

Raymond Goldberg • Pardess Mitchell



DRUGS

ACROSS THE

SPECTRUM

8th
EDITION

Commonly Abused Drugs

Examples of <i>Commercial</i> and Street Names		DEA Schedule*/ How Administered**	<i>Intoxication Effects/Potential Health Consequences</i>
Cannabinoids			
hashish	boom, chronic, gangster, hash, hash oil, hemp	I/swallowed, smoked	<i>euphoria, slowed thinking and reaction time, confusion, impaired balance and coordination/cough, frequent respiratory infections; impaired memory and learning; increased heart rate, anxiety; panic attacks: tolerance, addiction</i>
marijuana	blunt, dope, ganja, grass, herb, joints, Mary Jane, pot, reefer, sinsemilla, skunk, weed	I/swallowed, smoked	
Depressants			
barbiturates	<i>Amytal, Nembutal, Seconal, Phenobarbital</i> ; barbs, reds, red birds, phennies, tooies, yellows, yellow jackets	II, III, V/injected, swallowed	<i>reduced anxiety; feeling of well-being; lowered inhibitions; slowed pulse and breathing; lowered blood pressure; poor concentration/fatigue; confusion; impaired coordination, memory, judgment; addiction; respiratory depression and arrest, death</i> <i>Also, for barbiturates—sedation, drowsiness/ depression, unusual excitement, fever, irritability, poor judgment, slurred speech, dizziness, life-threatening withdrawal</i>
benzodiazepines (other than flunitrazepam)	<i>Ativan, Halcion, Librium, Valium, Xanax</i> ; candy, downers, sleeping pills, tranks	IV/swallowed, injected	<i>for benzodiazepines—sedation, drowsiness/ dizziness</i>
flunitrazepam***	<i>Rohypnol</i> ; forget-me pill, Mexican Valium, R2, Roche, roofies, roofinol, rope, rophies	IV/swallowed, snorted	<i>for flunitrazepam—visual and gastrointestinal disturbances, urinary retention, memory loss for the time under the drug’s effects</i>
GHB***	<i>gamma-hydroxybutyrate</i> ; G, Georgia home boy, grievous bodily harm, liquid ecstasy	I/swallowed	<i>for GHB—drowsiness, nausea/vomiting, headache, loss of consciousness, loss of reflexes, seizures, coma, death</i>
methaqualone	<i>Quaalude, Sopor, Parest</i> ; ludes, mandrex, quad, quay	I/injected, swallowed	<i>for methaqualone—euphoria/depression, poor reflexes, slurred speech, coma</i>
Dissociative Anesthetics			
ketamine	<i>Ketalar SV</i> ; cat Valiums, K, Special K, vitamin K	III/injected, snorted, smoked	<i>increased heart rate and blood pressure, impaired motor function/memory loss; numbness; nausea/ vomiting</i> <i>Also, for ketamine—at high doses, delirium, depression, respiratory depression and arrest</i>
PCP and analogs	<i>phencyclidine</i> ; angel dust, boat, hog, love boat, peace pill	I, II/injected, swallowed, smoked	<i>for PCP and analogs—possible decrease in blood pressure and heart rate, panic, aggression, violence/ loss of appetite, depression</i>

*Schedule I and II drugs have a high potential for abuse. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use; Schedule II drugs are available only by prescription (unrefillable) and require a form for ordering. Schedule III and IV drugs are available by prescription, may have five refills in 6 months, and may be ordered orally. Most Schedule V drugs are available over-the-counter.

**Taking drugs by injection can increase the risk of infection through needle contamination with staphylococci, HIV, hepatitis, and other organisms.

Source: National Institute on Drug Abuse, 2004. www.drugabuse.gov

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DRUGS ACROSS THE SPECTRUM

8th EDITION



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Australia • Brazil • Mexico • Singapore • United Kingdom • United States

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CONTENTS

Preface	ix
About the Authors	xii

CHAPTER 1

Drugs in Perspective 1

Drug Misuse	4
Drug Abuse	4
Reasons for Drug Use	6
Experimentation	7
Pleasure/Escape from Boredom	7
Peer Influence	8
Spiritual Purposes	9
Social Interaction	10
Rebelliousness	11
Drug Dependency Versus Drug Addiction	12
Theories of Drug Addiction	14
Personality Theories	14
Reinforcement Theory	15
Biological Theories	16
Genetic Theory	16
Metabolic Imbalance	16
Social Theories	16
Mass Media and Drugs	17
Advertisements	17
Summary	17

CHAPTER 2

Impact of Drugs in Society 19

The Prevalence of Drug Use	20
The Impact of Drug Use and Abuse	21
Impact of Drug Use and Abuse on the Family	21
Impact of Drug Use and Abuse on Society	23
Drugs from a Social Perspective	25
Patterns of Drug Taking	25
Experimental Use	25
Social-Recreational Use	25
Circumstantial-Situational Use	26
Intensified Use	26
Compulsive Use	26
Extent of Drug Use	27
National Survey on Drug Use and Health	27
Monitoring the Future: National Results on Adolescent Drug Use—Overview of Key Findings, 2014	38
Drug Abuse by Older Adults	31
Drugs in the Workplace	32
Employee Assistance Programs	33

Drug Testing	34
Testing of Public Assistance Recipients	35
Testing of Athletes	36
Methods of Drug Testing	36
Legality of Drug Testing	38
Consequences of Drug Use	38
Drugs and Deviant Behavior	38
Drugs, Education, and Employment	39
Drug Toxicity	40
Drug Abuse Warning Network	40
Summary	41

CHAPTER 3

Drugs and the Law 43

Early Drug Regulations	44
Significant Laws	45
Pure Food and Drug Act of 1906	45
Harrison Act of 1914	46
Marijuana Tax Act of 1937	46
Food, Drug, and Cosmetic Act of 1938	48
Kefauver–Harris Amendments	49
Comprehensive Drug Abuse Prevention and Control Act of 1970	49
Anti-Drug Abuse Act	50
College Students and Drug Convictions	52
Legal Issues	52
Drug Paraphernalia	52
The War on Drugs	53
The Drug Business	54
Drug Enforcement	57
Racism and Drug Enforcement	57
Mandatory Minimum Drug Sentencing	59
Legislation	59
Con Arguments	59
Pro Arguments	60
Prevention	61
Summary	62

CHAPTER 4

The Pharmacology and Physiology of Drug Use 63

Pharmacology	64
Drug Actions	65
The Neuron	65
Neurotransmitters	66
Acetylcholine	67
Serotonin	67

Gamma-aminobutyric Acid	68
Catecholamines	68
Peptides	70
The Central Nervous System	70
Reticular Activating System	71
Hypothalamus	71
Cerebral Cortex	72
Limbic System	72
Medial Forebrain Bundle	72
Basal Ganglia	73
Periventricular System	73
Brain Stem	73
The Peripheral Nervous System	74
Somatic Nervous System	74
Autonomic Nervous System	74
Drugs and Major Body Systems	74
Endocrine System	74
Cardiovascular System	75
Respiratory System	75
Gastrointestinal System	75
Factors Influencing the Effects of Drugs	76
Age	76
Gender	76
Dosage	77
Purity and Potency	78
Drug Interactions	78
Tolerance	80
Pharmacological Tolerance	80
Behavioral Tolerance	81
Cross-Tolerance	81
Reverse Tolerance	81
Set and Setting	81
Methods of Administration	82
Oral Ingestion	82
Injection	82
Intravenous Injection	83
Intramuscular Injection	83
Subcutaneous Injection	83
Topical Application	83
Inhalation	83
Summary	83

CHAPTER 5

Synthetic, Performance-Enhancing, and Other Drugs 85

Designer Drugs	86
Synthetic Cathinone (AKA: Bath Salts)	87
Synthetic cannabinoids	88
BZP (Benzylpiperazine)	89
Fentanyl	89
Meperidine	91
MDMA	91

Performance-Enhancing Drugs	94
Anabolic Steroids	95
Human Growth Hormones and Erythropoietin	97
Creatine	98
Tetrahydrogestrinone	99
Androstenedione (Andro)	99
Stimulants	100
Depressants	101
Summary	101

CHAPTER 6

Alcohol 103

History of Alcohol Use in the United States	104
Colonial Times	104
Temperance Movement	106
Prohibition	107
Consequences of Prohibition	108
Economics	108
Loopholes	108
Crime	108
Current Alcohol Use	109
Social Drinkers	109
Problem Drinkers	109
Alcoholics	109
Factors Contributing to Alcohol Use	109
Cost	109
Neighborhood	110
Gender	110
Ethnicity	110
Sexual Orientation	111
Other Variables	111
Drinking on Campus	112
Drinking Among Older Adults	112
Alcoholic Beverages	113
Pharmacology of Alcohol	113
Effects of Alcohol	115
Alcohol and the Brain	115
Alcohol and the Liver	116
Alcohol and the Gastrointestinal Tract	117
Alcohol and the Cardiovascular System	117
Alcohol and the Immune System	118
Alcohol and Cancer	118
Fetal Alcohol Spectrum Disorders	118
Alcohol-Related Issues	120
Underage Drinking	120
Caffeinated Alcohol	121
Alcoholism	121
Withdrawal	123
Causes of Alcoholism	124
Genetics	124
Psychosocial Factors	125
Culture	126

Alcohol and Society	126
Automobile Accidents	127
Accidents	128
Suicide	128
Family Violence	128
Children of Alcoholics	129
Summary	129

CHAPTER 7

Tobacco 131

History of Tobacco Use	133
Tobacco in the American Colonies	133
Mechanization and Marketing	133
Opposition and Escalation	134
Costs of Smoking	134
Extent of Tobacco Use	134
Demographics of Smoking	137
Women and Smoking	138
Smokeless Tobacco	139
Snus	140
Tobacco Use in Other Countries	140
Clove Cigarettes and Bidis	141
Light Cigarettes	142
Cigars	142
Hookah	143
Electronic Cigarettes	143
Characteristics of Smoking and Smokers	144
Nicotine and Performance	144
Tobacco Use by Young People	144
Factors associated with youth tobacco use	144
Social and physical environments	144
Biological and genetic factors	145
Mental health	145
Personal perceptions	145
Other influences	145
Youth Tobacco Prevention Efforts	146
Nicotine Tolerance and Dependence	146
Symptoms of Withdrawal	147
Pharmacology of Tobacco	147
Physical Effects on the Individual	148
Heart Disease and Strokes	148
Respiratory Diseases	149
Cancer	149
The Impact of Smoking During Pregnancy	150
Tobacco and Physical Activity	151
Passive Smoke	151
Effects on Nonsmokers	151
Effects on Children of Smokers	152
Rights of Smokers Versus Nonsmokers	152
Antismoking Legislation	152
The Master Settlement Agreement	154
Cessation Techniques	154
Nicotine Gum and Lozenges	155

Nicotine Patches	155
Nicotine Inhalers	156
Drug Therapy	156
Aversive Techniques	156
Behavior Modification	156
Hypnosis	157
Acupuncture	157
Summary	157

CHAPTER 8

Narcotics 159

Extent of Narcotic Use	161
Use in the United States	161
Worldwide Comparison	163
Characteristics of Narcotics	163
Opium	163
Morphine	164
Heroin	164
Fentanyl, Methadone, and Other Synthetic Opiates	165
OxyContin	166
Physical and Psychological Effects	166
Physical Effects	167
Emotional and Social Effects	167
Needle-Exchange Programs	168
Dependency	169
Toxicity	170
Medical Benefits	170
Analgesia	170
Gastrointestinal Difficulties	170
Cough Suppressant	171
Treatment and Support Groups	171
Detoxification	171
Narcotic Antagonists	171
Methadone and Other Treatments	172
Narcotics Anonymous	173
Summary	173

CHAPTER 9

Sedative-Hypnotic Drugs 175

Barbiturates	176
Types of Barbiturates	177
Effects of Barbiturates	177
Potential Hazards	178
Medical Uses	178
Nonbarbiturate Sedatives	179
Chloral Hydrate	179
Paraldehyde	179
Bromides	180
Meprobamate	180
Methaqualone	180
Misconceptions	180
Effects	181

Minor Tranquilizers	182
Benzodiazepines	182
Effects of Benzodiazepines	183
Short-term Effects	183
“Date Rape” Drugs	184
Rohypnol	184
Gamma-Hydroxybutyrate	185
Ketamine	186
Inhalants	187
Indications of Inhalant Abuse	187
Volatile Solvents	187
Aerosols	188
Gases	188
Nitrite Inhalants	189
Summary	190
CHAPTER 10	
Psychotherapeutic Drugs	191
Understanding Mental Illness	192
Mental Illness and Medicine	193
Mental Illness and Special Populations	193
Mental Disorders and Substance Abuse	194
Types of Disorders	194
Neurosis	194
Psychosis	195
Mood Disorders	195
Treatment of Mental Illness Before 1950	198
Demographics of Drugs and Mental Disorders	198
Mood Stabilizers	198
Antidepressants	198
Monoamine Oxidase Inhibitors	199
Tricyclic Antidepressants	200
Effectiveness	201
Side Effects	201
Toxicity	201
Selective Serotonin Reuptake Inhibitors	202
Prozac	202
Zoloft	203
Paxil	203
Lexapro	204
Atypical	204
SNRIs	204
Lithium	205
Effectiveness	205
Side Effects	206
Toxicity	207
Antipsychotic Drugs	207
Children and Antipsychotic Drugs	208
Effectiveness	208
Side Effects	208
Psychotherapeutic Drug Abuse	209
Summary	209

CHAPTER 11	
Stimulants: Cocaine, Amphetamines, Methamphetamines, and Caffeine	211
Cocaine	212
Background	212
Properties	213
Mode of Intake	213
Historical Use	213
Current Use	214
Crack	215
Effects	216
Physical Consequences	217
Psychological Effects	218
Dependence	219
Death from Cocaine	220
Cocaine and Pregnancy	221
Amphetamines	222
Early Applications	222
Pharmacology	222
The Amphetamine Trade	223
Consequences of Amphetamine Use	224
Methamphetamines	224
Clandestine Methamphetamine Laboratories	225
Methamphetamine’s Effects	225
Ritalin and Adderall	226
Caffeine	228
High-Energy Caffeinated Beverages	228
Pharmacology	229
Properties and Risks	229
Effects of Caffeine	230
Decaffeinated Coffee	230
Caffeinism	230
Summary	231

CHAPTER 12	
Marijuana	233
Characteristics	234
Species and Forms of Marijuana	235
Points of Origin	236
Indoor Cultivation	237
Extent of Use	237
Pharmacology of Marijuana	238
Methods of Administration	238
Lungs	238
Oral	239
Skin	239
Tolerance	239
Physical Dependence	240
Psychological Dependence	240

Effects of Marijuana Use	240
Behavioral Effects	241
Psychological Effects	242
Perceptual Effects	242
Cognitive Effects	243
Amotivational Syndrome	244
Physical Effects	244
Oral and Gastrointestinal	244
The Respiratory System	244
The Cardiovascular System	245
The Immune System	245
The Reproductive System	245
The Brain	246
Medical Applications	246
Glaucoma	247
Nausea and Vomiting	247
Asthma	247
Epilepsy	248
Autoimmune Diseases	248
Additional Medical Uses	248
Decriminalization and Legalization	248
Legalization of Marijuana for Medical Uses	250
Cost	251
Crime and Violence	251
Summary	252

CHAPTER 13

Hallucinogens 255

Terminology	256
The Origin of Hallucinogens	257
The Search for Hallucinogens	257
Amanita muscaria	257
Saint Anthony's Fire	258
Review of Major Hallucinogens	258
Classic Hallucinogens	259
LSD	259
LSD and Mental Health	261
LSD and Creativity	263
The US Experience	263
LSD and Government Experiments	263
LSD and the US Culture	263
Peyote	264
Psilocybin	265
Anticholinergic Hallucinogens	267
Belladonna	267
Datura	268
Mandrake	268
Nutmeg and Mace	269
Dissociative Hallucinogens	270
Salvinorin A	270
Dimethyltryptamine	271
Phencyclidine Hydrochloride	271

Early Use	271
Illegal Use	271
Effects	272
Ketamine	273
Summary	273

CHAPTER 14

Over-the-Counter Drugs 275

Over-the-Counter Drug Market	276
Regulating Over-the-Counter Drugs	277
Generic Versus Brand-Name Drugs	277
Categories of Over-the-Counter Drugs	278
Herbal Drugs	278
Analgesics	279
Aspirin	280
Acetaminophen	282
Ibuprofen	283
Naproxen Sodium and Ketoprofen	284
Cold and Allergy Drugs	284
Antihistamines	285
Cough Medicines	286
Decongestants	287
Antacids	287
Sodium Bicarbonate	287
Calcium Carbonate	287
Salts of Magnesium and Aluminium	287
H2 Blockers and PPIs	288
Sleep Aids and Sedatives	288
Over-the-Counter Stimulants	289
Weight-Loss Aids	289
Orlistat	289
Phenylpropanolamine and Benzocaine	290
Being a Smart Consumer	290
Summary	291

CHAPTER 15

Substance Abuse Treatment 293

Underlying Causes of Drug Abuse	294
Drug Courts	296
Profile of the Drug Abuser	296
History of Treatment	296
Current Treatment Options	298
Treatment Programs	299
Inpatient Treatment	301
Outpatient Treatment	301
Cognitive-Behavioral Therapy	302
Family Therapy	302
Motivational Enhancement Therapy (MET)	303
Contingency Management	303
Self-Help Groups	304
Narcotics Anonymous	304

Alcohol Treatment	305	At-Risk Factors	326
Alcoholics Anonymous	305	Hereditary and Familial Factors	326
Moderate Drinking	308	Peer Influence	327
Medications	309	Psychosocial Factors	328
Disulfiram (Antabuse)	309	Biological Factors	328
Naltrexone	309	Community Factors	328
Acamprosate	309	Preventing High-Risk Behavior	328
Methadone Maintenance	310	Education	329
Treatment Issues	311	Role of Parents	329
Voluntary Versus Compulsory Treatment	311	Community Efforts	330
Matching Patients and Treatments	312	Drug Education	330
Treating Adolescent Drug Abusers	312	The Evolution in Drug Education	330
Women and Treatment	312	Values Clarification	330
Problems Associated with Treatment	314	Alternatives Approach	331
Client Resistance to Treatment	314	A Change in Direction	331
Community Resistance	314	Current Programs	331
Relapse	314	Limitations of Drug Education	331
Personnel Recruitment and Retention	316	Goals of Drug Education	332
Benefits of Treatment	316	One-Size-Fits-All Drug Education	332
Summary	317	Current Approaches to Drug Education	333
 		Personal and Social Skills Training	333
CHAPTER 16		Social Norms Approach	334
Drug Prevention and Education	319	Resistance Skills Training	334
Funding Drug Prevention	320	Drug Prevention Programs	334
Drug Abuse Prevention	321	Drug Abuse Resistance Education	335
Drug Prevention in Retrospect	321	Just Say No!	335
Effectiveness of Prevention Programs	322	Effectiveness of Drug Education	336
Goals of Drug Prevention	323	Health Education	337
Levels of Drug Prevention	324	Red Ribbon Certified Schools	337
Primary Prevention	324	Peer Programs	337
Secondary Prevention	324	Summary	338
Tertiary Prevention	324	 	
Behavioral Health Continuum of Care Model	325	Glossary	339
Identifying High-Risk Youths	325	 	
Resilient Children	325	Index	345

PREFACE

Mind-altering substances have had a profound effect on society ever since humans first roamed the planet. The goal of this book is to impart an understanding of drugs and their impact on individuals, families, communities, and society. In addition to providing a thorough review of illicit drugs, the book devotes much attention to licit, or legal, drugs. This focus is pertinent because drugs such as tobacco and alcohol account for far more deaths and disabilities than do illicit drugs. Also, millions of people use prescribed and over-the-counter drugs that are potentially harmful. This book also covers performance-enhancing drugs such as anabolic steroids because of their increased use in the past decade.

Unlike some texts, *Drugs Across the Spectrum* goes beyond the presentation of abstract concepts and impersonal information to examine issues that warrant personal reflection. One goal of *Drugs Across the Spectrum* is to make the information relevant to the reader. It is understood that no one is immune from the effects of drug use. People face decisions about their own drug use and drug use by family members and friends. Societal effects and public policy are also areas that require knowledge on which to base responsible decisions.

Organization

Drugs Across the Spectrum is divided into three parts. The first five chapters, Chapters 1 to 5, provide an overall view, including a historical perspective, the motivations for drug use, social implications of drug use, legal ramifications, and factors affecting how drugs interact with the human body. Chapters 6 through 14 focus on specific categories of drugs, exploring their psychological and physiological effects. The final chapters, Chapters 15 and 16, critically examine treatment and prevention, including various modes of drug treatment, the effectiveness of drug treatment, and the impact of education and prevention in addressing problems caused by drug use, misuse, and abuse.

Notable Changes in This Edition

The science of drugs continues to evolve, as new ways to study addiction help us understand the impact of drugs and drug dependence. Designer drugs continue to arise in society of which their popularity

continues to change as new drugs replace older ones on the market. This edition includes updated information on designer drugs such as kratom and flakka.

Moreover, as the landscape regarding drug use continues to change, this edition contains current references regarding drug use and includes recent studies of drug use.

Furthermore, this edition contains updated case studies with including high profile media profiles. New figures and tables were added with questions to help students think about the data presented and encourage students to interpret data (quantitative literacy).

For all chapters and highlights, we have:

- Added a “Consider this” for each chapter
- Added relevant case studies in each chapter
- Created several new figures and tables and revised others to enhance learning
- Revised chapter objectives to reflect different levels of learning based on Bloom’s Taxonomy
- Expanded on ‘Cultural Considerations’ using Gloria Ladson-Billing’s (2009) principles of culturally relevant pedagogy to enhance students’ development of cultural competence
- Added questions throughout the text to promote critical thinking skills among students

Chapter 1

- Took out short histories for each drug and placed them in the chapter pertaining to that drug
- Added section about motivations for drug use
- Added section on theories of addiction
- Updated text on biological risk factors for drug dependence

Chapter 2

- Updated all data from Monitoring the Future and National Survey on Drug Use and Health
- Presented new figures from National Survey on Drug Use and Health
- Added more information on the impact of drugs on the family using updated references
- Added a section on the online drug trade
- Expanded section on public assistance and drug testing
- Added figures with questions to promote interpretations of graphical data
- Took out section on designer drugs and the drug business (added in chapter 3)

Chapter 3

- This chapter discusses drug laws (previously in chapter 4)
- Added section on the business of drugs (previously in chapter 2)
- Added relevant case study on marijuana with questions to ponder
- Expanded and updated section on drug paraphernalia including major cases portrayed in the media
- Expanded and added relevant information on racial considerations

Chapter 4

- Updated information on neurotransmitters
- Added case studies relevant to the study of neurotransmission
- Discussed how pleasure derived from drugs and pleasure derived from food are different
- Updated statistics on age and drug use
- Updated and added information on the different ways drugs are metabolized by gender and race/ethnicity
- Added a case study on ethnicity and in the effects of drugs

Chapter 5

- Chapter on designer, synthetic and performance enhancing drugs
- Included a history of designer drugs
- Added section on designer drugs with updated references including media headlines regarding its use
- Expanded information on performance enhancing drugs with updated statistics and trends
- Added drug business section with updated trends including high profile cases (i.e. El Chapo, Rodrigo Duterte (Philippine's President))

Chapter 6

- Updates all statistics regarding alcohol consumption trends
- Added section on the consequences of prohibition
- Updated and included information on the impact of heavy alcohol use on the brain
- Updated and included additional information regarding the factors that contribute to alcoholism
- Included new DSM V criteria for alcohol use disorder

Chapter 7

- Updated all statistics regarding tobacco use
- Updated new cultural considerations with questions for students to ponder

- Updated new on Campus box regarding smoke-free campus policies
- Added section on electronic cigarettes
- Added section on using tobacco from a hookah

Chapter 8

- Updated statistics on narcotic use
- Updated section on the use of naloxone
- Updated section on NEPs
- Added relevant case studies

Chapter 9

- Added section on Ketamine
- Added case study on date rape drugs on campus
- Changed classification of inhalants to gases, nitrites, volatile solvents, and aerosols
- Added case study on the use of sleeping aids
- Updated statistics on use of sedative hypnotics

Chapter 10

- Added section on mental disorders and substance abuse
- Expanded on comorbidity and dual diagnoses

Chapter 11

- Added section on cocaine's impact on neurotransmitters
- Updated cocaine treatment section

Chapter 12

- Updated State laws regarding medical and recreation marijuana use
- Updated current research regarding therapeutic benefits of marijuana
- Expanded on current conditions that may benefit from marijuana use
- Updated guidelines from National Academies of Science, Engineering, and Medicine

Chapter 13

- Expanded on research regarding the therapeutic benefits of psilocybin and LSD.
- Added case studies and historical contexts for hallucinogenic drugs

Chapter 14

- Expanded section on cold and cough medicine abuse on college campuses
- Presented arguments for and against changing RX medications to OTC
- Expanded section on herbal supplements including research regarding the actual contents of these medicines

Chapter 15

- New tables were created highlighting similarities between substance abuse treatment and chronic disease treatment
- Presented an argument how relapse is a natural progression of treatment, using examples from chronic disease models
- Expanded on types of outpatient therapies used for treatment including benefits of each type.
- Added a case student regarding the arrest of a drug using pregnant women

Chapter 16

- Added principles of an effective substance abuse prevention program
- Added information on Red Ribbon Certified Schools

Features

- Chapter objectives at the beginning of each chapter put the content into a meaningful framework.
- Color photos, illustrations, and tables reflect the latest drug statistics and trends.
- “Thinking Critically” questions at the end of each chapter promote critical thinking and stimulate classroom discussion.
- “Cultural Considerations” boxes in each chapter provide key information about how drug use, drug abuse, and legal penalties vary between ethnic groups, age groups, and nations.
- “On Campus” boxes in each chapter focus on facts and statistics that are relevant to college students.
- Each chapter includes “Fact or Fiction?” questions that enable readers to examine their beliefs and possible misconceptions about various drugs.
- Key terms are highlighted and defined as they are discussed in the text to give readers easy access to the meaning of vocabulary essential to their understanding.
- A brief summary concludes each chapter.
- Web resources at the end of each chapter have been thoroughly updated and include brief descriptions to direct readers to specific information related to chapter topics.

Ancillaries

The following ancillaries have been developed to support the printed textbook:

- **Instructor’s Manual:** Contains chapter outlines, discussion questions, lecture outlines and select activities.

- **Test Bank:** Powered by Cengage, the test Bank is a flexible, online system that allows instructors to author, edit, and manage test bank content from multiple Cengage Learning solutions; create multiple test versions in an instant; and deliver tests from your Learning Management System (LMS), your classroom, or anywhere you want.
- **PowerPoint Presentation: Includes materials from** each chapter that can be customized for use in the classroom.
- **Drugs Across the Spectrum MindTap:** Drugs Across the Spectrum MindTap brings course concepts to life with interactive learning, study, and exam preparation tools that support the printed textbook. The MindTap includes an interactive eReader, and interactive teaching and learning tools including quizzes, flashcards, and more. It also contains built in metrics tools that monitors student engagement in the course.

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—Raymond Goldberg and Pardess Mitchell

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1

Drugs in Perspective

Chapter Objective

After completing this chapter, the reader should be able to:

- Describe how drug use, misuse, and abuse differ
- Characterize protective and risk factors
- Compare and contrast environmental and biological risk and protective factors
- Explain the reasons people take drugs
- Analyze the influences of drug use
- Compare and contrast drug dependency and drug addiction
- Define and describe the theories of drug addiction

Drugs have played an integral role throughout history.

FACT OR FICTION?

1. The most common drug for which people aged 50 and older receive treatment is alcohol.
2. The use and abuse of drugs is a recent phenomenon.
3. The elderly are less likely to misuse drugs compared to younger adults.
4. Drug abuse can cause one to develop a mental illness.
5. One-third of all emergency room visits were attributed to pharmaceutical drugs.
6. Drug awareness programs at schools (such as D.A.R.E.) raise a child's curiosity regarding drug use.
7. Less than half of all high school students have used alcohol in the past year.
8. Adolescents that use alcohol before the age of 15 are more likely to become alcohol dependent as an adult.
9. European, American, and Chinese adolescents are more likely to be influenced by peers in their drug use behaviors compared to African American adolescents.
10. Religious groups in the United States are not permitted to use illicit drugs for religious ceremonies.

Turn the page to check your answers

The use and abuse of drugs have always played a role in society. Archaeological evidence suggests that as early as the fourth millennium BC, people were consuming alcohol. People coming together to drink alcohol is an activity that has remained constant throughout history. Images of drinking scenes, from the fourth millennium BC, have been uncovered and imply the use of alcohol has been around almost as long as people have.¹ The use of **drugs** in prehistoric times is not limited to alcohol. Societies have been using mind-altering substances (i.e., hallucinogens) for spiritual and healing purposes.²

Drug use and **drug abuse** continue to impact society. It is estimated that illicit drugs cost the United States more than \$700 billion annually.³ The cost of crime, lost work productivity, and healthcare are taken into account when determining the cost of **illicit drug**

use in the United States. Drug use impacts everyone in society, not just users, but nonusers as well.

A historical perspective on drugs provides insight into the role that drugs have played over time. We also can benefit from a common understanding of what the terms **drug**, **drug misuse**, and **drug abuse** mean. Many factors affect how these words are defined. Is a substance defined as a drug according to its behavioral effects, pharmacological effects, effects on society, or chemical makeup? If drugs are viewed as only illegal or menacing substances, we may not acknowledge substances such as caffeine and tobacco as drugs. If caffeine and tobacco are not considered drugs, one may think they cannot be misused or abused because only illegal drugs are misused or abused. Or a person may grow up thinking that any drug use, from aspirin to nasal decongestants, is unacceptable. If someone takes three aspirins a day, is he or she misusing or abusing drugs? What if a person has a glass of beer with dinner and a glass of wine each night before going to bed? What about the use of hallucinogenic drugs to enhance a person's spirituality? The Native American Church uses the hallucinogen peyote in a spiritual context but not recreationally.⁴ Our attitudes regarding drug use are shaped not only by our own experiences with drugs, but also by our motivations for taking drugs.

Although definitions for the word drug are numerous, there is no legal definition. **Drugs** therefore can be defined as any substance when taken in the body that alters the structure and function of the body. This definition excludes food substances. Could foods be included as drugs? If you have ever seen a small child hyped up on sugar, you may come

CONSIDER This

Drug abuse impacts nonusers. Think of ways drug abuse would impact the following people:

- A mother to a college-age person who is abusing alcohol
- An older sibling to a high school age person who is smoking marijuana
- A spouse to a person who is abusing pain medication
- A child to an alcoholic parent

FACT OR FICTION?

1. **FACT** Among people aged 50 and older, almost 60% receive treatment for alcohol abuse.
2. **FICTION** The fact is—Images of drinking scenes have been discovered from the fourth millennium BC.
3. **FICTION** The fact is—Almost 20% of the elderly combine alcohol with prescription medication
4. **FICTION** The fact is—while there is a relationship between drug abuse and mental illness, it is unclear whether drug abuse can cause a mental illness.
5. **FACT** Pharmaceutical drugs were attributed to one-third of all of emergency room visits.
6. **FICTION** The fact is—Many of the drug awareness programs that include ex-drug addicts and police officers raise children's curiosity about drugs and may result in increased experimentation.
7. **FICTION** The fact is—Over half of all high school student reported using alcohol in the past year.
8. **FACT** The younger a person is when they use alcohol, the more likely they will develop alcohol dependency as an adult.
9. **FACT** Studies have shown African American adolescents are less influenced by their peer drug use compared with European, American, and Chinese adolescents.
10. **FICTION** The fact is—Some religious groups are given special permission to use psychedelic drugs in their religious ceremonies. The Native American Church has been permitted to use peyote as part of their religious ceremony.

CASE STUDY: Sugar

IS SUGAR A DRUG?

Almost two decades ago, researchers looked at the impact of sugar on babies (aged 9–12 weeks). Do babies have a preference for sugary substances and how can one measure these preferences? It may surprise you to discover that babies are impacted by sugary substances and develop a preference for those people who deliver that sugary substance (think sugar dealer). Researchers gave babies a sugary substance while staring into their eyes. They discovered that babies then developed a preference for the people who supplied their sugary substance. This became clear when a group of strangers and the sugar-dealing researcher entered the room while the mom was holding the baby. The babies' gaze was analyzed and it was found that the babies had a preference for the sugar-dealing researcher over the stranger.¹

Almost a decade later, researchers conducted a study on rats to determine if they have a preference for sugary substances. The researchers used Oreos as their sugary substance. They discovered that rats formed equal preferences for eating Oreos as they did for cocaine or morphine. To make matters more interesting, they also found

that eating Oreos activated more neurons in the brain's pleasure center than the drugs heroin and cocaine.^{2,3}

HOW WOULD YOU MAKE THE ARGUMENT THAT SUGAR IS A DRUG?

Think back on the definition of a drug. How would you make the argument that sugar is not a drug?

1. Elliot M. Blass, Carole A. Camp, "The Ontogeny of Face Recognition: Eye Contact and Sweet Taste Induce Face Preference in 9 and 12 week-old Human Infants," *Developmental Psychology* 37, no 6 (2001), 762–774.
2. Simon McCormack, "Oreos more Addictive than Cocaine? Study shows Cookies might produce more Pleasure than Coke in Rats." *Huffington Post*. October 18, 2013. Available at: http://www.huffingtonpost.com/2013/10/17/oreos-more-addictive-than-cocaine_n_4118194.html.
3. Connecticut College, "Student-faculty research suggests Oreos can be compared to Drugs of Abuse." *Connecticut College News Archive*. Available at: 2016, <https://www.conncoll.edu/news/news-archive/2013/student-faculty-research-suggests-oreos-can-be-compared-to-drugs-of-abuse-in-lab-rats.html#.VUL-iTA24o>

to believe sugar is a drug. There are many parents who take actions to limit the amount of sugar given to their children to avoid such behavior. Many people crave ice cream and chocolate to cope with unpleasant experiences or simply to raise their spirits. Should these be considered drugs? Are they used differently from many substances identified as drugs?

One definition of **psychoactive drugs** is "substances that act to alter mood, thought processes, or behavior, or that are used to manage neuropsychological illness."⁵ These substances can be used recreationally, medically, illegally, or legally. The legality of drug use depends on many factors that change over time and can change situationally. Consider a person who is over 21 who drinks a glass of wine with dinner. Compare this to a person who is under 21 who drink a glass of wine with dinner. In the first instance, this would be considered a legal recreational behavior, whereas in the second instance it would be considered an illegal recreational behavior. The only difference in the two examples is age, which in the United States, is a factor that defines when a person

can legally consume alcohol. What about a person who occasionally uses illicit drugs without major detriment to one's health? Is it possible for a person to be a responsible illicit drug user? Can one use a drug in a way to minimize risk? Imagine a successful business person who uses cocaine occasionally when out with friends. Could this be considered responsible use?

drug Any substance that alters one's ability to function emotionally, physically, intellectually, financially, or socially

drug misuse The unintentional or inappropriate use of prescribed or over-the-counter drugs

drug abuse The intentional and inappropriate use of a drug resulting in physical, emotional, financial, intellectual, or social consequences for the user

illicit drugs use Illegal drug use

psychoactive drug Any substance that has the capability of altering mood, perception, or behavior

Drug Misuse

Drug misuse refers to the unintentional or inappropriate use of prescribed or over-the-counter drugs. More information regarding the abuse of prescription drugs is elaborated on later in the text. One group especially vulnerable to drug misuse is the elderly.⁶ Although individuals aged 65 and older represent 13% of the population, this age group accounts for one-third of all medications prescribed.⁷ The elderly are more likely to be prescribed long-term medication and multiple prescriptions.⁸ The elderly population experiences higher rates of sleep disorders, pain, and anxiety, which results in higher use of medications. In fact, prescription drug misuse among the elderly is increasing.⁹ Almost 20% of older Americans combine the use of alcohol with medication.¹⁰ Alcohol can cause adverse effects when combined with either prescription or over-the-counter medication. This coupled with a declining cognitive function may result in improperly using the prescribed medication. Additionally, many of the elderly are on a fixed income and struggle to find ways to pay for their medication. As a result, they may not take the prescribed amount as a way to reduce costs.¹¹ Furthermore, this does not take into account the impact over-the-counter medicines many elderly take and how these impact drug interactions between the prescribed and nonprescribed medication. These older adults are more likely to experience negative effects of these drug interactions due to increased drug sensitivity and slower metabolisms.¹²

Drug misuse may result from not understanding a drug's effects. For example, if a student studies for a test and drinks alcohol to improve his or her study skills, the student is misusing alcohol because it does not improve learning. Misuse may arise from deluding oneself about one's purpose for using drugs. This is illustrated by a person who consumes five glasses of wine daily and says it is for spiritual purposes. Examples of drug misuse are the following:

- Discontinuing prescribed medicines against the physician's recommendation (discontinuing antibiotics once the symptoms of an illness disappear)
- Mixing drugs (some drugs, particularly depressants, can be fatal when consumed together)
- Consuming more of a drug than prescribed (if one pill or tablespoon is good, five is not five times as good!)
- Using more than one prescription at a time without informing the physician who wrote the prescription
- Saving or using old medications (the properties of drugs and their effectiveness change over time)

- Not following the directions for a drug; some drugs are ineffective when taken at certain times, such as after eating

Drug misuse has been a concern since the 1990s. There are several conditions present that make addressing issues of drug misuse particularly challenging, particularly in regards to treatment. Take, for example, the idea that prescription and over-the-counter medication have health benefits as well as risks for the user. How does one go about countering the impact of the negative consequences while maintaining the benefits received from these medications? Since many of the medications are over-the-counter and do not require a prescription, how does one go about gathering information to determine to what extent these medications are used and how misuse occurs? Lastly, there are few studies that have been done to characterize the factors that contribute to medication misuse.¹³

Drug Abuse

Drug abuse is the intentional and inappropriate use of a drug resulting in physical, emotional, financial, social, or intellectual consequences.¹⁴ In other words, harm caused from using drugs would be considered drug abuse. Drug use and drug abuse are not the same. Consider a person who drinks beer when going out with friends. If the person drinks responsibly, less than two drinks in a 3-hour period, the behavior would not be considered abuse. Take the same situation, but this time, the person overdrinks and has four



Jose Luis Pelaez, Inc./Blend Images/Getty Images

■ The elderly use more prescription and over-the-counter drugs than people in other age groups.

CASE STUDY: Protective and Risk Factors

Case Study-Protective and Risk Factors - adapted from: http://school.discoveryeducation.com/teachersguides/pdf/health/ds/rm_deadly_highs.pdf

SCENARIO 1

Allison is having a bad year. After years of not getting along, her parents had finally decided to get a divorce. While there was a lot of tension in the house, her parents were trying hard to be polite to each other and to be considerate of Allison's and her younger brother's feelings. Always a good student, Allison continued to find comfort in studying hard and getting good grades in school. Her best friend, Susie, had really been there for her, too. Every weekend Susie planned something fun for them to do by themselves or with other friends. Over the past several months, Allison and Susie have gone ice-skating on a regular basis, seen many movies, and gone bowling. Allison has also continued to play soccer on her school's team. Throughout the year, Allison has been able to talk to her parents about the pending divorce. Allison's parents have been willing to listen to her concerns and discuss her anger about this big change in her life. Allison feels really sad, but she knows she's going to be alright.

SCENARIO 2

Laura feels as if her life is falling apart. Her parents have just told her that they are getting a divorce. Although her parents haven't gotten along for

years, Laura has always hoped that they would find a way to stay together so they could continue to be a family. Instead, her parents don't seem to have any time to talk to her about her feelings. Laura always thought she had a few good friends, but she isn't feeling like she can turn to them now. Her friend Katy has a boyfriend, and she doesn't get a chance to see her soccer teammates much outside of games and practices. Laura has always been a good student, and she continues to complete her assignments on time. But she has noticed that it is becoming increasingly difficult to concentrate on her schoolwork. Because she is feeling lonely and isolated, Laura is considering going to a party with Katy. She has heard that some kids bring drugs to these parties. For that reason, she has always stayed away. Now, however, she thinks it might be a way to get out of the house and forget about her problems for a little while. It might be fun. Laura is thinking that unless something else happens so that her social life improves, she might just go.

Questions

1. Which girl do you think is more likely to use drugs? Why?
2. List Allison's protective and risk factors.
3. List Laura's protective and risk factors.
4. Based on the above scenarios, which protective factors do you feel are strongest and why?

drinks in 3 hours. This amount of alcohol in a short period of time would be considered binge drinking and thus be characterized as drug abuse.

Where does the line exist between drug use and drug abuse and what factors impact whether a person crosses that line? **Protective** and **risk factors** play a role in whether an individual is more or less likely to abuse a drug. Protective factors reduce a person's risk for drug use behavior. On the other hand, risk factors increase a person's risk for drug use behavior.¹⁵

Environmental and biological factors make up protective and risk factors. Environmental factors include family, peers, school, and neighborhood conditions. Biological factors include a person's stage of development when first taking a drug and other conditions (i.e., mental disorders).¹⁶ Some drug use

and abuse results from conditions related to mental disorders. One study reported that adolescents with prior mental disorders had higher rates of alcohol and illicit drug abuse.¹⁷ Furthermore, anxiety disorders were a factor related to the transition from nonuse to first use and from use to problematic use.¹⁸

Almost 2.5 million emergency room visits were associated with drug use or misuse.¹⁹ Less than 5% of these visits were attributed to alcohol alone, while

protective factors Reduce a person's risk for drug use behavior

risk factors Increase a person's risk for drug use behavior

Table of Risk and Protective Environmental Factors

Risk Factors	Protective Factors
Lack of parental supervision	Parental monitoring and support
Poor social skills	Positive relationships
Availability of drugs at school	School antidrug policies
Community poverty	Neighborhood pride
Parental abuse of drugs	Parents reinforce nonuse of drugs

National Institute on Drug Abuse, "Drugs, Brains, and Behavior" The Science of Addiction, Revised July 2014. Available at: <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drug-abuse-addiction>.

one-third of these visits were attributed to pharmaceutical drugs.²⁰ Hospital visits resulting in serious outcomes were associated with alcohol and other drug combination use.²¹

Drug addiction is pervasive in society. As indicated, addictions are not limited to substances. The following list identifies substances and behaviors to which people are addicted along with the number of people in the United States for whom these substances or behaviors are a problem.²²

- Alcohol—6.6 million people over the age of 12 report alcohol dependence or abuse. Males have higher rates of abuse compared to females.
- Drugs—persons aged 18 to 25 have the highest rate of illicit drug dependence and abuse at 7.4% of the population.
- Gambling addiction—5.7 million people have a gambling disorder.²³

Drug use and abuse is a problem in society. Why do people start using drugs in the first place? We live in a society where information is at our fingertips; a person only has to ask the question about the dangers of drug use in order to view thousands of webpages with that information. Media headlines about famous people dying from drug overdoses cover the front pages of magazines and newspapers. One would imagine these would positively influence a person's decision to try drugs. In the following section, motivations for drug use will be described with a focus on the factors that influence a person's motivation for taking drugs.

In many ways, drug use mirrors the broader society. Reasons for drug use and the needs that drugs fulfill are affected by societal changes. In our scientifically advanced, technological world change occurs so rapidly that our ability to adapt cannot keep pace. Many inventions of the 20th century provide



■ Michael Jackson is dead!

instant or immediate feedback: Computers offer instant access to information; banks with automatic teller machines dispense money at any time of the day or night; fast-food restaurants and microwave ovens satisfy hunger speedily; communication with friends is instantaneous through our cell phones. People adapt to a changing society by learning to cope, by withdrawing, or by escaping. Drugs are one means to that end.

Alternatives to using drugs include exercise programs, support groups, Internet games, watching television, listening to music, talking to friends, taking walks, and reading. In view of these alternatives, and others, why are drugs so popular?

Reasons for Drug Use

Drugs are easy to use, and they work quickly. If a person desires to alter consciousness, drugs can accomplish this relatively easily; little effort is required to inhale marijuana, swallow a pill, snort cocaine, or drink alcohol. Drugs are a quick fix. To overcome illness or to experience pleasure quickly, some people look to drugs because they fulfill immediate needs. This feature of modern society is called *immediacy*, the desire and expectation that things should be handled rapidly. It could well be the main reason that people use drugs.

People use drugs for many other reasons, too. The family structure and society have changed dramatically. Both parents working outside the home, the

rising cost of living, the emphasis on immediate gratification, mass media, and the high degree of mobility all have contributed to stresses on the family. The 1990s recession placed additional stress on the family due to financial hardships and unemployment.²⁴ To deal with these stresses, some people experiment with drugs, others use drugs occasionally, and still others take drugs frequently or compulsively.

Experimentation

Curiosity is a common reason to try drugs. Especially among young people, curiosity is a natural phenomenon that easily leads to experimentation. Infants continually place objects in their mouths. Children cannot wait to open a package to find out its contents. Many schools inadvertently arouse interest and curiosity in drugs through “drug awareness programs,” in which former addicts, police officers, pharmacists, judges, physicians, clergy, or drug therapists talk to students about the dangers of drugs. Newspapers and popular magazines contain articles about drugs, particularly drug use by well-known athletes, politicians,

musicians, and actors. While drug-use trends showed lower rates in 2015 compared to previous years, there are some areas of concern regarding drug-taking behaviors of high school students. About 58% of high school students reported having drunk alcohol and roughly 35% report having used marijuana/hashish. Almost 15% of high school students reported using a narcotic (other than heroin) over the past year.²⁵

The age by which alcohol is consumed is reflected in alcohol problems as an adult. The longer one waits before drinking alcohol, the less likely one will have alcohol problems as an adult.²⁶ Adolescents that drink alcohol before the age of 15 are four times more likely to meet the criteria for alcohol dependence at some point in their lives.²⁷ Similarly, the earlier children experiment with cigarettes, the more likely they are to become regular smokers. Other factors affecting the initiation of smoking include social and media influence, having friends who smoke, and living with a smoker.²⁸

Some adolescents experiment with drugs due to poor impulse control or simply due to the undeveloped brain. In adolescents, the affective areas of the brain (those areas in control of rewarding aspects of alcohol use) are more dominant, while the prefrontal cortex (the area that controls the inhibitory response or “just say no”) is less dominant.²⁹ Also, the use of one type of drug may lead to experimentation with another drug. For example, marijuana users who do not view marijuana use as having adverse effects are more likely to experiment with ecstasy.³⁰

Pleasure/Escape from Boredom

Another reason for using drugs is pleasure. Many people simply like the feelings they receive from drugs. If drugs did not provide some type of perceived benefit, their use would be discontinued. Pleasure is the antithesis of boredom, and an individual who is bored will engage in something pleasurable to relieve the boredom. Drugs become a source of reward.

The adolescent brain is underdeveloped. Research in the area of adolescent brain development suggests the rewards for alcohol use are highly sensitive and provide a stronger positive reaction to alcohol use compared to adults.³¹ Thus the pleasure received from alcohol (and drug use) can be seen as more rewarding for adolescents than adults. In a study of high school seniors that was conducted 30 years ago, 49% indicated that they used drugs “to feel good or get high,” 41% “because it tastes good,” and 23% “because of boredom, nothing else to do.”³² Perhaps reasons for drug use have not changed greatly over time. It has been argued that the desire to get high may be genetically programmed into some people.³³ One study found that 18-year-olds used marijuana



Dennis MacDonald/AGE Fotostock

■ People who inject drugs are more likely to be compulsive drug users.



Victor Correia/Shutterstock.com

■ The adolescent's undeveloped brain can lead to poor impulse control.

and alcohol to regulate emotions and for the experience.³⁴ Substance use among older people is not uncommon; many older people take drugs to escape from the psychological, social, and health problems they incur.³⁵

Drugs that are used to increase pleasure or to reduce boredom are reinforcing, especially if the drugs are effective. The accompanying euphoria provides **positive reinforcement**, which encourages continued drug use. Conversely, drugs taken to alleviate discomfort can provide **negative reinforcement**. Distinguishing whether reinforcement for drug use arises from the urge for euphoria or the desire to eliminate dysphoria is sometimes difficult. Nevertheless, the drug user achieves some type of physical or social reward.

An interesting question pertains to whether drug use for the purpose of achieving pleasure should be viewed as acceptable. Some argue that drugs are part of society, most people can moderate their drug use, and drug use for pleasure should be accepted.³⁶ Many people use drugs to increase their happiness levels. Some argue the government protects this right in the Declaration of Independence, specifically the statement "Life, Liberty and the pursuit of Happiness."³⁷

Others disagree, saying that people cannot easily control their drug use and that pleasure can turn into pain over time.³⁸

Peer Influence

Many young people use drugs to gain peer acceptance or approval. Commonly referred to as peer pressure, it is defined as feeling pressured or urged by peers and is subjective.³⁹ While all age groups are susceptible to peer pressure, young people tend to

place more value on their peers' opinions compared to adults. Erik Erikson, a psychologist who is well known for his theory on stages of psychosocial development, described adolescence as a time period that is focused on how one appears to others. During this time, a sense of belonging to a peer group is highly sought after.⁴⁰

For adolescents, the greatest influence in their lives is their peers' perception of them. Starting in early adolescence, the influence of peers begins to exert a relatively greater role than the family as a socializing agent. Thus peers have more influence than parents on adolescent drinking behavior. Parents tend to have very little influence on their adolescent children regarding drug use (they do have a much stronger influence during earlier years). In a study done on adolescents who use cannabis, users reported their parents' opinions on drugs and specially, marijuana use, did not influence their use of the drug.⁴¹ Thus the strongest predictor for adolescent drug use is peer substance use.⁴²

Adolescents attribute marijuana and alcohol use with increased popularity rates.⁴³ Schools plays a role in perceived popularity among these users. For example, in schools that reported high connectivity rates among their students (smaller class sizes, emphasis on scholastic success, students feel happy and secure at school), the extent to which popularity is associated with marijuana use is decreased.⁴⁴ Schools in communities that have higher levels of socioeconomic statuses tend to have higher rates of school connectedness among their students. Conversely, schools located in areas with lower of socioeconomic statuses tend to have lower rates of school connectedness.⁴⁵ Adolescents at highest risks for drug use are from areas that have fewer educational opportunities and are generally made up of underrepresented racial and ethnic groups.

This point is illustrated in research on alcohol use by fraternity and sorority members. Rates of alcohol consumption by fraternity and sorority members were found to be significantly higher than those of non-Greek-affiliated college students.⁴⁶ Fraternity members had higher rates of alcohol use than sorority members. In a study conducted on dry (alcohol-free housing) and wet (alcohol allowed in the house), it was discovered that fraternity members had no difference in alcohol consumption behavior while for dry sorority houses, there was a significant decline in alcohol use.⁴⁷ Students, especially those in fraternities and sororities, consistently overestimate how much others drink.⁴⁸ Not confined to the Greeks at colleges, adolescents often overestimate drug and alcohol use among their peers. They rate their peers as using more drugs and alcohol than what is reported.⁴⁹

Just as drug use can be attributed to peer approval, drug abstinence can be associated with peer disapproval. The relationship between peer group affiliation and drug use is reciprocal.⁵⁰ It has been shown that teachers can set a climate in the school that promotes respect and healthy norms among students. Nondrug use becomes acceptable behavior.⁵¹ Groups implicitly reinforce behaviors by showing acceptance and affection toward others who share their behaviors.⁵² Parents, however, who explicitly tell their children that they do not tolerate drug use affect their children's use of drugs.⁵³

Peer influence is affected by one's culture. European, American, and Chinese adolescents were found to be more affected by peers in their drug use than were African American adolescents.⁵⁴ Among South Korean youths, peer influence was critical to drug use.⁵⁵ Similarly, French adolescents are more likely to use drugs if peers do.⁵⁶ In a recent study, US teens were shown to have higher rates of illicit drug use compared to European teens. Conversely, US teens have lower rates of cigarette and alcohol use compared to European teens.⁵⁷

At the same time, basic values, life goals, and aspirations still are influenced more by parents. Parents who communicate well with their children are able to pass on values, discouraging drug use.⁵⁸ Positive family relationships deter drug use. Positive parent communication with their children serves as a deterrent to alcohol and drug use.⁵⁹ Living in neighbor-



Photographie au/Shutterstock.com

■ Peer pressure is of the main reasons why adolescents use drugs.

hoods that have greater rates of crime and violence may contribute to drug use.⁶⁰ A recent study looking at the impact of disadvantaged neighborhoods and alcohol use among adolescents showed that neighborhood disadvantage is a significant predictor of adolescent alcohol use.⁶¹

Parents indirectly alter their children's drug use by influencing their choice of friends and by emphasizing education.⁶² Also, parental attitudes and reactions to the use of tobacco seem to have a greater effect on adolescent smoking than whether parents actually smoke. In addition, children of mothers who smoked during pregnancy are more likely to be dependent on nicotine compared with children whose mothers did not smoke.⁶³

The most likely common denominator within an adolescent's peer group, after age and sex, is drug use. Rather than peers exerting an influence on drug-taking behavior, those who use drugs could well seek out others who consume drugs. Young people choose to associate with those who share the same interests. If you are a parent or thinking of becoming a parent, what is the message? Either choose your child's friends carefully or make sure your child chooses friends who hold values similar to yours. One encouraging finding is that parents are becoming more aware of their children's use of drugs, especially cigarettes.⁶⁴

Spiritual Purposes

Throughout history, people have used drugs to seek out or communicate with something or someone greater than themselves. Drugs have played a role

CULTURAL Considerations

- Ethnic and cultural identity may significantly influence drug use and abuse.
- Among adolescents, those who are Puerto Rican, African American, and Asian, who have strong ties with their ethnic groups and communities, have lower levels of drug use and abuse.
- Strong ethnic identification serves as a protective factor against drug use and abuse.
- Prevention programs aimed at adolescents should take into consideration the ethnic background of the participants and incorporate cultural and ethnic content into the curriculum.

Source: P. Zickler, "Ethnic Identification and Cultural ties may help prevent drug use," *National Institute on Drug Abuse: NIDA NOTES*, 14, no.3 (1999). Available at: http://archives.drugabuse.gov/NIDA_Notes/NNVol14N3/Ethnic.html.

positive reinforcement Rewarding a positive behavior

negative reinforcement Removing negative stimulus after a behavior

in this discovery process by being used to enhance spirituality and the search for the spiritual self.⁶⁵ Ironically, spirituality plays a protective and facilitating role in substance use. Studies suggest involvement in an organized religion serves as a protective factor against alcohol and drug use and abuse.⁶⁶ Religion and spirituality also serve as a recovery aid for substance abusers. Consider the 12-step program associated with Alcoholics Anonymous. This program includes a spirituality component that asks its members to give in to a higher power to aid in the recovery process.⁶⁷ On the other hand, spirituality plays a role in the consumption of alcohol and drugs by their inclusion in certain spiritual rituals. In Judaeo-Christian ceremonies wine is used as part of the religious ritual. In other religions, psychedelic substances are used as part of ceremonies to enhance spirituality. A concept common to some world religions is that animals and plants acquire their special characteristics from a spirit contained within them. By consuming a plant with such a spirit, the person becomes endowed with the spirit. Hence, psychoactive plants have played a meaningful role in the religious and spiritual practices of many societies around the world.

The Aztec, Toltec, and Navajo cultures use psychedelic substances to aid in achieving an altered state for the purpose of its spiritual effects.⁶⁸ Many American Indian cultures use hallucinogens in a religious context. The Native American Church uses the hallucinogen peyote during religious ceremonies to treat alcoholism. Another drug used for spiritual purposes is bhang. Derived from cannabis, bhang is incorporated into Hindu religious rites. Holy men consume it to “center their thoughts on the eternal.”⁶⁹ Moreover, it is used during Hindu festivals, marriages, and family celebrations. In the 1920s



Tom Hill/Getty Images

■ “Glory be to the father and to the maker of creation. As it was in the beginning, is now and ever shall be world without end.” The prayer recited before a pipe is smoked in the Rastafari religion.



pixsels/stock/Shutterstock.com

■ Being a member of a fraternity increases the chance of drinking.

and 1930s, the religion Rastafarianism was formed in Jamaica. This religion uses marijuana as part of its rituals and condemns the use of alcohol.⁷⁰ Subscribers to this religion believe the Tree of Life mentioned in the Bible was a marijuana plant, and while they condemn using marijuana solely for the purpose of getting “high,” it is seen as a way to enhance feelings of unity. Timothy Leary promoted LSD in his religion, the League of Spiritual Discovery. Its motto was “Turn On, Tune In, and Drop Out.” Unlike the Native American Church, which had been permitted to use peyote legally, members of the League of Spiritual Discovery were not legally sanctioned to use LSD. More recently, the First Church of Cannabis Inc. was approved in Indiana in 2015. Cannabis is listed as the church’s sacrament in its doctrine and is used to promote health among the followers.^{71, 72}

Spirituality in the context of personal growth, development, and life change has had an influence on drug use among young adults. In a study of college students, 81% claimed that they had a spiritual experience while using a hallucinogen.⁷³ Scholars have connected the use of ecstasy at dance music/rave scenes with Generations’ X and Y desire to enhance spirituality.⁷⁴ Abuse is unlikely if drugs are restricted to religious rituals.

Social Interaction

As social beings, humans have a great need for interaction. These interactions range from working and dining together to being in the same organization to simply talking together. Drugs are used sometimes to facilitate interactions with others. In his research, Skager notes that young people use drugs because they feel that drug use is the social thing to do.⁷⁵ Young adults use alcohol because they feel it helps them socialize with their peers. People who view alcohol consumption positively with social interactions are

more likely to use a moderate amount of alcohol in social settings.⁷⁶ One social ritual in the United States is drinking at football games. High levels of alcohol consumption occur during college football games.⁷⁷ In the United States, alcohol-related arrests are three times higher on game days compared to nongame days.⁷⁸ One study of 18- to 24-year-olds found that prior to the game 16% of students engaged in heavy drinking, which was defined as ten or more drinks for males and eight or more drinks for females.⁷⁹

Illegal drugs are also used in a social context. Some people consider marijuana to be a drug that binds people together. As a sign of friendship, heroin addicts share drugs as well as hypodermic needles. For others, cocaine is a social lubricant, included as part of a romantic evening and to attract a sexual partner.

Rules and norms govern drug use in a social context. Even as alcohol use in a college dormitory might abound, there may be rules regarding when and where to drink. Parents who smoke marijuana might wait until their children go to bed. Certain social groups determine *how* a drug is used. For instance, it was found that social milieu of street life leads many young people to escalate their drug use, resulting in their injecting drugs.⁸⁰ Furthermore, having a sexual minority status (LGBTQ) places people at a higher risk for alcohol and drug abuse.⁸¹ Many gay men, and to a lesser extent lesbians, use drugs to deal with homophobia.⁸²

Drug use by soldiers in Vietnam provides an example of the moderating effect of social environment. At least 35% of enlisted men used heroin, and more than half of them became addicted while in Vietnam.⁸³ Contrary to dire expectations and warnings of government officials, only 10% of the addicts remained addicted after returning to the United States. One reason is that the social sanctions revolving around heroin use while in Vietnam were quite different from those found in the United States.

Rebelliousness

Another reason why some people take drugs is that they are told not to. Rebelliousness is one of the best predictors of increased drug use among adolescents. A strong relationship has been found between drug use and recklessness and predelinquent behaviors such as aggression and poor emotional control. Young people rebel against the conventions of society, including warnings about drugs' dangers. Institutions such as religious groups, schools, and government identify rules by which people should behave. The more affiliated one is with these institutions, the less likely one is to use drugs. Similarly, participating on

ON CAMPUS

A study conducted on college students showed stress and neuroticism as significant predictors of drug use.

This study analyzed two types of drug users: minor drug users were defined as marijuana and alcohol users and major drug users, which included narcotic use. Results from this study indicate higher levels of neuroticism (characterized by anxiety, fear, jealousy, envy). Similarly, stress scores were high among minor and major drug users. Furthermore, high levels of stress and neuroticism indicate the greatest risk factor for drug use.

Source: Jennifer Coleman and Joseph Trunzo, "Personality, Social Stress, and Drug use among College Students," *The International Honor Society in Psychology*, 20, no.1 (2015):52-58.

sports teams reduces the use of cigarettes and illicit drugs, although alcohol use is not reduced.⁸⁴ On the other hand, antisocial behavior is a good predictor of drug abuse.⁸⁵

From a young age, children are taught to conform. Parents and other adults impose rules when we visit relatives, attend school, walk through a shopping mall, get a haircut, pick out clothing, and so forth. Among the many ways to rebel against these prescriptions is to engage in behaviors that are deemed inappropriate. A recent study that analyzed externalizing behaviors (oppositional defiant, conduct problems, etc.) and internalizing factors (stress, depression, anxiety, etc.) found that externalizing behaviors were related to increased and problematic cannabis use as an adult. The same association was not found for internalizing factors.⁸⁶ Adolescents who demonstrate oppositional behavior are more likely to engage in health risk behaviors including drug use.⁸⁷

Other motivations for drug use range from relieving anger and tension to staying awake to feeling more energetic. Figure 1.1 highlights environmental factors, interpersonal and social factors, and individual factors contributing to the use of alcohol and other drugs.

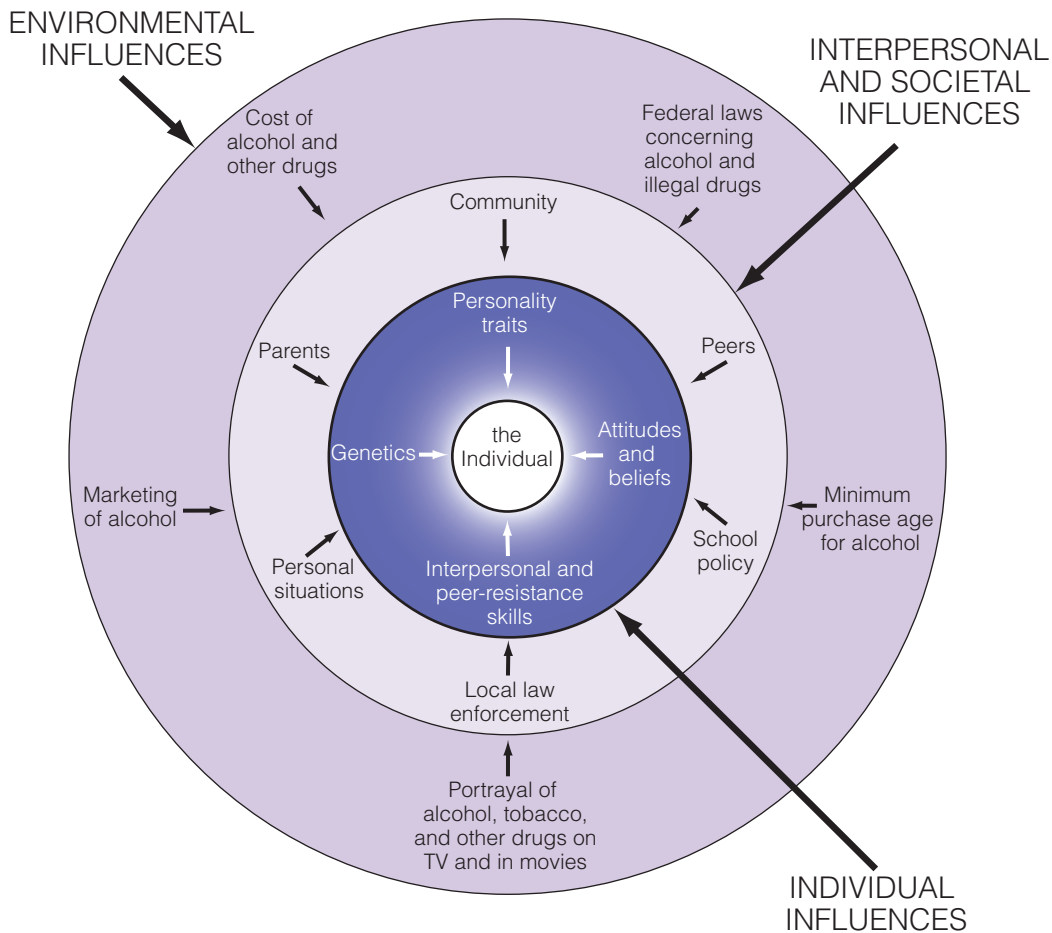


Figure 1.1 Factors That Influence the Use of Alcohol and Other Drugs

Source: Prevention Plus II Office for Substance Abuse Prevention, 1989.

Drug Dependency Versus Drug Addiction

Drug dependency can be physical or psychological. Before elaborating on the differences, we have to differentiate between the terms **drug dependency** and **drug addiction**. Both connote a compulsive need to use a drug and an inability to cease using it even if serious consequences ensue. Similarly, both *dependency* and *addiction* mean that drug use takes precedence over many other behaviors in one's life.

Before the terms *addiction* and *physical dependence* were used, the term *habit* was used to describe people who could not stop using drugs. As early as 1914, the *American Journal of Public Health* included articles about the habit of drug abuse and how detrimental this habit was. This 1914 article advocated that habitual drug abusers receive treatment rather than incarceration.⁸⁸

So how do these terms differ? Physical dependence occurs when the body adjusts to the drug's

presence and will exhibit withdrawal symptoms if the drug is discontinued.⁸⁹ Stereotypically, the term *drug dependent* conjures up an image of someone who is ill and in need of treatment and compassion. Addiction, on the other hand, includes a physical dependence to a drug, but also encompasses characteristics associated with drug abuse such as the inability to stop using a drug, failure to meet work, social, and family obligations, and tolerance and withdrawal.⁹⁰ A *drug addict* might be perceived as a criminal and a degenerate who is best served by incarceration, not hospitalization. The terms *dependency* and *addiction* are applied to different drugs as well. For example, heavy smokers seldom are called nicotine addicts, whereas heroin users typically are called addicts. Because the notion of dependence evokes less condemnation than addiction does, the World Health Organization (WHO), four decades ago, proposed substituting the word *dependence* for *addiction*.⁹¹ Similarly, the committee members who worked on the DSM-V replaced the word *addiction* with *dependence*.⁹² O'Brien argues for this

distinction by stating the word dependence is associated with the physical dependence of the drug while addiction encompasses the compulsive desire to continue drug use.⁹³ The compulsive use of some drugs can be based on the psychic or perceived need for the drug, not only on the physical need. Furthermore, it is important to consider that drug dependence can occur without addiction. Think about a person who is prescribed a narcotic to deal with chronic pain. After a period of time, that person will become physically dependent on the drug, but if he or she follows protocol for drug administration, addiction may not occur. Similarly, a person can exhibit signs of addiction, but not be physically dependent. Consider a person who is addicted to gambling; there is no physical dependence on gambling but rather a compulsive need to continue the behavior.⁹⁴ In a nutshell, then, addiction is “an ingrained habit that undermines your health, your work, your relationships, your self-respect, but that you feel you cannot change.”⁹⁵ To stay consistent with current terminology, the term drug dependence will be used in this text to refer to drug dependence and addiction. Regardless of how compulsive drug use is defined, the National Institute on Drug Abuse views compulsive drug use as a treatable illness.⁹⁶

1. *Physical dependency* is marked by **withdrawal symptoms**—the physical symptoms that appear after drug use ceases. People who are physically dependent on a drug need to take the drug to ward off withdrawal symptoms.
2. *Psychological dependency* refers to one’s perceived need for a drug.

Some symptoms that show up after drug use ceases may be psychological rather than physical, and some drugs have more potential to cause addiction than others. Important factors in determining whether a drug results in addiction are how quickly it gets to the brain and its potency. Even though many withdrawal symptoms are psychological, they are quite real. Moreover, psychological dependency is harder to overcome than physical dependency, as illustrated in Figure 1.2. This lends credence to the idea that dependency reflects the inability to adapt to one’s environment, or at least the inability to adapt in the absence of drugs.

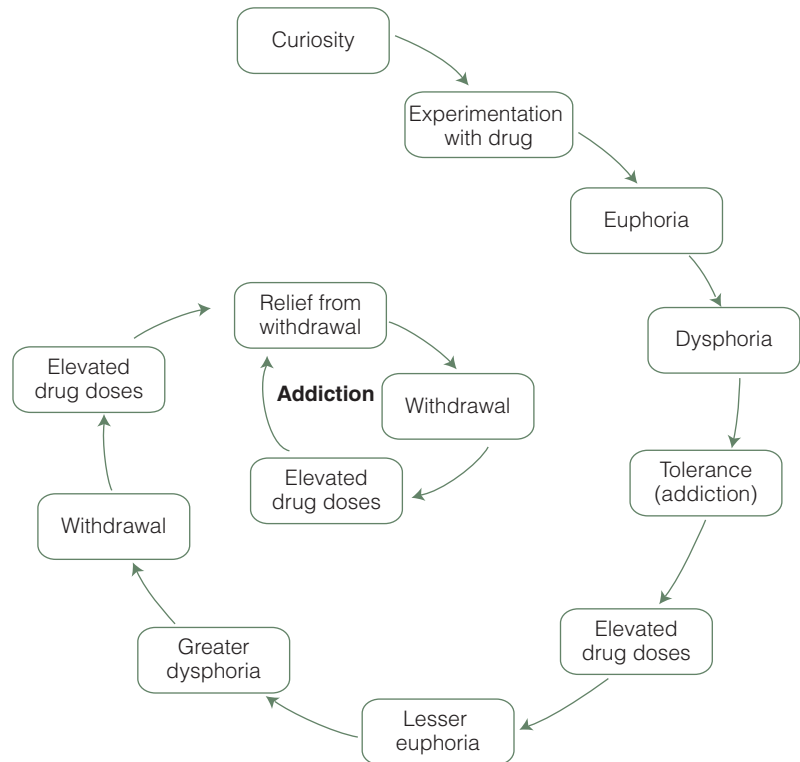


Figure 1.2 Downward Spiral of Psychological Addiction

From TURNER/SIZER/WHITNEY/WILKS. *Life Choices*, 2E. © 1992 Brooks/Cole, a part of Cengage Learning, Inc. Reproduced by permission. www.cengage.com/permissions

Addiction is classified as a complex disease that affects the brain.⁹⁷ Drug addiction changes the brain’s functioning and physical structure, which can be long-lasting.⁹⁸

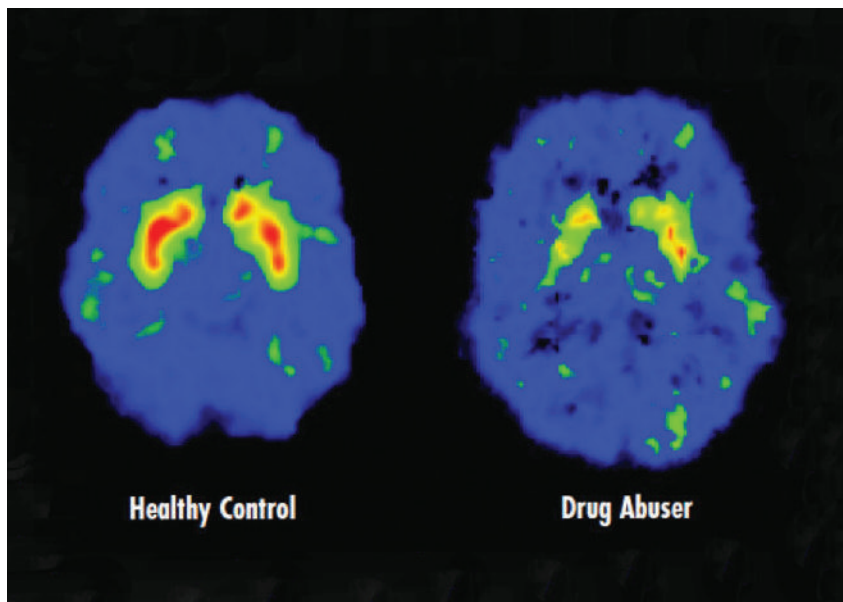
Many people question using the term disease to describe drug dependence as some believe drug dependence is a choice. While it is true that the initial decision to take drugs is a choice, it becomes a compulsion that takes the notion of choice out of the equation. The brain changes from drug use in a way that impairs the areas of the brain that impact judgement, decision making, learning, and memory.⁹⁹ If these areas of the brain are damaged from drug use and can be measured, then one must question whether drug dependence is truly a choice.

Another question pertaining to drug dependence is why some people are able to use a drug sparingly

drug dependency The body adjusts to the presence of a substance and will exhibit withdrawal symptoms if the drug is discontinued

drug addiction A complex disease that impacts the brain

withdrawal symptoms Physical symptoms that appear after a drug is discontinued



Science Source

■ Drugs change the brain's ability to function.

and seemingly responsibly while others become drug dependent. Just like any disease, some people are more prone to getting a disease while others have less risk. Consider heart disease. There are some measures that can be taken to reduce the risk of getting this disease such as eating a healthy diet, regularly exercising, and controlling hypertension. These are considered controllable risk factors. On the other hand, there are also risk factors that are uncontrollable such as family history and genetic predisposition, which can increase the risk of getting heart disease. Drug dependence is similar but there are controllable and uncontrollable risk factors. Scientists estimate that genetic factors account for about 50% of a person's susceptibility to drug dependence.¹⁰⁰ Biological risk factors include family history, genetics, and mental disorders with mental disorders being one of the greatest risk factors.¹⁰¹

Is dependency a valid reason for legally prohibiting drugs? Scribner argues that antidrug laws do not protect against addiction and are counterproductive.¹⁰² Volkow and others maintain that many addicts have no choice but to take drugs; however, she asserts that addicts are accountable for their behavior while on drugs and that they should be treated medically rather than criminally.¹⁰³

Theories of Drug Addiction

The US Department of Health and Human Services states that addiction is a “chronic, life-threatening condition that has roots in genetic susceptibility, social

circumstance, and personal behavior.”¹⁰⁴ Many theories attempt to explain addiction. It has been attributed to poor self-control, ignorance, personality traits, bad genes, poverty, disease, and the absence of family values. When addicts were asked what caused their addiction, most attributed it to psychological factors such as fear, anxiety, and sorrow.¹⁰⁵

When laypeople were surveyed to determine what they thought was the basis for heroin addiction, their political beliefs were a factor. Conservative voters tended to attribute addiction to low moral standards, and liberal voters attributed addiction

to psychological and social reasons.¹⁰⁶ Although no single theory adequately covers every aspect of drug addiction, elements of various theories provide insight into drug addiction. A number of theories regarding drug abuse are examined here.

Personality Theories

Some specific personality traits have been related to drug dependence. Personality refers to “a dynamic set of traits acquired by a person that influences his or her perceptions, motivations, and behaviors in various occasions.”¹⁰⁷ What is difficult to know is whether certain personality traits lead to drug dependency or if drug dependency alters personality. It has been noted that substance abusers have lower reasoning skills compared to nondrug users.¹⁰⁸ Persons with high reasoning skills are good abstract thinkers and have the ability to consider the consequences of a decision and make appropriate decisions based on foreseeing the outcomes of the decision. Drug-dependent people tend to be negative, self-deprecating, depressed, and tense and have a sense of helplessness.¹⁰⁹ Learned helplessness is the idea that one's actions do not impact outcomes.¹¹⁰ Thus one feels powerless to control the outcomes of his life. The learned helplessness trait has been associated with poorer levels of self-control and internal motivations among drug-dependent people.¹¹¹ Low levels of self-esteem have also been implicated in increased risk for drug abuse. In a study that looked at almost 4,000 participants, it was found that low levels of self-esteem were related to lifetime substance use.¹¹² To deal with low self-esteem and accompanying tension, some people rely on drugs. A New Zealand study found methamphetamine use

is linked to poor self-esteem and feelings of aggression.¹¹³ Among adolescents, delayed behavioral or emotional development may be a factor in their substance abuse.¹¹⁴

Personality characteristics associated with drug abuse include the following:

- Low self-esteem
- Poor interpersonal skills
- Need for immediate gratification
- Defiant feelings toward authority
- Little tolerance for anxiety, frustration, and depression
- Impulsivity
- Risk taking
- Low regard for personal health

The problem with identifying personality characteristics is that drug abuse may have led to a change in personality rather than personality causing drug abuse.

Drug use can be a means of coping with anxiety. In reality, though, the person is probably exchanging one set of problems for another. “Addicts have problems with self-regulation and impulse control and tend to use drugs as a substitute for coping strategies.”¹¹⁵ Coping with feelings of anxiety and arousal by using drugs is one way to reduce negative aspects of one’s life. Some people use narcotics to deal with internal feelings of aggression and rage. Traumatic events in a person’s life often trigger substance abuse.¹¹⁶ Figure 1.3 illustrates the cycle of psychological addiction.

Some people point to an addictive personality trait as reasoning for increased susceptibility to drug use and abuse. To say that one has an addictive personality would imply that certain personality traits place a person more at risk for drug abuse. As discussed earlier in this section, research has shown relationships between low self-esteem, learned helplessness, and impulse control with an increases risk for drug use. However, there are some scientists who do not believe an addictive personality trait exists. Thornburg states “there does not seem to be a personality type or set of characteristics that predictably fit either addicts or alcoholics.”¹¹⁷ In her study, she found much variability between drug addicts’ and alcoholics’ personality traits. Supporting this idea, Mayberg conducted a study on people who abuse alcohol and methamphetamines and concluded there was no specific personality type in either group that would predict drug use.¹¹⁸

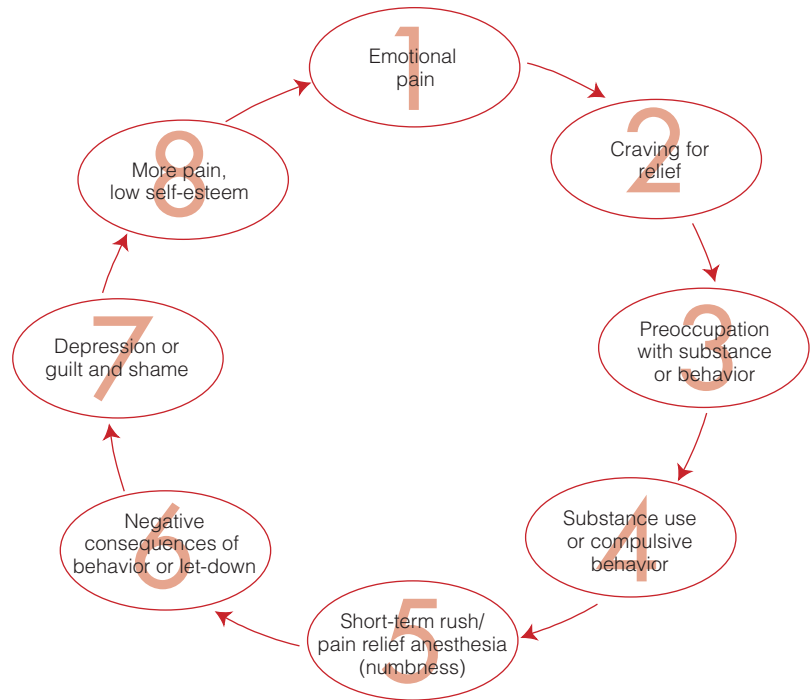


Figure 1.3 Cycle of Psychological Addiction

From TURNER/SIZER/WHITNEY/WILKS. *Life Choices*, 2E. © 1992 Brooks/Cole, a part of Cengage Learning, Inc. Reproduced by permission. www.cengage.com/permissions

Reinforcement Theory

All animals are believed to have pleasure and reward circuits in the brain that turn on when they are stimulated by addictive substances. The basis for craving drugs may lie within our genes.¹¹⁹ A behavior that results in stimulation of these circuits is reinforced—the animal is motivated to repeat that behavior. In some humans, addiction may arise from the reward system of the brain not functioning properly.¹²⁰

Reinforcers are stimuli or events that increase the likelihood of a particular behavior. Reinforcers can be primary or secondary. **Primary reinforcers** reduce physiological needs or are inherently pleasurable (e.g., food, water, and sex). **Secondary reinforcers** act as signals for the increased probability of obtaining primary reinforcers; money, for instance, is a secondary reinforcer because it does not provide immediate pleasure, but it can be used to secure a primary reinforcer.

reinforcers Stimuli or events that increase the likelihood of a particular behavior

primary reinforcers Reduce physiological needs or are inherently pleasurable

secondary reinforcers Act as signals for the increased probability of obtaining primary reinforcers

Drugs can be primary or secondary reinforcers. People take drugs because of a payoff or benefit. The payoff might be acceptance from people with whom one wants to be associated, the pleasure derived from altering one's consciousness, or the relief accompanying elimination of withdrawal symptoms.

Reinforcement can be positive or negative. When a person is motivated to repeat behaviors because of the pleasurable sensations they bring, he or she is receiving positive reinforcement. Drugs produce a euphoria that many people seek to repeat. If behaviors provide relief from or avoidance of pain, the desire to repeat those behaviors is motivated by negative reinforcement. Examples of negative reinforcement are use of drugs to avoid the effects of withdrawal and the fear of losing status or approval among peers. A drug-dependent individual falls into one of two camps: the maintainers or the euphoria seekers. The maintainers seek to avoid pain. The euphoria seekers want to feel high.

Biological Theories

Theories focusing on the biological aspects of addiction deal primarily with genetic determination and metabolic imbalances.

Genetic Theory

The genetic theory postulates that a person is predisposed to drug addiction, including addiction to alcohol, by hereditary influence. Studies involving families, twins, and adoptees offer persuasive evidence that addiction is partly genetic and runs in families.¹²¹ There is also research showing a link between compulsive eating and drug abuse, suggesting that both behaviors have a similar genetic component.¹²²

Recent research places much emphasis on genetics. In a study on people who underwent weight loss surgery, it was discovered that many people replaced their eating addiction with another addiction.¹²³ There has been a rise in alcohol and narcotic dependence among those who underwent surgery to treat an eating addiction.¹²⁴ What is known as an addiction transfer has been linked to the dopamine receptors in the brain, specifically the D2 receptor. The fewer D2 receptors present in the brain, the more likely one is to become addicted. To illustrate this case, in a study on chronic drug users and overeaters, it was discovered that both types of individuals had fewer D2 receptors in the brain.¹²⁵ This suggests a genetic link between addiction and genetic makeup.

Because of biological differences, people become intoxicated at differing levels of consumption and metabolize drugs at different rates. Isolating bio-

Genetic Versus Environmental Influences on Smoking and Drinking

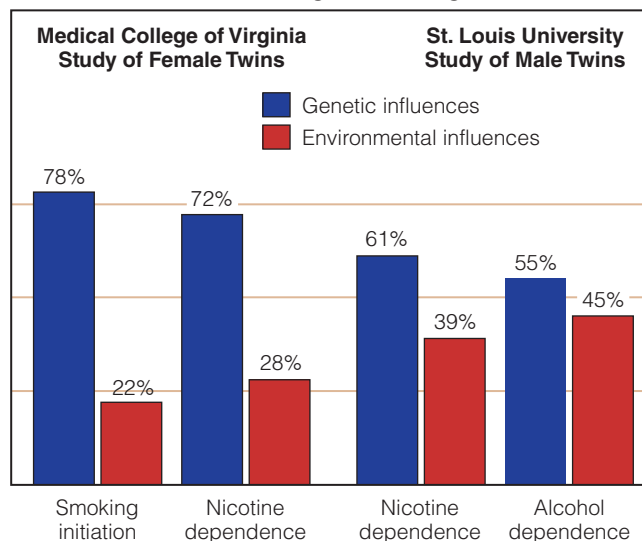


Figure 1.4 A Medical College of Virginia study involving 949 female twin pairs found genetic factors to be more influential than environmental factors in smoking initiation and nicotine dependence. Likewise, a St. Louis University study of 3,356 male twin pairs found genetic factors to be more influential for dependence on nicotine and alcohol.

Source: P. Zickler, "Evidence Builds That Genes Influence Cigarette Smoking," NIDA Notes, 15 (June 2000): 1–5.

logical or genetic factors from personality and environment is difficult, and most of the research linking genetics and drugs is limited to alcohol. Determining whether addiction is a result of heredity or environmental influences is also difficult. Nonetheless, Figure 1.4 assesses the genetic and environmental effects on twins.¹²⁶

Metabolic Imbalance

Addiction to narcotics sometimes is attributable to a metabolic disorder.¹²⁷ Just as the diabetic person needs insulin, the narcotic user covets narcotics. Narcotics help addicts stabilize the metabolic deficiency caused by absence of the drug. Although this theory can be applied to narcotics users who take methadone to stabilize their desire for narcotics, little evidence is available to support the metabolic deficiency theory. Many people receiving methadone for heroin dependence continue to crave heroin.¹²⁸

Social Theories

According to social theories, cultural and social influences contribute to drug abuse.¹²⁹ If individuals are rewarded for their behaviors, such as drug use, the risk of continuing those behaviors becomes greater. Rewards are derived from groups and others with whom we associate. Based on this premise, drug

abuse is socially learned and benefits the individual by group acceptance. Moreover, those with a substance abuse disorder tend to overestimate the extent of drug use by their peers.¹³⁰ Drug abuse arises from antisocial behavior,¹³¹ although no one theory adequately determines drug addiction.¹³²

Whether a behavior is categorized as a problem is a function of how society labels the behavior. In some instances, behaviors outside of social norms actually are considered desirable and are reinforced. In a convoluted way, “bad” is “good,” and vice versa. In some social groups, drug abstinence is not valued, whereas drug use, although condemned by many people, is considered good.

Mass Media and Drugs

The impact of the media on drug use is hard to determine because it is only one factor in the total picture of parents, friends, siblings, religion, and schools. In 2012, the Surgeon General stated that exposure to cigarette use in movies may cause young people to start smoking.¹³³ One encouraging sign is that scenes of smoking in movies has declined significantly. In 2005, there were 4,000 scenes involving smoking, and in 2009, there were 1,935 scenes.¹³⁴

Summary

Definitions related to drugs frequently reflect the biases of those who come up with the definition. What one person classifies as drug use, another may classify as misuse or abuse. Generally, misuse involves the unintentional or inappropriate use of a drug, whereas drug abuse typically entails chronic use of a drug that results in physical, intellectual, financial, social, or emotional problems. Even the word *drug* is subject to interpretation. One could argue that sugar and chocolate are forms of drugs.

Unfortunately, after the year 2010, tobacco incidences in movies increased to 2,500 incidents in 2014. Incident levels in 2015 have reduced closer to the levels seen in 2009.¹³⁵

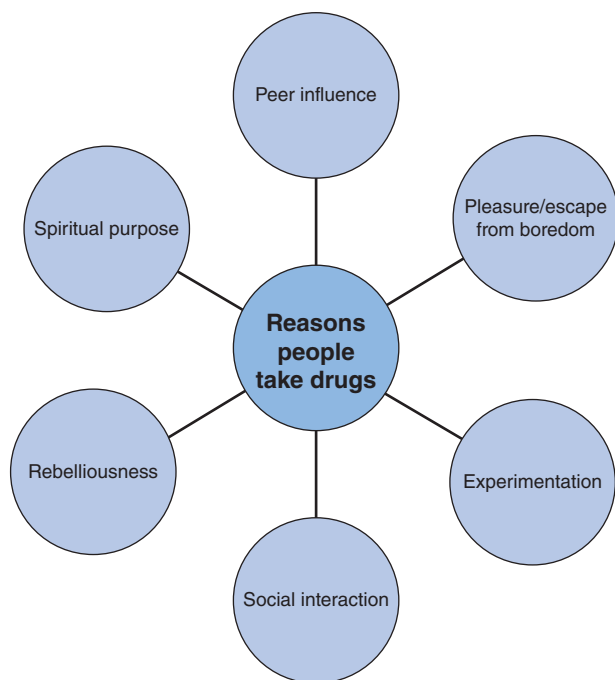
Highlighted here are some forms of mass media that feature drugs—advertisements, billboards, television, music, and celebrities.

Advertisements

An estimated \$25 billion is spent on advertising for tobacco, alcohol, and prescription drugs. The American Academy of Pediatrics recommends banning tobacco advertising in all media as a way to dissuade young people from smoking.¹³⁶ Advertising for prescription drugs amounted to \$4.2 billion.¹³⁷ The overriding message of advertisements for drugs is that drug-taking is acceptable and, in fact, the norm.

In 2014, the Federal Drug Administration launched a public campaign called “The Real Cost.” The purpose of this campaign was to reduce tobacco use among 12- to 17- year-olds in the United States. This national campaign aired on television, online, radio, and other media channels and achieved an 80% rate of youth awareness of the campaign.¹³⁸ The perceived effectiveness of the campaign was rated highly among nonsmoking teens.

Drug dependency and drug addiction have been used to describe drug use behavior interchangeably. However, these terms are not synonymous. Drug dependency refers to a physical dependence on the drug, and when that drug is discontinued, a person will experience withdrawal symptoms. Drug addiction, on the other hand, refers to the compulsive use of a drug, regardless of the negative consequences that occur from taking the drug.



Theories of Drug Addiction

Personality Theories

- Specific personality traits related to addiction
- Traits include learned helplessness, low self-esteem, poor interpersonal skills, etc.

Reinforcement Theory

- Reward system in the brain not functioning properly
- Reinforcers—stimuli that increase the likelihood of a particular behavior
 - Primary reinforcers—reduce physiological needs or are pleasurable
 - Secondary reinforcers—increase probability of obtaining a primary enforcer

Biological Theories

- Genetic theory—a person is predisposed to addiction by hereditary influence
- Metabolic Imbalance—drugs helps stabilize a metabolic imbalance

Social Theories

- Culture and social influences contribute to drug addiction

Thinking Critically

1. Religion and spirituality play a protective and facilitating role in drug use. Many religions incorporate the use of drugs as part of their religious ceremonies. Wine is used in Judaeo-Christian ceremonies and psychedelic substances have been part of other religious ceremonies to enhance spirituality. While some religious sects have received special provisions to use psychedelic substances as part of their ceremonies, others have not. Do you believe all religious sects should be allowed to use drugs as part of their ceremonies? How would you determine which religions should be granted special permissions to do so?
2. Addiction is considered a complex disease that affects the brain. The brain of a drug-addicted person is different in structure and function compared to a person who is not addicted to drugs.

In light of this, society often doesn't view addiction in the same way that it views diseases such as cancer. For the most part, cancer is viewed as a disease that one must fight and battle with in hopes of a victory. Addiction, on the other hand, is viewed as a personal weakness that one must learn to control. If addiction is considered a disease, do you think more help should be available to those suffering from it? Do you think society's views on addiction would change to be more sympathetic toward individuals suffering from addiction?

3. Look at the most popular songs for the past month. How many refer to drugs? Are drugs portrayed positively or negatively? Do the lyrics have any effect on your behavior or the behavior of those around you?

2

Impact of Drugs in Society

Drugs are used for many purposes, including socialization.

Chapter Objectives

After completing this chapter, the reader should be able to:

- Illustrate how the effects of drugs are affected by society's perception
- Summarize the impact that drugs have had on society
- Contrast reasons for drug use (i.e., experimental, social, and compulsive drug use)
- Assess the factors that have influenced the rate of drug use
- Evaluate the changes in the incidence of drug use over the last 30 years
- Argue the reasons for and against drug testing (public assistance recipients, school athletes, at the workplace)
- Discuss the limitations of drug testing
- Evaluate the effects of drugs on the family, academic achievement, and in the workplace
- Differentiate between physiological, behavioral, acute, and chronic toxicity
- Evaluate the trends of drug use using data from recent surveys (*Monitoring the Future*, *National Survey on Drug Use and Health*)

FACT OR FICTION?

1. The federal government spends more money on preventing drug use than on prosecuting drug users.
2. About three out of every four US voters feel that the war on drugs has been a failure.
3. Parents who use drugs are more likely to have children who use drugs.
4. Most adolescents aged 12 to 17 who are in substance abuse treatment were referred there by their schools.
5. Individuals in the 12 to 17 age group are more likely to use illegal drugs on a monthly basis than individuals between ages 18 and 25.
6. The United States has one of the highest incarceration rates in the world.
7. All hospitals drug test women who have given birth to determine whether their babies may have drugs in their bloodstreams.
8. People who were abused as children have higher rates of alcoholism during adulthood compared with those people who were not abused as children.
9. The most commonly used illicit drug is cocaine.
10. E-cigarettes have the highest use rate among all tobacco products.

Turn the page to check your answers

Drugs pervade every facet of life. A fetus is affected by the mother's use of caffeine, tobacco, sedatives, and alcohol. Children are given stimulants to help them function more effectively in school. Adolescents use drugs to cope with daily stresses and to fit in with others. College students ingest amphetamines to stay awake and study late into the night. Club drugs such as ecstasy and GHB are taken at nightclubs and rave parties to enhance the user's mood. Homemakers rely on tranquilizers such as Xanax to deal with life's problems. People living in poverty take drugs to mask the situations in which they find themselves. Affluent individuals use drugs out of boredom. Elderly people rely on drugs to manage ailments that accompany aging. Deeply imbedded in the human psyche is the tendency to use drugs to deal with pains, problems, frustrations, disappointments, and social interactions.

The Prevalence of Drug Use

Nearly every American has used a mind-altering substance by having a glass of wine, a cigarette, a cup of coffee, a soft drink, or a cup of hot chocolate. In the United States, sales of prescription drugs totaled \$309 billion in 2015.¹ American children consume 90% of all Ritalin produced worldwide.² In 2011, the number of people who visited emergency rooms that involved drug misuse abuse in 2011 was 2,460,000 which includes nonmedical use of pharmaceutical drugs.³ Of these nonmedical pharmaceutical drugs, prescription stimulants (Adderall, Ritalin, etc.) are

the mostly widely abused among college students.⁴ Nine out of ten pharmaceutical companies, meanwhile, are spending more money on marketing prescription drugs than on research and development of these drugs.⁵ Not surprisingly, these companies contribute a large amount of money to the US Food and Drug Administration (FDA).⁶

Among persons aged 12 or older, an estimated 27.1 million reported to using an illicit drug in the past month.⁷ This is about 1 out of every 10 Americans. Of illicit drug use, marijuana is the most commonly used drug.⁸ A little over 20 million people aged 12 and older had a substance use disorder in 2015. Of these, the most commonly reported substance use disorder was attributed to alcohol (15.7 million).⁹

Drug abuse is an expensive problem. The use and abuse of tobacco, alcohol, and illicit drug use is estimated to cost the United States \$700 billion dollars annually, which includes costs related to crime, lost work productivity, and healthcare.^{10,11,12} Only 11% of those who need treatment for drug dependence receive services. Thus out of 22.7 million people who could benefit from treatment, only 2.5 million actually receive treatment.¹³ The economic cost of alcohol misuse in the United States is estimated to be about \$249 billion annually.¹⁴

Over half of all state and federal prison inmates are in jail on drug offense charges.¹⁵ To address problems associated with drugs, the US government is increasing its funding. By way of comparison, in 1980, the figure for combating drug abuse was \$1 billion; in 2017, the US government requested \$31.1 billion for drug control.^{16,17} About half of the money earmarked in 2017 is for the prevention and treatment of drugs. Figure 2.1 shows the drug control budget for the 2017 fiscal year.¹⁸

FACT OR FICTION?

1. **FICTION** The fact is—Far more money is allocated for prosecuting drug offenses than for preventing drug use.
2. **FACT** According to Zogby International, 76% of US voters feel that the war on drugs has been unsuccessful.
3. **FACT** Children who grow up in drug-dependent families are more likely to use drugs.
4. **FICTION** The fact is—Adolescents in substance abuse treatment are more likely to be referred by the criminal justice system than by their schools.
5. **FICTION** The fact is—Individuals between the ages of 18 and 25 are almost twice as likely to have used an illegal drug in the previous month.
6. **FACT** A little over 1% of the US's population is in jail.
7. **FICTION** The fact is—Some hospitals have tested pregnant women whom they suspected of having used drugs; however, most hospitals do not routinely test for drugs.
8. **FACT** More people who were abused as children are likely to be alcoholics as adults, although most abused children do not become alcoholics.
9. **FICTION** The fact is—Marijuana is the commonly used illicit drug.
10. **FACT** A little over 15% of 8th and 12th graders have reported to using e-cigarettes.

Budget Authority in Millions of Dollars.
Source: ONDCP, February 2016

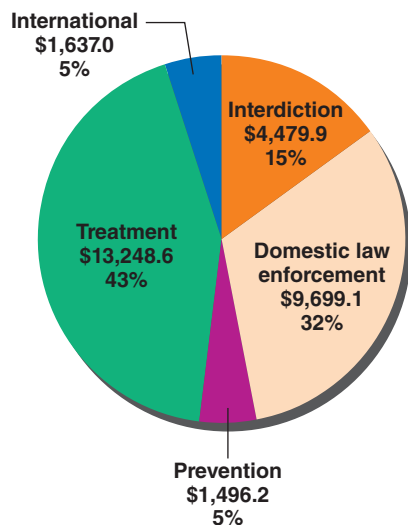


Figure 2.1 United States Budget for Drug Control 2016

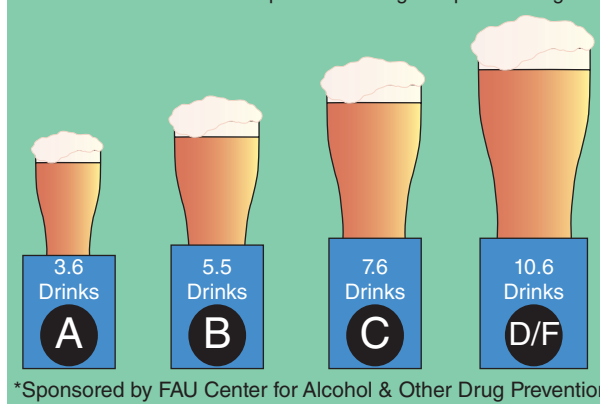
Source: "National Drug Control Budget: FY 2017 Funding Highlights" (Washington, DC: Executive Office of the President, Office of National Drug Control Policy), February 2016, Table 1, p. 16, and Table 3, p. 19. https://www.whitehouse.gov/sites/default/files/ondcp/press-release/fy_2...

The Impact of Drug Use and Abuse

Alcohol use is prevalent in the United States with almost 90% of adults aged 18 or older report to using alcohol at some point in their lifetime.¹⁹ Furthermore, almost one-fourth of all adults aged 18 or older reported they engaged in binge drinking during the past month and almost 7% reported they engaged in heavy drinking over the past month.²⁰ It is not surprising then that alcohol use disorder the United States is cause for concern. Of adults aged 18 and older, almost 7% have an alcohol use disorder.²¹ It is not surprising then to discover that almost 90,000 people die per year due to alcohol, making alcohol-related deaths the fourth preventable cause of death in the United States.^{22, 23}

The use of alcohol by college students is particularly concerning. College students use alcohol at rates that are higher than their noncollege attending peers.²⁴ College students report heavy drinking and binge drinking at rates that are higher than their noncollege-attending peers.^{25, 26} Not only has binge drinking at American colleges been linked to student deaths, but it has also been associated with weak academic performance, injuries, vandalism, and property damage.²⁷ About 25% of students reported academic problems

This table below describes the relationship between the average number of drinks consumed per week and grade point average.



■ The more one drinks the less likely he will be successful in school.

as a result of their drinking alcohol.²⁸ Female college students who drink alcohol are perceived as being more sexually interested.²⁹ Similarly, college women are more likely to experience verbal, sexual, and physical aggression on days they drink heavily.³⁰

In 2010, among college students aged 18 to 24, 1,825 died from alcohol-related unintentional injuries, 599,000 were unintentionally injured while under the influence of alcohol, 690,000 were assaulted by another student who had been drinking, and 97,000 were victims of alcohol-related sexual abuse.³¹ Moreover, 100,000 reported being too intoxicated to know if they consented to having sex.³²

Some people are concerned that drug use is destroying the fabric of society, that families and communities are undermined by drug use, and that moral decay will fester. In many instances, however, family and community problems might be the precursors to, rather than the effects of, drug abuse.³³ When addressing drug-related problems, there is a sense of frustration that something must be done. A public opinion poll indicated that 32% of Americans consider drug abuse a crisis across the country and 55% see it as a serious problem. However, only 12% reported feel drug abuse is a crisis in their own community.³⁴

Impact of Drug Use and Abuse on the Family

Parental drug abuse has a detrimental impact on children. Children who are raised by parents who abuse drugs experience much instability during their childhood. The needs of the child become secondary to the drug dependence needs of the parent. In families with one parent abusing drugs, the financial needs of the children become second to the drug needs of the

parent.³⁵ Thus monies that should be used for food, clothing, etc., are being misappropriated and used for drugs. Children who are raised by parents who abuse drugs are more likely to be abused both physically and mentally.³⁶ One study found children who were raised by a parent who is dependent on opioids were more likely to have nutritional and medical disorders.³⁷

Parents/caregivers who abuse drugs are more likely to have poor parenting skills (includes abuse), inadequate coping skills, a lack of basic resources, limited social support, and experience high employment rates and housing instability.³⁸ Drugs can be seen as a way to escape these circumstances, even though it is detrimental to their children. It should come as no surprise to discover that more than half of all welfare cases and at least two-thirds of all cases where children are taken out of the home are due to parental substance abuse.³⁹

Children raised in homes with parental substance abuse problems suffer from emotional trauma, which results in lower academic achievement, truancy, suicidal involvement, teenage pregnancy, eating disorders, and substance use and abuse.⁴⁰ Furthermore, in a recent study, it was discovered that children who are raised by a mother who abuses alcohol experience emotional neglect, physical abuse, emotional abuse, and sexual abuse.⁴¹ Parental substance use and abuse is a risk factor for child substance use and abuse. This becomes a cycle where the children raised in drug-dependent families use drugs to escape their reality grow up and raise their children in households where substance abuse is taking place.

In families with no parental substance abuse, substance dependency by a child negatively impacts the family's ability to function. The addiction becomes the family's focus, often to the detriment of other children in the family. Families describe feeling torn between wanting to deal with the child who is

suffering from addiction and the desire to maintain a stable environment for the other children in the family.⁴² Mothers, in particular, are especially vulnerable in the family and carry the heaviest burden while trying to be a successful caregiver to those outside of the family.⁴³ The relationship between the parents also becomes strained and the anger and frustration that is felt toward the child with the substance abuse problem begins to manifest itself as anger between the parents.⁴⁴ Siblings of the substance-dependent child also suffer with direct and indirect consequences. Direct consequences include being assaulted or stolen from, while indirect consequences include feeling neglected because all the attention is going to the child with the substance abuse problem.⁴⁵

Although drug use has not been *proved* to increase marital separation and divorce, an association exists between drug use and the likelihood that a couple will separate or divorce. Women with alcohol-dependent partners have significantly more family and marital problems. Also, women subjected to violence have higher rates of alcohol dependence and other drug abuse problems.⁴⁶ Family life may reduce drug involvement. Family interventions into adolescent alcohol use reduce the initiation and frequency of alcohol use.⁴⁷ Teaching adults how to improve their parenting skills has been shown to reduce the use of alcohol and other drugs among children and adolescents.⁴⁸

It has been shown that marijuana use by young Black males is significantly reduced when both parents are present.⁴⁹ Parental divorce, however, increases the likelihood that children will be prescribed Ritalin.⁵⁰ In a study of Finnish twins, intoxication by the father was shown to increase the likelihood of marijuana smoking, although cigarette use was a stronger predictor of marijuana use.⁵¹

In a study of marriage, it was found that individuals' illicit drug use declined after they married. Both husband and wife reduced their illicit drug use, but husbands were slightly more likely than wives to use drugs.⁵² When couples cohabitate, licit and illicit drug use declines, although marriage produces a greater decline.⁵³ In a study of divorced couples, researchers noted that frequent alcohol intoxication was strongly related to divorce. Frequency of marijuana use was not a strong predictor of divorce.⁵⁴

Substance abuse is a prominent factor in many cases of child abuse and domestic abuse. For instance, in a study of US soldiers, it was noted that 13% of those involved in child maltreatment were under the influence of alcohol or an illicit drug at the time of the incident.⁵⁵ Moreover, many of those individuals who were abused as children or abused by their intimate partners end up in substance abuse



Monkey Business Images/Shutterstock.com

■ One in ten children live with a parent who has a substance abuse problem.


treatment. It was found that women in treatment who were abused as children are about 2.5 times more likely to be victims of intimate partner violence.⁵⁶ Although alcohol is implicated with child and domestic abuse, alcohol is also linked to other drugs. For example, it has been shown that there is a strong relationship between binge drinking and cocaine use.⁵⁷

A study in Brazil reported that alcohol use or abuse was associated with the perpetration of sexual aggression, especially toward boys.⁵⁸ Adolescents who were sexually abusive and engaged in criminal sexual conduct were more likely to have caregivers who had histories of substance use and abuse.⁵⁹ Conversely, women who were sexually abused by age 13 have a greater incidence of alcohol dependence and abuse. Children who are neglected are at greater risk for being arrested on drug and alcohol violations.⁶⁰ Children who were sexually abused are more likely to develop drug-related problems as adults.⁶¹ Substance abuse does not figure into every incident of maltreatment; however, caseworkers often cite it as a major factor. One study found that individuals who were abused or neglected as children do not necessarily grow up abusing alcohol, but have a greater risk of abusing alcohol.⁶²

Impact of Drug Use and Abuse on Society

Currently, the United States has one of the highest incarceration rates in the world.⁶³ Since the 1970s incarceration rates have grown 700%.⁶⁴ This amounts to over 1 per 100 Americans in jail.⁶⁵ Half of all people in state and federal prisons are serving sentences for drug-related offenses.⁶⁶ This places a large burden on the taxpayers, as the budget for state prisons has quadrupled over the past two decades.⁶⁷ It costs taxpayers about \$30,000 to house an inmate for one year.⁶⁸ While prisons serve a necessary role in society, it is easy to question the justification of whether it is a good use of taxpayers' money to place nonviolent offenders, and in particular drug offenders, in prison.

In contrast, there is an association between illegal drug use and violent crime.⁶⁹ In 2010, among people arrested for committing a crime, those who tested positive for drugs ranged from 52% in Washington, DC to 83% in Chicago.⁷⁰ Since 1972, the number of people incarcerated for drug-related crimes has increased fivefold, but despite this increase, drug use and crime have not declined.⁷¹ Alcohol, more than any other drug, is a factor in violent crimes such as murder, rape, and assault.⁷² Driving while intoxicated in the third most commonly reported crime in the United States and is the number one cause of death,



CONSIDER This

Half of our prison population consists of drug offenders. There is much talk about prison overpopulation and crowding. Furthermore, drug use and abuse is related to higher rates of other crimes. How would you handle drug offenders? Is jail the best place for them?

injury, and disability in people under the age of 21.⁷³ Furthermore, it is estimated that four out of five juveniles in state institutions were under the influence of alcohol or drugs while committing their crimes.⁷⁴ Alcohol accounts for twice as many violent incidents in bars, nightclubs, and restaurants.⁷⁵

Newspaper headlines recount disturbing stories of drug-crazed people perpetrating crimes on others. In August 2016 a 19-year-old Florida State University student was suspected of a double homicide and one attempted murder. In this bizarre story, he found stabbing a man while biting the man's face.⁷⁶ What is called the "zombie drug" Flakka has been implicated as a contributor in this incident. Flakka is a synthetic cathinone related to bath salts. It causes the user to experience hyperstimulation, paranoia, and hallucinations.⁷⁷ More on bath salts will be discussed in a later chapter.

Prenatal exposure to drugs and alcohol can have devastating effects for the baby. Although rates for pregnant women (~5%) are lower than for nonpregnant women (~10%), there is still cause for concern.⁷⁸ Alcohol use during pregnancy follows the same trend, with fewer pregnant women consuming alcohol (10%) compared with nonpregnant women (55%).⁷⁹ Of particular concern are teens who are pregnant, as they have the highest rate of drug use among pregnant women. Pregnant teens (22%) have higher rates of tobacco use compared with nonpregnant teens (13%).⁸⁰ Additionally, of young mothers aged 15 to 19, 11.7% used marijuana in the previous 30 days.⁸¹ In self-reported surveys, roughly

NEW YORK DAILY NEWS
CITY
HOME

KIDNEY PATIENT IN NEED

"Face-eating Florida teen accused of murder wakes up from coma"

By Christopher Brennan

The has lost eyesight, mibility

The saw girl at work in making

OF COURSE, ANYBODY WHO PAYS ALL THEIR

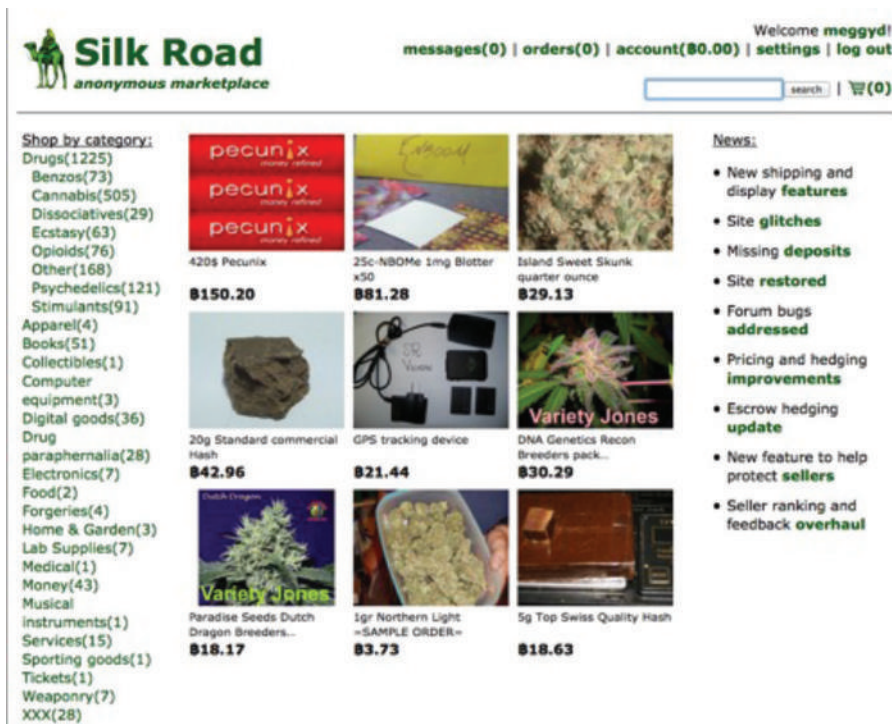
Uncredited/AP Images

5% of pregnant women admitted to using marijuana during pregnancy.⁸² More research is being done to determine the impact of marijuana on a fetus. This, along with the impact on other drugs and alcohol on the fetus, will be presented in later chapters. In 2010, the Child Abuse Prevention and Treatment Act, including the Keeping Children and Families Safe Act, was reauthorized by Congress and states that physicians must notify child and protective services if an infant is affected by illegal substances at birth. This poses ethical, legal, and social concerns. Some states authorize either civil commitment or detention of women to protect a fetus from substance exposure while others consider maternal substance use child abuse and will remove the infant from maternal custody when born.⁸³ Furthermore, in many states there is no clear distinction on whether maternal substance use constitutes child abuse. This also presents a problem when considering the privacy rights of pregnant women. The 14th amendment protects personal privacy rights including the rights of a woman to decide whether or not to bear a child. Some would say that maternal substance abuse would fall under these privacy rights, while others believe a fetus' rights cannot be separated from the women's rights.⁸⁴ One must consider the purpose of these laws and how to best implement them to protect the mother's rights and the fetus' rights. If infants are taken away immediately from substance abusing mothers, does this serve as a deterrent for mothers taking substances while pregnant or does it punish mothers who use drugs?

In 2012, there were approximately 1.2 million persons aged 13 and older living with HIV infection.⁸⁵ HIV is the virus that causes AIDS. In 2014, there were almost 45,000 newly diagnosed HIV cases.⁸⁶ The impact of HIV and AIDS disproportionately impacts underrepresented persons. Black/African Americans account for almost half of newly diagnosed cases.⁸⁷ Furthermore, Hispanics/Latino represent 17% of the population, but account for 23% of HIV diagnoses.⁸⁸ Injection drug use accounts for approximately 6% of all newly diagnoses HIV cases, which is down 63%.⁸⁹ Needle-exchange programs have been shown to reduce the transmission of HIV.⁹⁰

Drugs are widely available, especially in the largest metropolitan areas where illegal drug use is more common. In the United States, 9.4% of people aged 12 and older used an illicit drug in the past month.⁹¹ Marijuana was the most commonly used illicit drug representing 7.5% of users.⁹² In New York City, marijuana can be obtained at newsstands, record shops, video rental outlets, and so on. In 2011, a large Internet site called the Silk Road popped up and became a place where illegal drugs (and other items) could be purchased on the Internet and delivered right to someone's door.⁹³ Much like eBay, the website was a virtual place that connected dealers to buyers. It is an anonymous black market website that had an estimated 30,000 to 150,000 active buyers.⁹⁴ While not the only black market website, it gained notoriety after an article in Gawker was posted highlighting the services and goods that could be purchased through this website.⁹⁵ It is estimated that there were around 340 different types of illicit drugs for sale on the website.⁹⁶ The site was closed down in 2013, followed by Silk Road 2.0 being relaunched by some of the initial administrators from Silk Road. This site was also shut down and three of the administrators were arrested.⁹⁷

To curb drug availability, billions of dollars are allocated for drug enforcement, prevention, and treatment. In 2017, it was predicted that the federal government's requested expenditures to interdict drugs would total \$4.1 billion.⁹⁸ High schools and colleges conduct drug tests, especially with athletes. Passing a drug test is a condition of employment for some companies.



■ Silk Road: An illicit website that sold drugs

Source: blogspot.com

Drugs unquestionably can lead to violent behavior; dependency; mental and physical maladies; strained relationships among siblings, children, parents, and spouses; work-related problems; legal dilemmas; problems in school; financial difficulties; accidents and injuries; and death. Over the last several decades, the United States has become much less tolerant of drug use. The sentiment of zero tolerance extends to other countries as well. For example, in Australia, there is a movement away from minimizing the harm of drugs to zero tolerance.⁹⁹

A report from the Brookings Institute suggested that the debate over how to address the drug problem is based on speculation, not on fact.¹⁰⁰ It is unclear how much of a drug a person has to take before problems arise and how often one has to use drugs before becoming dependent or developing a psychological or medical problem. No hard-and-fast rules are available for determining when drugs become a problem for an individual.¹⁰¹

Drugs from a Social Perspective

The effects that drugs produce are influenced greatly by society's perception of them.¹⁰² For example, illegal drugs are condemned much more than legal drugs. Consequently, people who use legal drugs are not viewed in the same negative light as those who use illegal drugs. Tobacco use, in the form of cigarettes, was perceived more negatively in the 2010s than in the 1980s. However, perceptions of e-cigarettes have not shown the same trajectory. In a study conducted on young adults, of those who were aware of e-cigarettes, 44% agreed they can help a person quit smoking, 52% agreed they were less harmful than cigarettes, and 26% felt they were less addictive than cigarettes.¹⁰³ Society's reaction to an injection of morphine in a hospital is very different from that to an injection in one's home after obtaining morphine illegally. In addition to the pharmacological effects of drugs, social and psychological factors surrounding drug use play an important role.

Whether a given drug is defined as good or bad, socially acceptable or undesirable, conventional or "deviant" is not a simple outgrowth of the properties or objective characteristics of the drug itself, but is in no small measure a result of the history of its use, what social strata of society use it, for what purposes, the publicity surrounding its use, and so on. Whether the effects are experienced as pleasurable (euphoric) or unpleasant (dysphoric), weak or intense, hedonistic or depressing, hallucinatory or mundane,

serene or exciting is largely a function of sociological factors.¹⁰⁴

Risk factors that increase the potential for young people to use drugs include growing up in a chaotic household, having parents who abuse drugs, and lacking mutual attachment and nurturing. Parental drug use and poor family relations increase the likelihood of children using drugs¹⁰⁵ (see Figure 2.2).

Other risk factors include school failure, extreme shyness or aggressiveness in the classroom, poor coping skills, the perception that drug use is acceptable, and associating with peers who engage in drug use and other deviant behaviors.¹⁰⁶ In contrast, protective factors that reduce the likelihood of drug use are strong bonds with families, parents who take an active role in their children's lives, academic success, parents who monitor their children and provide clear rules for them, and children who adopt conventional norms regarding drug use.¹⁰⁷ The simple act of eating meals together reduces the likelihood of children using drugs.¹⁰⁸

Patterns of Drug Taking

In the 1970s, the National Commission on Marihuana and Drug Abuse devised a typology of five general patterns of drug-taking behavior: experimental, social-recreational, circumstantial-situational, intensified, and compulsive.¹⁰⁹ Despite when these typologies were developed, they remain appropriate.

Experimental Use

Individuals who use drugs infrequently and out of curiosity typify **experimental use**. This pattern involves short-term drug use. Experimental use is limited to ten or fewer experiences with a given drug. Drug use usually does not go beyond the experimental phase, because the experimenter no longer has access to the drugs or simply does not find the drug experience enjoyable. If the person continues to use drugs, the drug use no longer is a matter of curiosity or experimentation.

Social-Recreational Use

Social-recreational use, the most common pattern, refers to taking drugs in a social environment to

experimental drug use Infrequent drug use usually motivated by curiosity

social-recreational drug use Taking drugs in a social environment to share pleasurable experiences among friends

share pleasurable experiences among friends. Social-recreational users do not tend to escalate their drug taking to the point of abuse. Women are more likely to be introduced to drug use by a sexual partner.¹¹⁰ Adolescent females, in particular, are influenced more by romantic partners as compared to men.¹¹¹ These situations could be classified as a social-recreational situations.

Circumstantial-Situational Use

Taking a drug on a short-term basis to contend with immediate distress or pressure characterizes **circumstantial-situational use**. Adolescents are more likely to use drugs when they are under stress. Several studies on multiple stressors have found a significant relationship between stress and substance use and abuse among adolescents. In two recent studies regarding Latino and Hispanic adolescents, stress related to culture and minority status was identified as being a risk factor for substance use and abuse.^{112,113} It seems that holding a minority status in itself is a risk factor for substance use and abuse. For instance, gay, lesbian, bisexual, and transgender youths, who are often under much stress, have significantly higher rates of substance use. In a large study conducted on adolescents, the identification with being a gender minority was associated with increased use of alcohol, marijuana, and illicit drugs. This same study identified this group as experiencing more episodes of bullying, which also placed them at an increased risk for substance use and abuse.¹¹⁴ Moreover, there are few intervention programs tailored to these youths.¹¹⁵ Also, easy access to drugs increases the likelihood of teenagers using drugs.¹¹⁶ Likewise, easy accessibility for health-care professionals can lead to drug abuse. Physicians have been found to abuse alcohol and drugs at similar rates to the general population.¹¹⁷ A study done in 2004 found that physicians abused prescription drugs at higher rates compared to the general population.¹¹⁸ This could be attributed to the availability of prescription drugs for physicians. In another study done in 2015, the researchers found illicit and prescription drug use to be uncommon among physicians. Using self-reported surveys, roughly 12% of male and 21% of female doctors met the criteria for alcohol abuse or dependence. Risk factors for the physicians in this study included burnout, depression, suicidal ideation, lower quality of life, lower career satisfaction, and recent medical errors.¹¹⁹ In New York State, 2% of all practicing doctors must be monitored for problems of substance abuse or mental health concerns.¹²⁰ Joyous occasions such as weddings and holidays sometimes stimulate people to drink alcohol excessively. A student who has to write a 10-page paper that is due the next day might take amphetamines to stay up all night.



Olga Sapagina/Shutterstock.com

■ Holiday gatherings can prompt people to drink more alcohol than they had originally intended.

This type of use can become a problem if the need to rely on drugs to cope with problems increases or if stressful events lead to consuming alcohol. Holiday times are stressful as well. There is a higher rate of drug-related suicides of 12- to 17-year-olds and those over age 50 in December.¹²¹

Intensified Use

A person's drug-taking behavior is **intensified use** if he or she uses drugs on a steady, long-term basis to "achieve relief from a persistent problem or stressful situation or his [or her] desire to maintain a certain self-prescribed level of performance."¹²² **Chronic drug use** indicates some extent of physical or psychological dependence. Unlike compulsive drug users, who tend to be alienated from society, chronic drug users maintain their place in society.

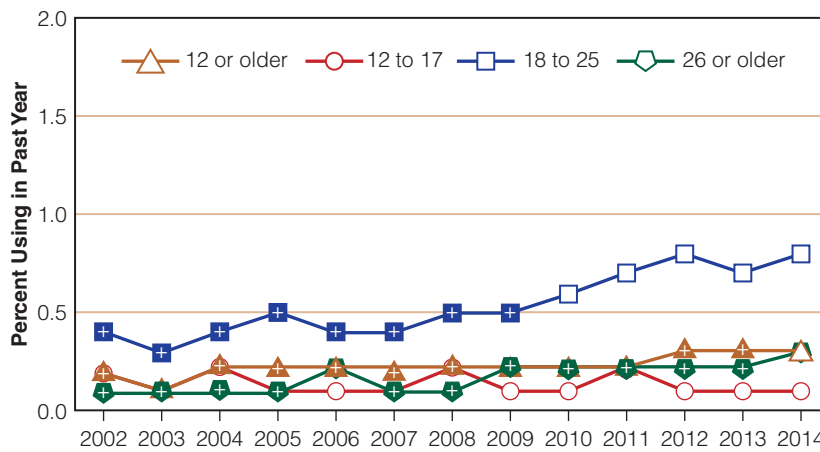
Compulsive Use

The person who consumes drugs compulsively and obsessively is not integrated into society. Acquiring and consuming drugs is the compulsive user's main focus. To a large extent, the media emphasize drug use by teenagers. A major problem, however, is compulsive drug use by hardcore users. In 2014, an estimated 435,000 people aged 12 or older were current heroin users.¹²³ Although heroin use by individuals aged 12 or older represents only 0.3% of the population, its

circumstantial-situational drug use Short-term drug use to contend with immediate distress or pressure

intensified drug use Taking drugs on a steady, long-term basis to relieve a persistent problem or stressful situation

chronic drug use The habitual use of drugs



+Difference between this estimate and the 2014 estimate is statistically significant at the .05 level.

Figure 2.2 Heroin Use by Persons Aged 12 And Older Has Been on the Rise

Source: <https://nsduhweb.rti.org/respweb/homepage.cfm##>

use continues to increase.¹²⁴ Cocaine use estimates have remained steady since 2002, with an estimated 1.5 million users.¹²⁵ These hardcore users also are responsible for most of the crime, child abuse, and fatal overdoses in the United States.

The compulsive user's lifestyle revolves around drugs. The compulsive user takes drugs to avoid discomfort, not to achieve pleasure. Unlike with other patterns of use, the social environment surrounding drug use does not dictate how and why drugs are used. In fact, the individual takes drugs despite the social situation. Society is justified in worrying about **compulsive drug use** because this pattern is destructive to the user and others. Compulsive drug

users are likely to underestimate the extent of their drug use. Most people who use drugs, however, do not become compulsive users.

Extent of Drug Use

To determine precisely the extent of drug use is not easy because people might not answer questions about their personal behavior honestly, especially when illegal drugs are involved. Although obtaining information about the use of legal drugs, such as tobacco, alcohol, and prescription medicines, is easier, even that information may not be entirely accurate.

Even so, surveys repeated over time provide good data with respect to trends in drug use. Two comprehensive, large-scale studies are the *National Survey on Drug Use and Health* and the *Monitoring the Future: National Results on Adolescent Drug Use* survey, which looks at drug use by 8th-grade, 10th-grade, and 12th-grade students.

National Survey on Drug Use and Health

Data regarding drug use have been collected periodically from US households since 1971.¹²⁶ Those who participate represent a random cross-section of people. The data received are grouped by respondents' ages (12–17, 18–25, and 26 or older). Table 2.1 shows monthly use of various drugs based on age groups.

Respondents were asked if they ever used drugs, if they had used them in the past year, and if they had used them in the past month. In 2014, an estimated 27 million Americans aged 12 or older were current illicit drug users and 6.5 million reported using nonmedical use of psychotherapeutic drugs.¹²⁷ The group with the highest rate illegal drug use during the past month was the 18 to 25 age group at 22%, and those 26 and older had the lowest monthly rates at 8.3%. The most commonly used illicit drug was marijuana. It is used by approximately 8.4% of the population, which reflects an increase over previous

ON CAMPUS

Beer drinking is not a rite of passage limited to college students. The Founding Fathers also had experiences with beer. Thomas Jefferson wrote much of the Declaration of Independence in Philadelphia's Indian Queen Tavern. Benjamin Franklin conducted business regularly in Philadelphia's taverns. One of George Washington's first acts as commander of the Continental Army was to allocate a quart of beer with daily rations to every one of his troops.

compulsive drug use Obsessive drug use without regard for society

TABLE 2.1 Types of Illicit Drug Use in Lifetime, Past Year, and Past Month Among Persons aged 12–17

Drug	Lifetime (2014)	Lifetime (2015)	Past Year (2014)	Past Year (2015)	Past Month (2014)	Past Month (2015)
Illicit Drugs^{1,2}	nc	25.3	nc	17.5	nc	8.8
Marijuana	16.4	15.7	13.1	12.6	7.4	7.0
Cocaine	0.9	0.8	0.7	0.6	0.2	0.2
Crack	0.1 ^a	0.1	0.1 ^a	0.0	0.0	0.0
Heroin	0.1	0.1	0.1	0.1	0.1	0.0
Hallucinogens	nc	3.1	nc	2.1	nc	0.5
LSD	1.2	1.3	0.9	1.0	0.3	0.2
PCP	0.2	0.2	0.1	0.1	0.0	0.0
Ecstasy	nc	1.4	nc	0.8	nc	0.1
Inhalants	nc	9.1	nc	2.7	nc	0.7
Methamphetamine	nc	0.3	nc	0.2	nc	0.1
Misuse of Psychotherapeutics ³	nc	nr	nc	5.9	nc	2.0
Pain Relievers	nc	nr	nc	3.9	nc	1.1
Tranquilizers	nc	nr	nc	1.6	nc	0.7
Stimulants	nc	nr	nc	2.0	nc	0.5
Sedatives	nc	nr	nc	0.4	nc	0.1
Illicit Drugs Other Than Marijuana^{1,2}	nc	15.9	nc	9.1	nc	3.0

Reference: Center for Behavioral Health Statistics and Quality. (2016). *2015 National Survey on Drug Use and Health: Detailed Tables*. Substance Abuse and Mental Health Services Administration, Rockville, MD.

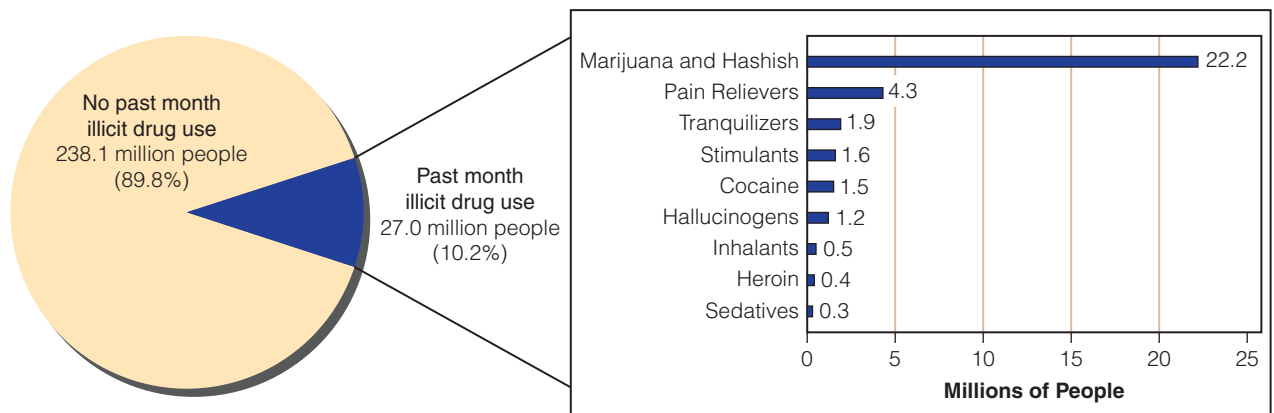
years. Key facts regarding this dataset from 2014 are presented below:¹²⁸

- 27 million Americans use illicit drugs. This represents 10% of the population. These estimates are higher compared to previous years. Figure 2.3 highlights past month illicit drug use.
- 66.9 million Americans are tobacco users. This represents a decrease in tobacco use, especially among adolescents. In 2002 13% of adolescents were cigarette smokers compared to 4.9% in 2014.
- 139.7 million Americans drank alcohol in the past month.
- 60.9 million Americans report to binge drinking while 16.3 million report to using alcohol heavily. These rates are similar to those of past years.
- Around 21 million Americans had a substance use disorder and 3.3% had both a mental illness and a substance use disorder.
- Marijuana is the most used illicit drug with an estimated 22.2 million Americans reported being current users. This represents a higher number of users compared to previous years.
- 2.5% of the population reported nonmedical use of psychotherapeutic drugs. This includes the use of pain relievers, tranquilizers, stimulants, and sedatives. Two-thirds of nonmedical use of psychotherapeutics are pain relievers.
- 0.1% reported to using LSD in the past month and 0.2% reported to using ecstasy (MDMA). These are similar rates to previous years.
- Almost a half a million users reported to using inhalants, comprising mostly young adolescents.

Monitoring the Future: National Results on Adolescent Drug Use—Overview of Key Findings, 2014¹²⁹

Beginning in 1975, the National Institute on Drug Abuse funded research examining the extent of legal and illegal drug use by high school seniors throughout the United States. The research, titled “Monitoring the Future,” expanded in 1991 to include 8th- and 10th-grade students. Besides drug usage, data were collected regarding attitudes about drugs, age at which drug use was initiated, and the availability of drugs. Although this annual survey excludes students who drop out of school and those who are absent from school on the day the survey is administered (suggesting that actual figures are underreported), it provides an excellent barometer of trends concerning drug use by 8th-, 10th-, and 12th-grade students.

The year 2014 data, which included about 42,000 students nationwide, showed a mixed picture



Note: Estimated numbers of people refer to people aged 12 or older in the civilian, noninstitutionalized population in the United States. The numbers do not sum to the total population of the United States because the population for NSDUH does not include people aged 11 years old or younger, people with no fixed household address (e.g., homeless or transient people not in shelters), active-duty military personnel, and residents of institutional group quarters, such as correctional facilities, nursing homes, mental institutions, and long-term hospitals.

Note: The estimated numbers of current users of different illicit drugs are not mutually exclusive because people could have used more than one type of illicit drug in the past month.

Figure 2.3 Numbers of Past Month Illicit Drug Users among People Aged 12 or Older: 2014

Source: Substance Abuse and Mental Health Services Administration (SAMHSA). 2014 National Survey on Drug Use and Health (NSDUH)

in illicit drug use among 8th-, 10th-, and 12th-grade students since the mid-1990s. One of the purposes of this study is to analyze cohort effects as they pertain to differences in substance use attitudes and behaviors. Cohort effects look at attitudes regarding substances at over time. Individuals who grow up at a certain time in history share certain ideas and attitudes regarding drugs. These cohort effects impact drug use. For example, as cigarette use among adolescents declines, one also sees a decline in cigarette use among adults as these adolescents grow up resisting cigarettes and grow into adults who resist cigarette use. Thus, over time, cigarette use will continue to decrease. On the other hand, these cohort effects can predict increased use of certain drugs. Consider the use of e-cigarettes, which has been observed to be on the increase in young adolescents. This trend may then continue to adulthood with as the adolescents grow up and continue to use e-cigarettes.¹³⁰

Results from this survey show a decline in the use of licit (legal) and illicit drugs. Unlike the results from the *Monitoring the Future National Survey Results on Drug Use*, this survey showed a decrease in marijuana use among by young adolescents. Conversely, while marijuana use has declined, attitudes regarding acceptance of marijuana use has increased while perceived risk for marijuana decreased. Other drugs that have a decreased prevalence include: synthetic marijuana, bath salts, narcotics other than heroin, ecstasy (MDMA), hallucinogens other than LSD, salvia, over-the-counter cough and cold medicines, amphetamines use without doctor's orders, Ritalin, Adderall, "crack" cocaine, and

any prescription psychotherapeutic drug.¹³¹ Drug use that remained steady were inhalants, tranquilizers, and the club drugs GHB, cocaine, heroin, methamphetamine and crystal methamphetamine, sedatives, rohypnol, ketamine, and anabolic steroids. Other data revealed in the survey include the following:¹³²

- Cigarette smoking continues to be on the decline. Rates between 1996 and 2014 have declined by 81% for 8th graders and 77% for 10th graders. Increased risk and disapproval rates have increased steadily since 1996 and seem to have halted in 2013.
- Smokeless tobacco rates decreased from the mid-1990s to the early 2000s. These levels rebounded from the 2000s to the 2010s. Since 2010, the levels have declined but remained steady in 2014. Since 2010, there has been a decline in the use of smokeless tobacco, some of which may be attributed to the increase use of e-cigarettes.
- Alcohol is the most widely used substance among today's teenagers, with 66% having reported to have consumed alcohol. In 2014, half of all 12th graders and 11% of 8th graders reported being drunk at least once in their life. See Figure 2.4 for alcohol trends among these grade levels.
- E-cigarettes have the highest 30-day prevalence use compared to all tobacco products. Use was 8.7% of 8th graders, 16.2% of 10th graders, and 17.1% of 12th graders. E-cigarettes is being perceived as less risky compared to cigarettes with about 14% of respondents perceiving a "great risk" associated with e-cigarettes compared to on

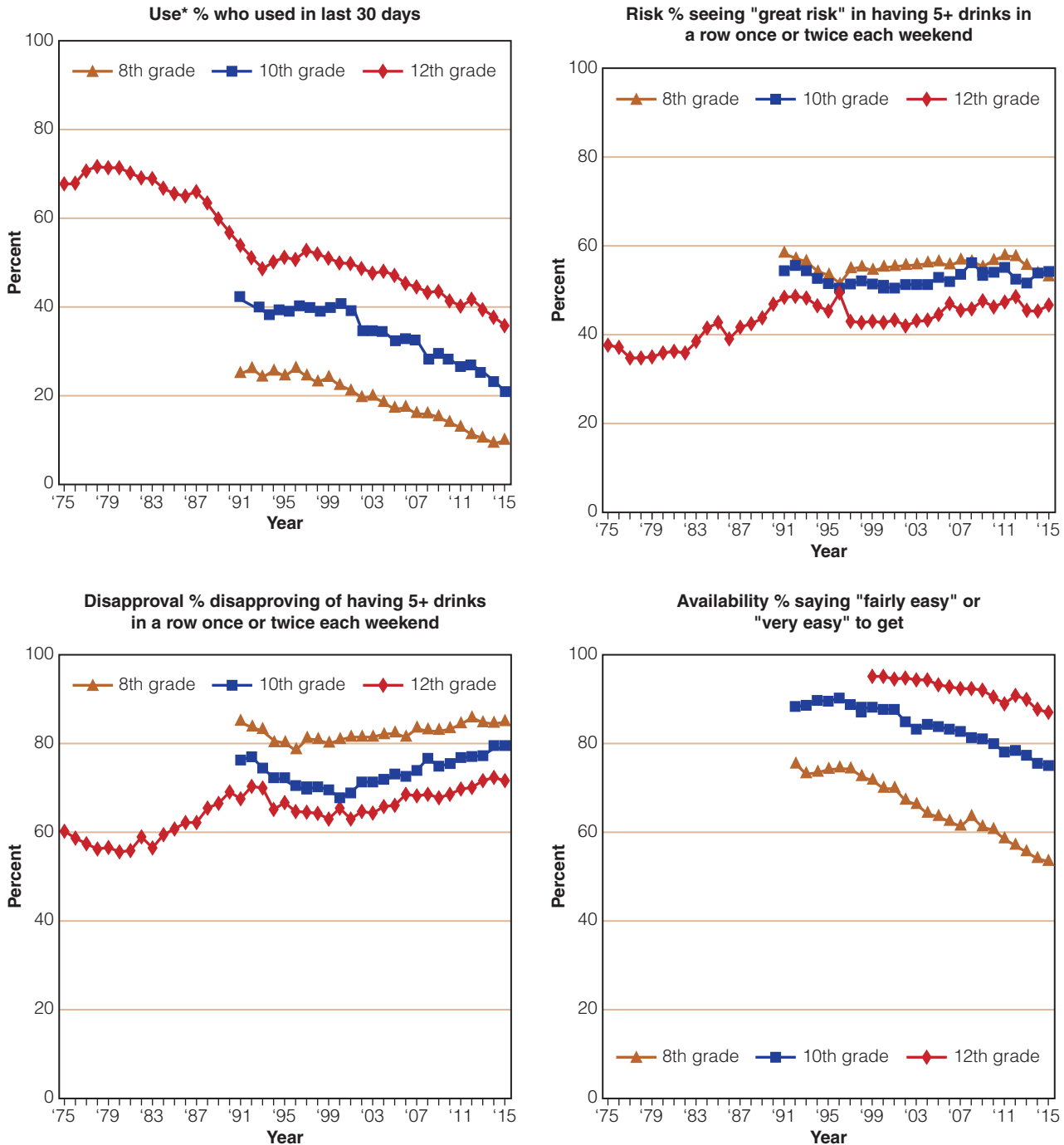


Figure 2.4 Alcohol: Trends in 30-Day Use, Risk, Disapproval, and Availability

*Beginning in 1993, a revised set of questions on alcohol use was introduced, in which a drink was defined as “more than just a few sips.”

Source. The Monitoring the Future study, the University of Michigan.

average about 73% perceiving a “great risk” with smoking one or more packs of cigarettes a day.

- Daily prevalence rates of marijuana use have declined with about 1% of 8th graders, 3.4% of 10th graders, and 5.8% of 12th graders reporting daily use. For 12th graders, the availability of marijuana has remained steady since 1975, with between 81% and 90% of 12th graders saying

they could get marijuana easily compared to 81% in 2014. The availability of marijuana for 8th graders is much lower at 37%.

- Synthetic marijuana was first monitored in 2011 among 12th graders. Prevalence at this time was 11.4%, making it the second most used illicit drug after marijuana. Rates did not begin to decline until 2012 and continued to decline into 2014.

- LSD was the most commonly used hallucinogenic drug until 1996. From 1996 to 2006 use declined and has remained at low levels. Since 2000, perceived risk has been declining, suggesting a phenomenon called “generation forgetting.” Young teens are less knowledgeable about the drug with more participants responding “can’t say, drug unfamiliar” to questions about LSD.
- Cocaine use among 8th, 10th, and 12th graders has been sporadic. Over the past 15 years, however, use has declined, with only an annual use of 2.6% among 12th graders and lower numbers for 8th and 10th graders. Perceived risk among all grade levels rose from 1992 to 2000 and continues to rise slightly each year.
- Crack cocaine is a separate item on the “Monitoring the Future” survey. Use rose rapidly in the early 1980s with the highest levels recorded in 1986 with a 4% prevalence rate among 12th graders. In 2014, historic lows were recorded among 8th and 10th grades (prevalence rates dropped 80%) and near historic lows among 12th grades (prevalence

rates dropped 60%). Perceived risk of trying crack rose slightly in 2014 among 8th and 10th graders and leveled off among 12th graders. Perceived risk of regular use of crack dropped significantly in 2014 among all grade levels.

- Heroin use fell significantly between the years 1975 and 1979 and held at a low rate until 1994. Use rose in the mid-to-late 1990s (along with other drugs). Use of heroin reached its peak in the late 1990s and early 2000s among 8th, 10th, and 12th graders. Use then began to decline until 2013 with only 0.6% of students reporting heroin use. In 2014, there has been no further change in prevalence.
- The prevalence rates for ecstasy was high in 1996 among 10th and 12th graders with 4.6% reporting ecstasy use; this was higher than college students and young adult use. Since that time, use has declined slightly. In 2014, use was reported at 0.9% for 8th graders, 2.3% for 10th graders, and 3.6% for 12th graders. The term “molly” was added to the survey in 2014 because there were some questions about whether students included it in their answers. In the 2014 survey, which included the term, there seems to be no difference in prevalence rates.

CULTURAL Considerations

Rave parties have been associated with the use of club drugs. A study was conducted to determine if there is an association between attending rave parties and drug use. This study was conducted in 2015 among a nationally represented population of US high school seniors. The results are below:

- One out of five high school seniors attended a rave in their lifetime
- A little over 7% reported attending raves monthly
- Females and religious students were less likely to attend raves
- Hispanics, those who live in cities, and those with higher incomes were more likely to attend raves
- Students who attend raves were more likely to use illicit drugs compared to those students who did not attend raves (35.5% vs. 15.6%)
- Frequent attendance of raves was the highest variable associated with illicit drug use

Source: J.J. Palamar, J.Griffin-Tomas, and D.C. Ompad, “Illicit drug use among rave attendees in a nationally representative sample of US high school seniors”, *Drug and Alcohol Dependence*, 152 (2015): 24-31.

Drug Abuse by Older Adults

Drug abuse by Americans 60 years of age and older is an invisible epidemic. In the United States in 2008 more than 49,000 people aged 55 and older went to an emergency room as a result of an adverse reaction to an illicit drug, and more than 151,000 went to an emergency room due to the nonmedical use of a pharmaceutical drug.¹³³ Another 39,000 people aged 55 and older went to an emergency room after experiencing an adverse reaction from alcohol in combination with another drug.¹³⁴ Approximately 2.5 million older Americans have problems related to alcohol. It is estimated that 6% to 11% of elderly patients admitted to hospitals exhibit symptoms of alcoholism, as do 20% of elderly patients in psychiatric wards. Some older adults misuse over-the-counter drugs that have high alcohol content, such as cough suppressants. The majority of older people engaging in substance misuse are men, even though women outnumber men. The small percentage of older adults who abuse illicit drugs usually are aging criminals and long-term heroin addicts.

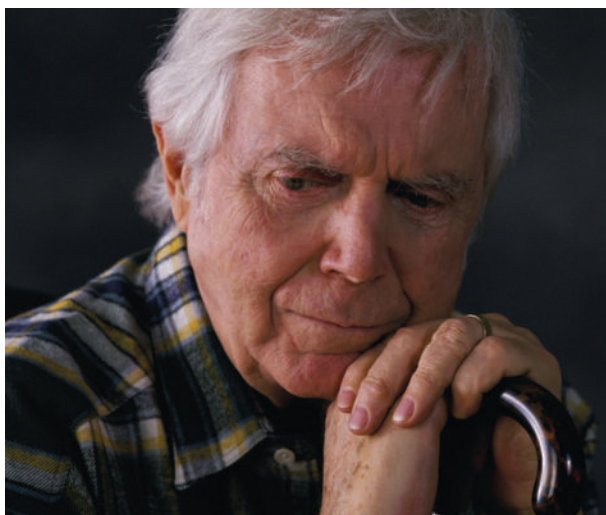
Substance abuse by older adults accelerates the normal decline in physiological functioning that accompanies aging. Also, because older people are more affected by drugs, they are at higher risk for

accidents and illness. Further, the percentage of older adults in the general population is projected to increase, so substance abuse problems are expected to become more apparent. A clear relationship exists between alcohol problems early in life and alcohol problems later in life. Also, there is an association between separated, divorced, and widowed adults and alcohol abuse.

Close to 30% of older adults have a prescription to take 5 or more medications.¹³⁵ This places older adults at a higher risk for drug misuse as the number of medications that are prescribed is higher and thus the likelihood of adverse drug interactions increased.¹³⁶ Risks for an adverse drug interaction is at 13% for two drugs, 58% for five drugs, and 82% for seven drugs.¹³⁷ Thus as the number of prescriptions for older populations increase the number of adverse effects also increase. Older people are more likely to be noncompliant in their medication adherence due to poor communication skills with their physician, using multiple pharmacies (who may not be aware of other prescriptions), and the decline in cognitive functioning.¹³⁸ Couple this with the increasing amount of over-the-counter (OTC) medications, the use of which is often not shared with physicians and/or pharmacists. It is estimated that older adults take four OTC medications along with four prescribed medications.¹³⁹ Almost one-fourth of older adults take a combined total of 10 or more OTC and prescription medications.¹⁴⁰ As previously mentioned, many people do not inform their doctors and/or pharmacists of the OTC medications they are taking, many of which can adversely interact among each other. For example, Warfarin is a drug that is prescribed to reduce the risk of stroke and heart attacks. When mixed with Ginkgo Biloba, a popular herbal drug in the United States taken to improve memory and brain functioning, may result in an increased risk of bleeding.¹⁴¹ If Warfarin is taken with St. John's Wort, another popular herbal medicine believed to help with depression, it can result in a moderate reduction in the effects of Warfarin.¹⁴²

Problems with substance abuse by elderly people may be more common than believed, because health-care providers underestimate, underidentify, underdiagnose, and undertreat the problem. However, diagnosing symptoms of substance abuse in older adults is difficult because many symptoms mimic symptoms of medical and behavioral disorders common to this population. Older adults also experience more noncancer-related pain compared to younger populations.

A survey conducted indicates that almost 60% of older people experience noncancer related pain lasting at least one year.¹⁴³ It has also been reported that 40% of older people experience daily pain.¹⁴⁴ In a study that was conducted on older people who admitted to misusing drugs a little over 70%



Dick Luria/Getty Images

■ Many older people use drugs to deal with loneliness.

reported to being in fair or poor health and almost 87% reported to having severe physical pain over the past year. Additionally, almost 45% reported severe depression. When asked about their drug-misusing behavior, almost 81% reported misusing the drug to alleviate severe pain followed by almost 15% using the drug as a replacement for another drug and another 15% reported using the drug to get “high.”¹⁴⁵ Thus when looking at opioid misuse among the older population one must consider the motivations for misusing the drug and identify ways to better manage pain.

Contributing to substance abuse problems of older adults are shame and *ageism*. Many older adults feel shamed if they have a substance abuse problem; consequently, they are reluctant to seek treatment. Moreover, adult children of older individuals feel shamed if their parents have a substance abuse problem and therefore choose not to address the problem.

Too often, substance abuse by older adults is ignored because of the unspoken but pervasive attitude that treating older adults is not worth the trouble. Some people think that older people will not be around that much longer anyway, so why interfere with their lives if they are enjoying themselves?¹⁴⁶ Unfortunately, older adults who self-medicate with alcohol or prescription drugs are more likely to characterize themselves as lonely, and they report lower life satisfaction.

Drugs in the Workplace

Substance abuse has a profoundly negative effect in the workplace, resulting in lessened productivity and increased accidents, absenteeism, and healthcare costs. According to the American Council for Drug Education, over 70% of substance users hold jobs. It

is estimated that employee drug abuse costs the workplace \$25.6 billion.¹⁴⁷ People who are unemployed are more likely to use drugs than people who are employed; however, most substance users and those with substance abuse disorders work full time.¹⁴⁸ Part-time workers also have higher rates of drug use than full-time workers. The industries with the highest rates of drug use are food service workers and construction workers.¹⁴⁹ The latter have the highest rates of occupational injuries among the major industries.¹⁵⁰

In recent years, “the percent of American workers testing positive for illicit drugs such as marijuana, cocaine, and methamphetamine has increased” (p. 58).¹⁵¹ Rates of drug users identified in the workplace through urine tests have increased in 2014 with about 4.7% testing positive for drugs.¹⁵² In 2007, the number of workers testing positive for cocaine and methamphetamines declined significantly from the previous year.¹⁵³ Most surveys figured that fewer than 10% of workers used alcohol or other drugs—excluding tobacco and caffeine—on the job. Nonetheless, alcoholism results in 500 million lost workdays each year. The majority of employees who use drugs are men. However, almost one in five women who are employed full time engaged in binge drinking within the previous month and 6.4% used an illicit drug.¹⁵⁴

Workplace drug use is not consistent throughout the country. The number of workers testing positive for methamphetamine use is greater in the Western

states.¹⁵⁵ Workers in Hawaii had the highest rate of methamphetamine use.¹⁵⁶ Among active duty military personnel, 11.9% tested positive illicit drugs, including nonmedical use of prescription drugs.¹⁵⁷ Drug use in the workplace is not limited to the United States. An Australian study revealed that 8.7% of workers drank alcohol at work and almost 1% used drugs at work. Hospitality workers had higher rates of drug use than other professions.¹⁵⁸ In Norway, nearly one-fourth of workers reported to work with a hangover, and 6% were absent from work due to alcohol.¹⁵⁹

Identifying drug problems in top-level managers is more of a dilemma than recognizing drug problems in other workers, because upper-level managers have less supervision, and corporations often deny that their executives abuse drugs. To address drug abuse, most Fortune 500 companies use some type of drug testing and undercover surveillance. It is believed that drug testing has greatly reduced drug use among American workers. The percentage of individuals testing positive for drugs has declined since the 1980s.¹⁶⁰

An interesting question involves whether employers can fire workers who test positive for marijuana even though marijuana was used for medical purposes. The California State Supreme Court ruled by a margin of 5 to 2 that employers do have the right to fire workers who test positive for marijuana.¹⁶¹ Other states (Colorado, Michigan, Oregon, Washington, and New Mexico) have had similar decisions

CASE STUDY: Marijuana

“Rojerio Garcia disclosed during his job interview with Tractor Supply Company that he had been diagnosed with HIV/AIDS, and was participating in New Mexico’s medical cannabis program under the state’s Compassionate Use Act (CUA). Garcia was required to undergo a drug test as a condition of hire and was terminated after his drug test showed positive for cannabis metabolites. He sued Tractor Supply, alleging that the company terminated him based on his serious medical condition and his physicians’ recommendation to use medical marijuana.” “[Judge] Johnson explained that New Mexico’s medical marijuana law does not include affirmative requirements mandating that employers accommodate medical marijuana cardholders, as some states—like Connecticut and Delaware—do.” “The court finds that the CUA, combined with the New Mexico Human Rights Act, does not

provide a cause of action for Mr. Garcia, as medical marijuana is not an accommodation that must be provided for by the employer,” he said. The court also dismissed Garcia’s claims that Tractor Supply fired him because of his serious medical condition, “as marijuana use is not a manifestation of HIV/AIDS, nor is testing positive for marijuana conduct.”

In addition, the court ruled that requiring Tractor Supply to accommodate Garcia’s use of a drug that is still illegal under federal law would require it to permit conduct that is prohibited under the federal Controlled Substances Act (CSA).“

Source: R. Maurer, “Court rules medical marijuana users can be fired,” Society for Human Resource Management, (January 29, 2016). Available at: <https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/medical-marijuana-users-can-be-fired.aspx>.

regarding marijuana use on the job. In a recent federal court case in New Mexico, the court rules that a company may not permit conduct that allows use of a substance that is prohibited under the federal Controlled Substance Act.¹⁶² Thus, because marijuana still is categorized as a schedule I drug, its use is prohibited under the federal Controlled Substance Act, which supersedes state law.

The Department of Labor ended the drug-free workplace program in 2010.¹⁶³ Workplace alcohol and drug policies have been shown to reduce the impact of substance use and abuse. For example, in a study conducted in Australia regarding workplace alcohol and drug policies, researchers found that having these policies significantly decreased the odds of high risk drinking and drug use.¹⁶⁴

Employee Assistance Programs

Many corporations have devised employee assistance programs (EAPs) to help workers deal with legal, family, health, or other problems that affect job performance.¹⁶⁵ Some EAPs are offered on a voluntary basis, and others require that employees attend. Many workers benefit from EAPs, especially those who are given the choice of attending a program or being fired. Employers benefit because absenteeism declines, productivity increases, job-related problems decrease, and employee morale improves. In a literature review regarding the return of investing on health-promotion programs, a positive relationship was found between workplace health promotion and a return on investment. Thus costs associated with EAPs have been found to have a greater return on investment due to the benefits mentioned above.¹⁶⁶

Managers rely on EAPs to help identify employees who would benefit from an alcohol and drug treatment through brief screenings with employees. Employees benefit from EAPs by having a support service to engage in rehabilitation services while being able to maintain employment.¹⁶⁷ “EAPS are the principal invention mechanism for dealing with alcohol and other health and behavioral problems in the workplace” (p. 56).¹⁶⁸ A worksite program designed to prevent alcohol misuse by working adults found that alcohol consumption and problems related to alcohol use can be reduced.¹⁶⁹ It was reported that among workers who went to an EAP for alcohol or drug problems, mental health improved in 66%, physical health improved in 56%, and absenteeism showed an 80% improvement.¹⁷⁰ The Hazelden Foundation indicated that alcohol addiction improved in 89% of people treated through their employers.¹⁷¹

Employees who are in recovering from substance abuse treatment are protected under several laws regarding discrimination. These laws include the American with Disabilities Act (ADA), Rehabilitation Act of 1973, Fair Housing Act (FHA), and the Workforce Investment Act (WIA).¹⁷² These do not cover those employees who are using and abusing alcohol and other drugs at the workplace or if the abuse of alcohol and other drugs impacts their job performance.¹⁷³

Drug Testing

In the 1986 classic, *America's Habit: Drug Abuse, Drug Trafficking, and Organized Crime*, the President's Commission on Organized Crime advocated that all federal workers be drug tested and that federal contracts be withheld from private employers who do not initiate drug testing programs. In 2011, the federal government earmarked \$283.1 million for drug-related activities in schools.¹⁷⁴ Random workplace drug testing has effectively identified frequent users of illicit drugs.¹⁷⁵ It is important to note that 40% of industrial accidents are attributed to alcohol use and alcoholism.¹⁷⁶ Drug-using employees are five times more likely to file for workers' compensation.¹⁷⁷ Drugs inevitably affect an individual's ability to work. Companies that test employees for performance, however, found that fatigue, stress, and illness are the most common factors leading to poor job performance.¹⁷⁸ In 2007, a study was conducted to determine the extent of drug testing in the United States. The researchers found that 46% of workers and 90% of Fortune 200 companies have some sort of drug testing at the company.¹⁷⁹

Some employers maintain that there are numerous benefits to drug testing employees. One benefit is that employee morale is improved because employers are committed to providing a safe work environment. Low-performing employees are weeded out and workers that have been identified as being a drug user during screening may not be hired in the first place.¹⁸⁰ Drug testing may lead to a worker seeking out treatment whereas they would not have been motivated to do so before being asked to submit to drug testing.¹⁸¹

An interesting dilemma is that 14 states and the District of Columbia allow individuals to receive marijuana for medical purposes. Yet, because of how long marijuana stays in the body (see Table 2.2), an individual who has used marijuana for medicinal purposes may test positive at work even weeks later. So

employee assistance programs (EAPs) A confidential workplace assistance program designed to help employees and their families with personal problems.

TABLE 2.2 Detectability of Drugs

Drug	Urine Detection Period	Hair Detection Period
Alcohol	6–12 hours	Not detectable
Amphetamines/methamphetamines	4–5 days	Up to 90 days
Barbiturates	2–12 days	Not assayed
Cocaine	4–5 days	Up to 90 days
Marijuana	3–30 days	Up to 90 days
PCP	2–10 days	Up to 90 days

far, the courts have ruled in favor of employers who dismiss employees testing positive for marijuana even if the employees have a doctor's note.¹⁸²

Not all critics support drug testing, some arguing that it represents a billion-dollar business for the private sector. In one study, drug testing was associated with a reduced rate of minor injuries (with no lost work), but had no impact on injuries that resulted in lost work.¹⁸³ In another study that conducted a literature review on the efficacy of drug testing, it was found that studies that showed significant reductions in occupational accidents associated with drug testing had weaker methodology practices. Researchers of this study felt that there is a need for better research studies, specifically in regards to methodology, to show a relationship, or lack thereof, between drug testing at the workplace and reduced accidents.¹⁸⁴

Who should be drug tested? For example, should teachers be drug tested? When school superintendents were asked about drug testing teachers, the majority felt they had the right to drug test teachers but most would not because they felt the problem of drug use by teachers is too small to warrant testing. The superintendents were more comfortable drug testing as a condition for hiring teachers.¹⁸⁵ The previous governor of Hawaii proposed drug testing all teachers but that effort was thwarted by the Hawaii Teachers Association.¹⁸⁶ In 2015, The Hawaii Teachers Association and the Department of Education reached an agreement regarding drug testing of teachers; drug testing was implemented in exchange for an 11% pay increase for teachers.¹⁸⁷ While drug testing teachers is lawful, it is an expensive endeavor.

Most Americans view drug testing as degrading and dehumanizing.¹⁸⁸ A group especially subjected to drug testing is pregnant women. In addition, Black women are 1.5 times more likely to be tested for illicit drugs than non-Black women.¹⁸⁹ In many jurisdictions, physicians are required to report women who use drugs during pregnancy or infants who test positive for drug use by their mothers. However, the Supreme Court indicated that pregnant patients cannot be tested for illegal drugs if the purpose is to alert police to crime. Rather, drug testing is permissible if the purpose is to help the pregnant

woman receive better health care.¹⁹⁰ Drug testing with the intent of punishing the pregnant woman is opposed by the American Medical Association, the American Congress of Obstetricians and Gynecologists, and the American Academy of Pediatrics.¹⁹¹

Women whose babies test positive for drugs such as cocaine are subject to losing custody of their children because they are viewed as unfit parents. As a result, women may not receive adequate prenatal care for fear of losing their children. And, even though cocaine use during pregnancy is unhealthy, alcohol use and cigarette smoking during pregnancy have been shown to cause worse problems.

Testing of Public Assistance Recipients

In recent years, there has been much discussion about the need to require people who seek public assistance to be drug free. In 1996, President Clinton passed the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 that allowed states to take control of their welfare systems.¹⁹² Additionally, it made it more difficult for individuals to apply for and receive assistance.¹⁹³ States have been trying to pass legislative requiring welfare recipients and applicants to submit to nonsuspicious drug testing.

Proponents for drug testing public assistance recipients believe that monies given to recipients would be used for drugs rather than items such as food, housing, etc. They believe reducing the amount of people who receive assistance would save the state money by reducing the amount of assistance provided. Furthermore, they believe drug testing could identify people who could benefit from treatment.¹⁹⁴ Opponents believe drug testing places additional stigma regarding public assistance and drug use suggesting to the public that public aid recipients use and abuse drugs at higher rates than the general public. Furthermore, these programs are expensive and money is being diverted from public assistance programs to pay for drug testing.¹⁹⁵ In 2011, when Florida enacted drug testing for public assistance recipients, 98% of the tests came back as negative.¹⁹⁶ One must consider the purpose of drug testing public assistance recipi-

Welfare recipients face drug tests

‘Reasonable cause’ now triggers screening

By Amy B Wang
THE ARIZONA REPUBLIC

■ What is the purpose of drug testing those on public aid? Is it to identify those who could benefit from treatment or to exclude people from receiving benefits?

ents. Is it to identify those that are drug users to provide them with help in the form of treatment, or to identify people to exclude from the program?

Testing of Athletes

Drug testing is a concern in many professional and amateur athletic programs. To increase alertness, competitiveness, and aggression, some competitors use stimulants. Others use beta-blockers to reduce anxiety. Still others use steroids to augment muscle development.¹⁹⁷ Beta-blockers are especially beneficial in sports requiring steadiness, such as putting in golf.¹⁹⁸ One unfortunate side effect is that they interfere with sexual performance.

Almost all high schools randomly drug test athletes, while 65% randomly drug test students participating in extracurricular activities and 14% randomly drug test all students.¹⁹⁹ Court rulings have been mixed as to whether drug testing violates the privacy of high school and college athletes. Random drug testing of students, not just student-athletes, has been shown to reduce drug use. One large study found that 16% of students in schools with mandatory random drug testing used drugs compared to 22% of students in schools without random drug testing.²⁰⁰

The US Supreme Court said that drug testing does not violate a student-athlete's right to privacy²⁰¹ and confirmed a school district's decision to drug test all students involved in extracurricular activities. In a 2001 ruling, the Supreme Court upheld lower court rulings that prevent school districts from drug testing nonathletes.²⁰² However, steroids are used by non-athletes because friends use them, to enhance physical appearance, and to improve physical performance.²⁰³

The effectiveness of drug testing is questionable. In Texas, \$6 million was allocated for testing student-athletes for steroids. Of 10,000 students, only two tested positive.²⁰⁴

Some people argue that drug testing of athletes should be abandoned for several reasons, among them questions regarding the validity of the tests and whether the levels that are considered inappropriate are arbitrary.²⁰⁵ The American Academy of Pediatrics opposes the random drug testing of athletes. They believe initiating a random drug testing program could have adverse effects such as decreased participation in sports and an increase in substance use that is not tested by drug panels.²⁰⁶ Another concern is that drug testing has not kept up with new ways to avoid detection; thus, there is inconsistency in which athletes are caught doping.²⁰⁷

Some athletes use performance-enhancing drugs to keep up with the competition. Despite this point, many athletes support drug testing. One study of 240 elite track and field athletes found that the majority supported the antidrug movement.²⁰⁸ Elite athletes in Australia favor drug testing for performance-enhancing drugs, although they are not in favor of penalizing athletes who use illicit, recreational drugs.²⁰⁹

Methods of Drug Testing

Testing for drugs can be done by examining urine, saliva, hair, blood, or breath. The ability to detect drugs depends on the type of test, the dose, and the sensitivity of the test. A new test for detecting

drugs developed by University of Illinois researchers involves a litmus-like paper strip that examines molecules in saliva, urine, or blood.²¹⁰ Urine testing is the most common method and has been shown to be accurate and reliable. The methods used to test urine for drugs are immunoassay, gas chromatography, thin-layer chromatography, and gas chromatography/mass spectrometry.

1. **Immunoassay** is fast and less expensive than other methods but may give false-positive readings.
2. **Gas chromatography** is more expensive and time-consuming than other methods.
3. **Thin-layer chromatography** is simple and inexpensive, but it requires expert interpretation, and is less sensitive than the immunoassay procedure.
4. **Gas chromatography/mass spectrometry** is highly sophisticated and sensitive but is time-consuming and expensive.

The detectability of drugs in urine or hair varies with the drug. Although amphetamines and methamphetamines are detectable in urine 4 to 5 days after use, a hair test can detect their presence up to 90 days after use. Phencyclidine (PCP) is detectable in urine 2 to 10 days after use and is detectable through hair analysis up to 90 days after use. Urine tests can detect cocaine 4 to 5 days after use, and hair tests can detect cocaine 90 days after use. A person can test positive for heroin 1 to 2 days after use via urine and 90 days after use via a hair sample. Marijuana can be detected from 3 to 30 days after use by a urine test and up to 90 days later through a hair test. In one county in Iowa, Child Protective Services is hair-testing children soon after they are born to determine whether they have been exposed to smoked drugs, especially crack.²¹¹ Table 2.2 compares the detectability of drugs through urine and through hair.

Two problems with drug testing are false positives and false negatives:

1. A **false positive** means that a person tests positive for a drug even though no drug is present in the person's urine. For example, ibuprofen, the active ingredient in Motrin and Advil, may cause a false-positive test for marijuana. A person may test positive for opiates after consuming poppy seeds or cough syrups containing codeine. It has been shown that individuals who lack the enzyme UGT2B17 may test positive for excessive testosterone.²¹²
2. A **false negative** means that a person tests negative even though drugs are present in the person's urine.

QUESTIONS REGARDING DRUG TESTING

- Should a person have the right to refuse to take a drug test?
- Who sees the results of a drug test? How is confidentiality assured?
- Are standards applied to minors in drug testing different from those applied to adults?
- If a person tests positive, is there an appeal process?
- Are consequences different for testing positive for legal drugs as opposed to illegal drugs?
- Does a positive drug test constitute a medical, legal, or educational problem?
- If students have to pass a drug test to be on athletic teams, should students also have to pass similar tests to be in school plays or in the band?
- How accurate are drug tests?
- Should a person be penalized for a positive drug test that is a result of passive marijuana smoke?

Some people employ inventive ways to test negative: by obtaining someone else's urine, by drinking vast amounts of water before testing, or by placing salt and detergent in the urine sample. Another potential problem with drug testing is that one's medical condition may be revealed to the employer. For example, a drug test may indicate whether a person is taking certain medications for certain medical conditions or is genetically predisposed to other conditions such as heart disease or cancer. It may cause an

immunoassay A drug-testing procedure that tests for metabolites of drugs

gas chromatography A drug-testing procedure that is more specific, sensitive, and expensive than the immunologic assay

thin-layer chromatography A simple, inexpensive, urine-based drug test

gas chromatography/mass spectrometry A type of drug test, highly sophisticated and sensitive, but time-consuming and expensive

false positive A test that is positive for drugs even though no drugs are present in the urine

false negative A test that is negative for drugs even though drugs are present in the urine

employer to forgo hiring a prospective employee to avoid potential health insurance costs.

Legality of Drug Testing

The legality of drug testing was debated in two cases that came before the US Supreme Court: *Skinner v. Railway Labor Executive Association* and *National Treasury Employees Union v. von Raab*. The *Skinner* case dealt with the constitutionality of random drug testing of employees and applicants of private railways. In 1985, the Federal Railroad Administration (FRA) adopted regulations that prohibited employees from possessing or using alcohol or any controlled substance while at work or from reporting to work while under the influence of alcohol or a controlled substance. These regulations were implemented because a number of employees had come to work impaired by alcohol or had become drunk while at work.

In 21 or more railway accidents between 1972 and 1983 that involved fatalities, serious injuries, and millions of dollars of damage to property, alcohol or other drugs were the probable or contributing cause.²¹³ By a 7–2 vote, the Supreme Court upheld the FRA’s plan to test railway workers. While recognizing the need to protect individuals’ rights, the Supreme Court noted that the safety considerations of certain jobs override those rights. Because the impairment of railway workers posed a considerable threat to the public, the Supreme Court ruled that drug testing is warranted.

The second case before the Supreme Court, *National Treasury Employees Union v. von Raab*, dealt with whether applicants for the US Customs Service must pass a drug test. Individuals testing positive would not have to turn over the results for prosecution. The purpose was to prevent individuals from getting the jobs in the first place. The Customs Service argued that drug users were subject to bribery and blackmail, that drug users may be unsympathetic to their task of interdicting narcotics, and that drugs might impair employees who carry firearms.

Even though only 5 employees of 3,600 had tested positive for drugs, the Supreme Court narrowly (5–4) agreed with the Customs Service. Because the testing program was designed to prevent drug use and the integrity of the Customs Service had to be maintained, the Court ruled that the testing program was justified.

In a study of commercial aviation employees, it was found that employees who tested positive for drugs were three times more likely to be involved in an accident. Marijuana accounted for two-thirds of employees testing positive for drugs. Nonetheless, drug violations contributed to a very small percentage of aviation accidents.²¹⁴



■ Drug use increases the risk of domestic violence.

Consequences of Drug Use

Drug use is a factor in family stability, social behavior, education and career aspirations, and personal and social maturation. A relationship has been reported between adolescents’ substance use, depression, and suicidal thoughts and attempts. It could be argued that drugs are not *the* problem, but just one piece of a much larger puzzle in which drug use is simply another component. An important question is whether drugs are a problem or whether they are symptomatic of other problems.

Drugs and Deviant Behavior

Drug use and deviant attitudes and behavior are closely associated.²¹⁵ The most important distinction between drug users and nonusers is their extent of *conventionality*.²¹⁶ Deviant social childhood and adolescent behavior are related to an increased in vulnerability for drug use.²¹⁷ Whether drug use provokes deviant attitudes and behaviors or whether deviant behaviors and attitudes provoke drug use is unclear. Humans are social animals where much time is spent interacting with others. Positive social interaction stimulates the reward system in the brain, which reinforces social interaction. Some believe that positive social play and the rewards system for drugs of abuse work on the same neural systems in the brain and the same neurotransmitters (i.e., endogenous opioids, dopamine).²¹⁸ Thus positive social play produces a rewarding sensation much in the same way

drugs do.²¹⁹ In small doses, most drugs of abuse will enhance social play behavior in rats but in larger doses will reduce social play.²²⁰ Drug users display more independence, rebelliousness, acceptance of deviant behavior, and rejection of moral and social norms than nonusers.²²¹ Children of parents who use drugs are more likely to engage in delinquent behaviors than their peers whose parents do not use drugs.²²² The significance of this association is revealed by one study reporting that almost 7.5 million alcohol-dependent or alcohol-abusing parents have at least one child living with them.²²³

Some drugs are more likely to produce violent behavior whereas others, such as marijuana and heroin, are more likely to produce a passive response. (Heroin is linked to criminal behavior but not to violent behavior.) Stimulants such as methamphetamines and cocaine are associated with violence. The combination of hyperactivity and increased suspiciousness may cause sudden, unwarranted aggressiveness. The factor relating to violence may not be the amphetamine but, rather, the paranoia the drug causes.

The drug involved with the most violent incidents is alcohol. The level of aggression associated with alcohol was found to be dose related. The more one drank, the more aggressive one became. This applied to both males and females.²²⁴ Binge drinking is associated with unsafe sex and violence as well as with nonconsensual sex.²²⁵ Combining alcohol and caffeine, which is popular among some groups of people, exacerbates the potential for violence.²²⁶

The person using alcohol may perpetrate the violence or be the victim of another alcohol user. Among many victims of violence, it was believed that the perpetrator was under the influence of alcohol at the time; for example, of individuals who were victimized at work, 35% believe that the offender was under the influence of alcohol or other drugs.²²⁷ In a study of 20,274 adolescents, 16% reported being victims of dating violence. Most cases of dating violence occurred in the South, and in many instances, alcohol was implicated.²²⁸

Drugs, Education, and Employment

There is a higher dropout rate from school for those who used alcohol, illicit drugs, and cigarettes.²²⁹ In a study of African American students, it was found that the desire to do well academically was related

to less marijuana use, parental substance use norms, and family financial concerns.²³⁰ There is a relationship between academic performance and drug use. It is not always clear whether drug use causes poor academic performance or whether one uses drugs because one is doing poorly in school. A study was conducted on marijuana users who attended college. The college students were divided into five categories based on their marijuana use: non-users, infrequent users, decreasing users, increasing users, and frequent users. Results from this study discovered higher rates of dropping out of college and delayed graduation among decreasing and frequent users. Additionally, all marijuana users reported lower GPAs.²³¹ Feeling connected to school serves as a deterrent to drug use. One study of college students found that males who perceive themselves to be under much stress are more likely to consume energy drinks, which negatively affects academic performance.²³²

Drug use is assumed to be a predictor of welfare dependency. In 1997, the federal government passed a law stipulating that all welfare recipients be denied Social Security income and disability insurance if alcohol and drug addiction were exclusively responsible for their disabilities. In 2011, Florida Governor Rick Scott proposed that all welfare recipients be drug tested and those who fail will not receive welfare for a year. A second failed drug test would disallow a person from receiving welfare for three years.²³³

The relationship between drug use and welfare dependency is not limited to the United States. In New Zealand, marijuana use among adolescents and young adults negatively affected educational achievement, reduced employment, and increased welfare dependency.²³⁴ Similarly, Norwegians who use marijuana are more likely to receive welfare assistance in that country.²³⁵

The Higher Education Act of 1965 stipulates that college students who are convicted of a drug offense are denied federal financial aid. Legislation has been introduced to have federal financial aid restored to college students if they enroll in treatment and pass two drug tests.²³⁶ Since 2000, more than 180,000 students have been denied federal financial aid due to a drug conviction.²³⁷

Employed drug users have less stable job histories than nonusers. Whether job instability results in drug use or drug use causes job instability is unclear. Alcohol abusers earn significantly less money than moderate drinkers and abstainers.²³⁸ Finally, drug use is associated with higher accident rates on the job and lower productivity.