20-year-old male college student at a private university in the Midwest, conducted by Peter Venturilli on November 19, 1993. Second interview with same interviewee male, 37 years of age, June 2010.

- **Case in Point:** Examples of relevant clinical or social issues that arise from the use of each major type of drug.

**HERE AND NOW**

**Spice and K2: Past and Current Usage Rates**

Spice, also known as *herbal incense*, is dried, shredded plant material treated with a cannabinoid analog. Although labels on spice products will list the ingredients as "natural" psychoactive plant products, chemical analyses show that their active ingredients are primarily synthetic cannabinoids added to the plant material. These synthetic analogs function similarly to the active ingredient in marijuana, Δ9-THC (SAMHSA, 2014a).

K2 and Spice are two names for a more recently created psychoactive designer drug whose dried, leafy, natural herbs are sprayed with a psychoactive chemical; it is then smoked so the user can experience euphoric effects. In 2011, prior to the Synthetic Drug Abuse Prevention Act being signed into law, one in nine U.S. high school seniors reported having used synthetic marijuana. In 2012, a large sample survey found that annual prevalence was 11.4%, ranking synthetic marijuana as the second most widely used class of illicit drug after marijuana among 12th graders (Johnston et al., 2016). In 2018, synthetic marijuana use significantly dropped. Annual use in 2018 among 8th graders was 1.6%, 10th graders 2.9%, and 12th graders 3.5% (NIDA, 2018c).

Eighth, 10th, and 12th graders were asked if they associated a great risk with trying synthetic marijuana

once or twice; the results showed that there was quite a low level of perceived risk (only 23% and 25%, respectively, thought there was great risk in using once or twice).

Another study at a large public university in Georgia between November 2011 and March 2012 found that the highest level of use was among male students largely identifying with the lesbian, gay, bisexual, and transgender (LGBT) community. This was the first known study to obtain a detailed profile of users of any type of synthetic cannabinoid. Findings indicated the following:

1. The average age of first use was 18 years.
2. The percentage ever using synthetic cannabinoids was twice as high for males as for females (19% vs. 9%).
3. Heavier users were more likely to identify themselves as LGBT; significantly less usage was found in students identifying themselves as heterosexual.

Earlier findings are that "[e]fforts at the federal and state levels to close down the sale of these substances appear to be having an effect" (Johnston et al., 2016). Overall, beginning in 2015 through 2018, use of synthetic marijuana cannabinoids, (K2 and Spice) have statistically decreased for 8th, 10th, 12th graders and college students).

Data from Johnston, L. D., O'Malley, P. M., Bachman, L. G., & Schulenberg, J. E. (2013). Monitoring the future national results on drug use: 2012 overview, key findings on adolescent drug use. *Ann Arbor, MI: Institute for Social Research, The University of Michigan; Center for Substance Abuse Research (CESAR)*. (2013, 20 May). Study finds that 14% of undergraduate students at a Southeastern University report synthetic cannabinoid use; users more likely to be male and identify as LGBT. CESAR FAX. Retrieved from <http://www.cesar.umich.edu>; Johnston, L. D., O'Malley, P. M., & Mich, R. A., Bachman, L. G., & Schulenberg, J. E. (2016, February). Monitoring the future national survey results on drug use, 1975-2015: Overview, key findings on adolescent drug use. *Ann Arbor, MI: Institute for Social Research, The University of Michigan; National Institute on Drug Abuse (NIDA)*. (2018c). Synthetic cannabinoids (K2/Spice). Bethesda, MD: Author. Retrieved from <https://www.drugabuse.gov/publications/drugfacts/synthetic-cannabinoids-k2spice>

• **Here and Now:** Current events that illustrate the personal and social consequences of drug abuse.

• **Family Matters:** Examples of how genetics and heredity contribute to drug abuse and its issues.

**FAMILY MATTERS**

**Addiction Genes**

Is it true that addiction related to drug abuse can be associated with a person's genetics? It is well known that genetic variants are likely associated with diseases such as Alzheimer's and Parkinson's. In fact, many Americans are spitting into test tubes and sending their saliva samples to laboratories to assess their risk of developing these neurological and other genetics-related pathologies. What if we could do the same thing for drug addiction—spit into a container and send it off in a mailer and within a few weeks get a report that would tell us the likelihood that sometime during our life we would experience drug addiction? While genetic research does tell us that various aspects of substance abuse have been linked to more than 100 different abnormal gene expressions, the potential of so many drug abuse-related genes suggests that addiction is a complicated behavioral manifestation, which likely means it will be extremely difficult to develop a simple saliva test to reliably warn us of drug addiction vulnerability. So, what is the value of these findings confirming the connection between some abnormal genes and drug addiction? The following are conclusions that we can draw because of the research establishing linkage between addiction and variant gene expression:

- Because genes are associated with the expression of biological elements such as proteins, genetic research demonstrates that the addiction process has organic bases like many other pathological conditions and as such suggests it should be viewed as the consequence of a disease process and not a moral failure. For example, proteins related to abnormal dopamine (neurotransmitter) receptors, abnormal alcohol metabolic products, nausea-producing tobacco by-products and abnormal serotonin uptake transporters are just a few of the variant genes found to be connected with drug abuse problems.
- The identification of so many genetic factors potentially linked to addiction suggests there is no single element required for every expression of addiction, but that addiction is likely caused by a complicated interplay of biology with environment. This has been

confirmed by findings that genetics only contribute to ~50% of addiction vulnerability while the balance is associated with experience.

• Even if a person was found to have one of the abnormal genes linked to addiction, this does not mean that problems with drugs are inevitable, but it could suggest that such a person should take greater care to avoid environments or drug consumption that would encourage drug abuse.

• Identification of genes linked to addiction may provide leads for developing effective treatment or prevention strategies. For example, if expression of a specific dopamine receptor was associated with developing addiction, then perhaps medications that block this receptor would have therapeutic value to prevent or treat the related addiction condition.

• The role of genes in the expression of addiction helps us understand the basis for the familial clustering of this drug-related condition. However, it should be remembered as previously mentioned that this does not mean that everyone in the family is destined to have drug problems. It does suggest, however, that everyone in such a family needs to be cautious around these drugs. In addition, these family members should particularly emphasize an antidrug culture in the home.



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May, H. (2017, Winter). Genes and addiction. *Continuum*. Salt Lake City, UT: University of Utah. Retrieved from <https://continuum.uth.tmc.edu/features/genetics-and-addiction>

**PRESCRIPTION FOR ABUSE**

**How to Spice Things Up**

"Mr. Happy," "Scooby Snax," and "Kronic" are street names referring to drugs that in 2018 were linked to 160 cases of severe bleeding and four deaths in central Illinois. These drug products also go by the more familiar terms of Spice and K2. Such names represent a large group of chemicals sometimes classified as "synthetic (made in chemistry lab) cannabinoids (i.e., related to marijuana ingredients)." These substances for the most part were originally produced by legitimate research chemists studying the natural cannabinoid system and their chemistry was published in legitimate scientific journals. Once the knowledge of the synthetic chemistry of these substances became public, illicit drug manufacturers used the information to create hundreds of their own adulterated products for sale on the black market. Drugs like Spice and K2 have been called "synthetic marijuana" or "fake weed" to suggest to the unwary buyer that their consumption will in some way mimic the effects caused by smoking marijuana. Because of the national trend throughout the United States to legalize the medical and/or recreational use of marijuana, the association with marijuana-related chemicals is thought to encourage the popularity of these illegal substances and the misconception that Spice, K2-like and related drugs are harmless and maybe even therapeutic. Nothing can be further from the truth. In fact, these designer synthetics often are much more powerful and toxic than THC (the natural ingredient in marijuana), and more potentially dangerous because much of their pharmacology and toxicology is unknown. An additional complication is the lack of consistency in the production of these cannabinoid rip-offs. Even though the packages are very colorful and appear to be high tech, there is no quality control or standardization; thus, there have been many reports of dangerous side effects such as hypertension, a

racing heart, agitation, paranoia, psychosis, seizures and nausea and vomiting. When the Spice and K2 substances first appeared in the United States in 2008 they were sold over-the-counter in convenience stores, truck stops and smoke shops because the ingredients were basically unknown and not prohibited. After 2-4 years several states passed "designer" laws banning the sales of these synthetic cannabinoids. Despite this effort, prosecuting the sellers of these drugs was next to impossible because when one of these drugs was identified and outlawed, the store owner quickly replaced it with a substitute chemical with a minor structural change. This modified substance was technically legitimate until dangerous side effects were identified and reported to law enforcement.

It is estimated that ~4% of the population in the United States, mostly males, has tried Spice/K2 substances, many of which are laced with other unknown toxic chemicals. These products often consist of dried herbs that have been sprayed by the cannabinoid-related chemicals which are either rolled into joints or smoked in pipes like typical marijuana. Sometimes the designer chemicals are even added to foods or tea and consumed orally.



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Watson, S. (2018, September). K2/Spice: What to know about these dangerous drugs. *WebMD*. Retrieved from [www.webmd.com/mental-health/addiction/news/20180910/k2-spice-what-to-know-about-these-dangerous-drugs](http://www.webmd.com/mental-health/addiction/news/20180910/k2-spice-what-to-know-about-these-dangerous-drugs)

• **Prescription for Abuse:** Current stories that illustrate the problems of prescription abuse and its consequences.



## ▶ POINT/COUNTERPOINT

### Who Should Know the Results of Your HIV Test If You Test Positive?

Most people would probably want to keep such results private, but would your opinion about HIV-positive people keeping their results confidential change in the following circumstances?

- You require first aid after a serious auto accident, and the emergency medical technician assisting is HIV positive.
- Your doctor is HIV positive.
- Your dentist is HIV positive.

the HIV-positive person, exposing an infected person to social ostracism and gossip and potentially creating fear and panic in others; and (4) potentially destroy a partner or marriage relationship if the significant other or spouse is notified.

Arguments for mandatory disclosure to others potentially affected by the results of this disease include (1) to protect domestic or marital partners, (2) to protect others from HIV-positive workers who could infect them (such as surgeons who are involved in invasive bodily care or procedures), and (3) to honor the public's right to know of the threat of contracting this terminal disease.

Currently, employers cannot legally terminate a

- **Point/Counterpoint:** Features that expose students to different perspectives on drug-related issues and encourage them to draw their own conclusions.

- **Key Terms:** Highlighted definitions of new terminology that are conveniently located on the same page as their discussion in the text.

## KEY TERMS

### **addiction**

generally refers to the psychological attachment to a drug; addiction to “harder” drugs such as heroin results in both psychological and physical attachment to the chemical properties of the drug, with the resulting satisfaction (reward) derived from using the drug in question

### **withdrawal symptoms**

psychological and physical symptoms that result when a drug is absent from the body; physical symptoms are generally present in cases of drug dependence to more addictive drugs such as heroin; physical and psychological symptoms of withdrawal include perspiration, nausea, boredom, anxiety, and muscle spasms

### **drug(s)**

any substance that modifies (either by enhancing, inhibiting, or distorting) mind or body functioning

### **licit drugs**

legalized drugs such as coffee, alcohol, and tobacco

### **illicit drugs**

illegal drugs such as marijuana, cocaine, and LSD

### **over-the-counter (OTC)**

legalized drugs sold without a prescription

## Learning Objectives

### On completing this chapter, you should be able to:

- › Explain how drug use is affected by biological, genetic, and pharmacological factors, as well as cultural, social, and contextual factors.
- › Develop a basic understanding of drug use and abuse.
- › Explain when drugs were first used and under what circumstances.
- › Indicate how widespread drug use is and who potential drug abusers are.
- › List four reasons why drugs are used.
- › Rank in descending order, from most common to least, the most commonly used licit and illicit drugs.
- › Name three types of drug users and explain how they differ.
- › Describe how the mass media promotes drug use.
- › Explain when drug use leads to abuse.
- › List and explain the stages of drug dependence.
- › List the major findings regarding drugs and crime.
- › Describe employee assistance programs, and explain their role in resolving productivity problems.
- › Explain the holistic self-awareness approach.

- **Learning Objectives:** Goals for learning are listed at the beginning of each chapter to help students identify the principal concepts being taught.

LEARNING PORTFOLIO	
<b>Key Terms</b>	
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<b>Discussion Questions</b>	
1. How does the concept of drug "potency" apply to the therapeutic use and abuse of drugs?	
2. How can drug interactions be both detrimental and beneficial? Give examples of each.	
3. Why would a drug with a relatively narrow margin of safety be approved by the Food and Drug Administration for clinical use? Give an example.	
4. What are possible explanations for the fact that you (for example) may require twice as much of a drug to get an effect as does your friend?	
5. Why might the blood-brain barrier prevent a drug from having abuse potential?	
6. Why would the consumption of a drug of abuse by a nursing mother be a problem for the infant? Give an example.	
7. Why do you think vaping of nicotine and THC in marijuana have become so popular so quickly?	
8. Contrary to your advice, a friend is going to spend \$20 on methamphetamine. What significance will the pharmacokinetic concepts of threshold, half-life, cumulative effect, and biotransformation have on your friend's drug experience?	
9. How would the factors of tolerance, physical dependence, rebound, and psychological dependence affect a chronic heroin user?	
10. Why would the lack of physical dependence on LSD for some drug abusers make it less likely to cause addiction than cocaine, which does cause physical dependence?	
<b>Summary</b>	
1. All drugs have intended and unintended effects. The unintended actions of drugs can include effects such as nausea, altered mental states, dependence, a variety of allergic responses, and changes in the cardiovascular system.	
2. Many factors can affect the way an individual responds to a drug: dose, inherent toxicity, potency, and pharmacokinetic properties such as the rate of absorption into the body, the way it is distributed throughout the body, and the manner in which and rate at which it is metabolized and eliminated. The form of the drug as well as the manner in which it is administered can also affect the response to a drug.	
3. Potency is determined by the amount of a drug necessary to cause a given effect. Toxicity is the ability of the drug to affect the body adversely. A drug that is highly toxic is particularly potent in terms of causing a harmful effect.	

- **Discussion Questions:** Provocative and engaging questions at the end of each chapter encourage students to discuss, ponder, and critically analyze their own feelings and biases about the information presented in the book.

- **Summary:** Concise summaries found at the end of each chapter correlate with the learning objectives.

Because of these unique features, we believe that this edition of *Drugs and Society* is particularly "user friendly," has the most current and accurate information available in a textbook, and will encourage student motivation and learning.

## Resources to Accompany *Drugs and Society, Fourteenth Edition*

*Navigate Advantage Access for Drugs and Society, Fourteenth Edition* is a complete, interactive online courseware solution combining authoritative

content with interactive tools, assessments, and grading functionality.

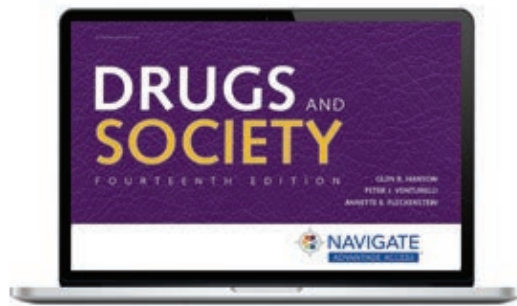
This online course combines a host of interactive activities to facilitate learning and allow students to check their progress using quizzes and assessments. Course setup is easy with the preplanned lessons and lecture outlines found within the platform. *Navigate* is flexible and allows instructors to customize content. Automatic grading saves time and provides on-demand analysis of how students are progressing in the course, allowing the instructor to tailor the teaching based on student needs. Other tools such as a built-in calendar, system email, and a robust grade book are also available within *Navigate*.

With *Navigate Advantage Access*, students can immediately evaluate their understanding of important concepts and objectives by easily toggling between textbook narrative, activities, and assessments. This enables them to process, synthesize, and retain course concepts in less time through rich media content.

*Navigate Advantage Access for Drugs and Society, Fourteenth Edition* includes the following:

- An interactive, animated eBook with personalization tools such as highlighting, bookmarking, and notes
- Student resources, including a full study guide separated by chapter, a course glossary, slides

in PowerPoint format, discussion questions, and more!





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