



ADDICTIONS: AN OVERVIEW

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STUDENT LEARNING OUTCOMES

At the conclusion of this chapter students will

1. Be able to define addictions
2. Identify the criteria used when defining addictions
3. Distinguish between substance and process addictions
4. Identify the etiology and prevalence of addictions
5. Identify addiction treatment strategies, interventions, and programs
6. Identify practitioner characteristics considered essential when working with addictions

CASE AND CASE DISCUSSION

Individuals who directly or indirectly experience the chaos associated with addictions come from all sectors of society. The case of Angie, a 34-year-old Caucasian woman, represents the vast number of individuals who have struggled with and lost their lives to co-occurring addictions. The particulars of this case resemble those of family members, friends, neighbors, colleagues, supervisors, doctors, homeless individuals, and others across the globe who have been, or currently are, severely impacted by multiple addictions.

Angie, a 34-year-old Caucasian woman, experienced a high-risk lifestyle. As a bright, attractive, and entertaining young person she enjoyed the attention of others, and as an impulsive risk taker she exhibited minimal restraint in satisfying her personal needs. Angie had been a popular and smart, capricious adolescent. Her energy and athleticism were assets that had helped her gain recognition as a cheerleader and member of the debate team. She craved the attention of others and took pleasure in being recognized. She also enjoyed the excitement and the high from using alcohol, marijuana, cocaine,

and mixed drugs. Her obsession with weight and her personal appearance led to bulimic episodes that were preceded by negative self-talk. Body image and weight were life-long concerns.

Family stressors existed throughout Angie's adolescent years that had affected her development. Angie's father, a gifted athlete, introduced her to golf when she was 12 years old. Angie initially enjoyed the attention provided by her father and her success as a young golfer. She enjoyed the high of being recognized as an up-and-coming athlete within her age group. She was victorious in several tournaments. She worked hard and participated in several golf seminars and intense practice sessions. However, the attention given to Angie by her father and family expectations led her to withdraw from both her family and golf.

The stress placed on Angie by her family and the competition was overwhelming. An additional family stressor, however, was more significant. After practice sessions, Angie would sit with her father, often on his lap, discussing golf and how she was growing up so fast. This time together led to fondling and inappropriate touching by her father. Angie at first was confused but soon realized that something was wrong. She eventually quit golf and distanced herself from her father. She soon withdrew from all of her family members, including her mother, who she felt was aware of but did nothing to stop her husband's behavior.

With excellent grades and a record of leadership, Angie was offered several college scholarships. She selected a university known for its communications department, theatrical productions, and social life. Both students and professors immediately noticed Angie as an attractive, radiant, and fun individual. During her first semester, she was invited to audition for acting roles in the department's theatrical productions. For Angie, it was exciting to be viewed on campus and within the community as a future entertainer.

While in college, Angie misused substances, mainly alcohol and marijuana. Her exposure in local productions, along with some nude modeling, attracted Hollywood associates. These contacts led to auditions for television commercials. Angie's new lifestyle provided access to cocaine, methamphetamines, and designer drugs. Angie also frequently mixed alcohol with other drugs that had initially been prescribed to relieve anxiety.

Angie was popular and met influential executives in the entertainment field. Her contacts led to additional commercials and minor roles in television. She craved recognition and imagined herself in movies.

After years of drug abuse and violent relationships, Angie experienced health issues, career disappointment, and financial problems. Following the stress of an abortion, she became depressed and viewed herself as a failure. Angie lost hope for the future she once imagined. Her severed relationships from family and friends further contributed to her depression. Feelings of being used by others led to distrust and withdrawal from society. Angie continued abusing alcohol and prescription medications, even when receiving help from psychiatrists, psychologists, substance abuse counselors, and family therapists. Angie was hospitalized following a suicide attempt. She attended, but was reluctant to participate in, a mandated inpatient program for substance dependence. Resenting these treatment attempts, Angie with-

drew further from others and continued to self-medicate with alcohol and other drugs.

Angie spent most of her time alone and craving drugs. Her health deteriorated, leading to a loss of appetite, weight loss, muscle loss, loss of strength, liver failure, internal bleeding, and kidney failure. The 15-plus years of drug abuse had taken its toll on Angie's body and hijacked her brain. While in hospice care, she began to go in and out of consciousness. Angie died at the age of 34.

Angie's story provides a brief look at someone whose life ended as the result of co-occurring addictions. Her body broke down because of her habitual abuse of substances. Her brain was hijacked by the pleasure she craved as the result of substance and process addictions. The continuous mixing of drugs caused permanent harm to her brain and body. She craved substances and the high obtained from a repeated behavior pattern. Angie's drug addiction and the behavior pattern used to gain personal recognition became her top priority, despite physical, psychological, career, and social consequences.

Both substance and process addictions are presented in the case of Angie. Co-occurring addictions are frequent, as process and substance addictions work together, influencing the continuation of the self-defeating behavior and substance misuse. Treatment therefore takes more time and is complex.

After reviewing this case, one might conclude that the professionals and treatment programs failed Angie. Treatment attempts, whether individual, group, or multidimensional, seemed to have little or no effect on her misuse of drugs or her self-defeating behaviors. Interventions also failed to provide Angie with a sense of hope or relief from her depression. Coping strategies, if learned, were not enacted. This case thus emphasizes the complex nature of addictions.

In this chapter, I first review genetic influences, environmental influences, family factors, stress/trauma factors, and other factors that play a role in the addictions process, with a focus on the brain. Then I address the practitioner characteristics considered necessary when working with clients who have addictions. I conclude the chapter by discussing evidence-based practices and treatment strategies/interventions.

ADDICTION DEFINED

The term *addiction* is derived from the Latin *addīcō* meaning "enslaved by" or "bound to," and for many individuals like Angie, this derivative has meaning. The term *addiction* is frequently attached to a substance and viewed as dependence. Opium and morphine were two of the first addictive substances identified because of misuse of prescriptions. Society today often also characterizes individuals who participate in repetitive behaviors as being addicted. Thus, the term *addiction* currently applies to the misuse of alcohol, other drugs, and substances and to a large number of behavior patterns. It is safe to say that a large number of individuals can be viewed as being addicted to something. Perhaps someone you know has been accused of having a food addiction, such as to chocolate, ice cream, coffee, or a certain brand of soda. Maybe you know someone who is addicted to golf or

to a special series on television. The conversational use of the term *addiction* has convoluted its meaning and definition.

Scientifically speaking, individuals are considered addicted when they relentlessly pursue a sensation or activity, whether it is a substance such as alcohol or a behavior like gambling, despite consequences to their health or well-being (W. R. Miller, Forcehimes, & Zweben, 2011). Similarly, *addiction* has been defined as the condition of being habitually or compulsively occupied with or involved in something. W. R. Miller et al. (2011) identified three kinds of actions that define an addiction: (a) an action that is habitual, done regularly, and repeated; (b) an action that appears to be compulsive in nature and at least partially outside of one's conscious control; and (c) an action that does not necessarily involve a drug.

The American Society of Addiction Medicine (ASAM; 2011) refers to addiction as follows:

Addiction is a primary, chronic disease involving brain reward, motivation, memory and related circuitry; it can lead to relapse, progressive development, and the potential for fatality if not treated. While pathological use of alcohol and, more recently, psychoactive substances have been accepted as addictive diseases, developing brain science has set the stage for inclusion of the process addictions, including food, sex, shopping and gambling problems, in a broader definition of addiction as set forth by the American Society of Addiction Medicine in 2011. (D. E. Smith, 2012, p. 1)

ASAM credits several years of research for providing the foundation for its definition of addictions, stating that brain damage is caused by the long-term abuse of a substance.

The National Institute on Drug Abuse (NIDA; 2012b) has put forth the following definition of *addiction*:

Addiction is a chronic, often relapsing brain disease that causes compulsive drug seeking and use, despite harmful consequences to the addicted individual and to those around him or her. Although the initial decision to take drugs is voluntary for most people, the brain changes that occur over time challenge an addicted person's self control and hamper his or her ability to resist intense impulses to take drugs.

Fortunately, treatments are available to help people counter addiction's powerful disruptive effects. Research shows that combining addiction treatment medications with behavioral therapy is the best way to ensure success for most patients. Treatment approaches that are tailored to each patient's drug abuse patterns and any co-occurring medical, psychiatric, and social problems can lead to sustained recovery and a life without drug abuse.

Similar to other chronic, relapsing diseases, such as diabetes, asthma, or heart disease, drug addiction can be managed successfully. And as with other chronic diseases, it is not uncommon for a person to relapse and begin abusing drugs again. Relapse, however, does not signal treatment failure—rather, it indicates that treatment should be reinstated or adjusted or that an alternative treatment is needed to help the individual regain control and recover. (NIDA, 2012b, "What Is Drug Addiction," paras. 1–3)

When referring to drugs, NIDA (2012d) also has defined addiction as a brain disease:

Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered

a brain disease because drugs change the brain; they change its structure and how it works. These brain changes can be long lasting and can lead to many harmful, often self-destructive, behaviors. (NIDA, 2012d, "What Is Drug Addiction," para. 1)

The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5;* American Psychiatric Association [APA], 2013) does not define addiction, nor does it advocate using the term as a diagnosis. In fact, the *DSM-5* states that use of the term *addiction* in diagnosis could potentially create a negative connotation (APA, 2013, p. 485). Under the category of "Substance-Related and Addictive Disorders" in the *DSM-5*, however, one finds addiction to 10 separate classes of drugs along with the process addiction of gambling cited as disorders. Gambling is also referred to as a behavioral addiction in the *DSM-5*, in the same vein as Internet gaming, sex, exercise, and shopping. Because it has been researched more extensively than other behavioral addictions, gambling is the only process addiction covered in detail in the *DSM-5* under the heading "Non-Substance-Related Disorders." A diagnostic criterion is provided to help assess the severity level of gambling as a disorder.

Research indicates that addictive behaviors occur in part as the result of a neurotransmission process involving interactions within the reward circuitry system of the brain (ASAM, 2011). Changes in brain chemistry and the memory system seem to evolve from one's addiction, whether it is to a behavior or a substance. The reward center in the addicted brain is stimulated and overtaxed, often by the release of dopamine. The addict keeps chasing the high, whether it be the up-and-down rollercoaster of gambling or the highs and lows of cocaine ("What Is a Process Addiction?" 2012).

According to the *DSM-5*, all drugs taken in excess have in common the direct activation of the brain reward system, which is involved in the reinforcement of behaviors and the production of memories, producing a pleasure referred to as a *high* (APA, 2013, p. 481). Moreover, gambling behaviors activate reward systems similar to the effects of a drug. The implication is that behavioral (process) addictions, such as addictions to sex, the Internet, shopping, exercise, and work, operate within the brain in a manner similar to addictions to alcohol and other drugs. Indeed, findings have shown that these repetitive behaviors produce similar chemical changes in the brain to those associated with the use of drugs. And like a drug, the continued use of a behavior can get out of control, and attempts to stop can result in withdrawal symptoms, including anxiety, worry, and irritation. Supporting the idea that substance and process addictions are brain diseases are findings that changes in brain circuits are induced by thoughts and behavior patterns long before a behavior or drug becomes addictive. However, further research is needed before experts can validate the notion of process addictions as a brain disease.

Individuals addicted to the excitement of viewing pornography on the Internet, gambling, shopping, or exercise, for example, are believed to be at risk for developing a tolerance that manifests itself by taking greater risks in order to reach a high similar to or greater than what has previously been experienced. Perhaps the neurological reward and memory system of the brain changes, and becomes hijacked, by repetitious thoughts and behavior patterns, similar to what takes place when using a drug. The craving experienced by someone who is addicted

to a behavior becomes prominent, similar to the craving for a drug. Thus, both substance and process addictions involve a loss of control and dysfunctional decision making. The behavior or substance becomes the individual's lifeline for survival. In both cases, use of the behavior or drug continues despite consequences.

CRITERIA FOR ADDICTION

Not everyone who experiments with drugs, gambles, or spends time on the Internet becomes addicted. In fact, only a small percentage actually become addicted. Several groups of scientists have studied the addiction process, attempting to identify at what point one actually becomes addicted. Professionals, including medical doctors, psychiatrists, psychologists, counselors, and social workers, have suggested criteria to use to identify when an individual has become addicted. One marker of an addiction involves the excessive use of a substance or behavior despite consequences related to work, home, finances, health, the legal system, relationships, or one's general well-being. Consequences related to aspects of everyday life play a major role in criteria used to assess addictions. However, caution is suggested when diagnosing and labeling individuals who are misusing drugs or using repetitious behaviors. In addition, one should consider that few individuals prefer the label of *addict* or being categorized as dependent.

The *DSM-5* suggests a cautionary stance when using the term *addiction*, realizing its potential for having a negative connotation. The *DSM-5* discusses substance use disorders as consisting of a cluster of cognitive, behavioral, and physiological symptoms affecting individuals who continue using a substance (APA, 2013, p. 483). The diagnostic criteria for alcohol use disorders in the *DSM-5* include loss of control, unsuccessful attempts to stop or cut down, tolerance, excessive use of time and behaviors to obtain the substance, strong urges or cravings, withdrawal when quitting the use of the substance, and continued use despite consequences (APA, 2013, pp. 490–491). When six or more of the 11 symptoms are present, the person's condition is considered severe. At this point perhaps one could say that the individual meets the standard for a substance addiction.

The category "Non-Substance-Related Disorders" in the *DSM-5* includes gambling. Gambling is the sole process addiction included in the *DSM-5*, as it is more widely researched than addictions to Internet use, exercise, work, and other behaviors. Nine symptoms are used as the diagnostic criteria for assessing a gambling disorder (APA, 2013, p. 585). A gambling disorder is considered severe if eight or nine of the criteria are met. At this point perhaps the individual meets the standard for a gambling addiction.

Table 1.1 provides a generic listing of symptoms for assessing process addictions. Criteria were adapted from a template used to identify a gambling disorder. It is suggested that the diagnostic criteria in Table 1.1 be revised in accordance with each behavioral addiction.

A number of well-trained health care professionals make decisions to assess whether an individual has reached a threshold of being addicted, whether it is to a substance or behavior. Addiction counselors, physicians, psychologists, nurses, social workers, and therapists are some of the clinicians trained to make these assessments. Most professionals will refer to the *DSM-5* or the *International Classification of Diseases (ICD)* when making their assessments. Like the

TABLE 1.1 DIAGNOSTIC CRITERIA FOR ASSESSING
PROCESS DISORDERS

A persistent and recurrent problematic behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:

1. Needs to increase the frequency of the behavior in order to achieve the desired excitement.
2. Is restless or irritable when attempting to cut down on the behavior.
3. Has made repeated unsuccessful efforts to control, cut back, or stop the behavior.
4. Is often preoccupied with the behavior (e.g., has persistent thoughts of reliving past experiences, handicapping or planning the next venture, thinking of a way to partake in the behavior).
5. Often engages in the behavior when feeling distressed (e.g., helpless, guilty, anxious, depressed).
6. After unsuccessfully reaching an anticipated high when participating in the behavior, tries riskier scenarios when using the behavior.
7. Lies to conceal the extent of involvement with the behavior.
8. Has jeopardized or lost a significant relationship, job, or educational or career opportunities by repeating the behavior.
9. Relies on others to minimize the consequences of the repeated behavior.

Note. Adapted from *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (p. 585), by American Psychiatric Association, 2013, Arlington, VA: American Psychiatric Association. Copyright 2013 by the American Psychiatric Association. Reprinted with permission. All rights reserved.

DSM-5, the *ICD-10* and previous manuals by the World Health Organization have not consistently used the word *addiction* in their diagnoses. However, terminology and categories differ between the *ICD* and the *DSM*. For instance, the *DSM* includes seven criteria for substance dependence and the *ICD* six. Furthermore, in the area of substance abuse the *ICD* has used the concept of “harmful,” which focuses on damage caused by a substance to one’s physical and mental health. Yet despite these differences, both manuals are helpful in the diagnosis process.

Professionals are also guided by research and documents provided by organizations such as ASAM and NIDA, as well as a number of other professional publications and organizations (see “Resources” at the conclusion of this chapter).

ASAM (2011) identified several behaviors and subsequent consequences that are associated with an addiction:

- Excessive use of and/or engagement in addictive behaviors, at higher frequencies and/or quantities than the person intended, often associated with a persistent desire for and unsuccessful attempts at behavioral control
- Excessive time lost in substance use or recovering from the effects of substance use and/or engagement in addictive behaviors, with significant adverse impact on social and occupational functioning (e.g., the development of interpersonal relationship problems or the neglect of responsibilities at home, school, or work)

- Continued use and/or engagement in addictive behaviors despite the presence of persistent or recurrent physical or psychological problems that may have been caused or exacerbated by substance use and/or related addictive behaviors
- A narrowing of the behavioral repertoire focusing on rewards that are part of addiction
- An apparent lack of ability and/or readiness to take consistent, ameliorative action despite the recognition of problems

ASAM (2011) further identified the following cognitive and emotional changes one should consider during the assessment process.

Cognitive Changes

- Preoccupation with substance use
- Altered evaluations of the relative benefits and detriments associated with drugs or rewarding behaviors
- The inaccurate belief that problems experienced in one's life are attributable to other causes rather than being a predictable consequence of addiction

Emotional Changes

- Increased anxiety, dysphoria, and emotional pain
- Increased sensitivity to stressors associated with the recruitment of brain stress systems, such that things seem more stressful as a result
- Difficulty identifying feelings, distinguishing between feelings and the bodily sensations of emotional arousal, and describing feelings to other people (sometimes referred to as *alexithymia*)

Findings by ASAM can be helpful when assessing patients and can serve as a much needed guide throughout the diagnosis process. Hartney (2011a) identified the following common symptoms and signs associated with addictions:

- Extreme mood changes (happy, sad, excited, anxious, etc.)
- Sleeping a lot more or less than usual or at different times of the day or night
- Changes in energy (e.g., unexpectedly and extremely tired or energetic)
- Weight loss or weight gain
- Unexpected and persistent coughs or sniffles
- Seeming unwell at certain times and better at other times
- Pupils of the eyes seeming smaller or larger than usual
- Secretiveness
- Lying
- Stealing
- Financial unpredictability, perhaps having large amounts of cash at times but no money at all at other times
- Changes in social groups, new and unusual friends, odd cell phone conversations
- Repeated unexplained outings, often with a sense of urgency
- The presence of drug paraphernalia, such as unusual pipes, cigarette papers, small weighing scales, and so on
- Stashes of drugs, often in small plastic, paper, or foil packages

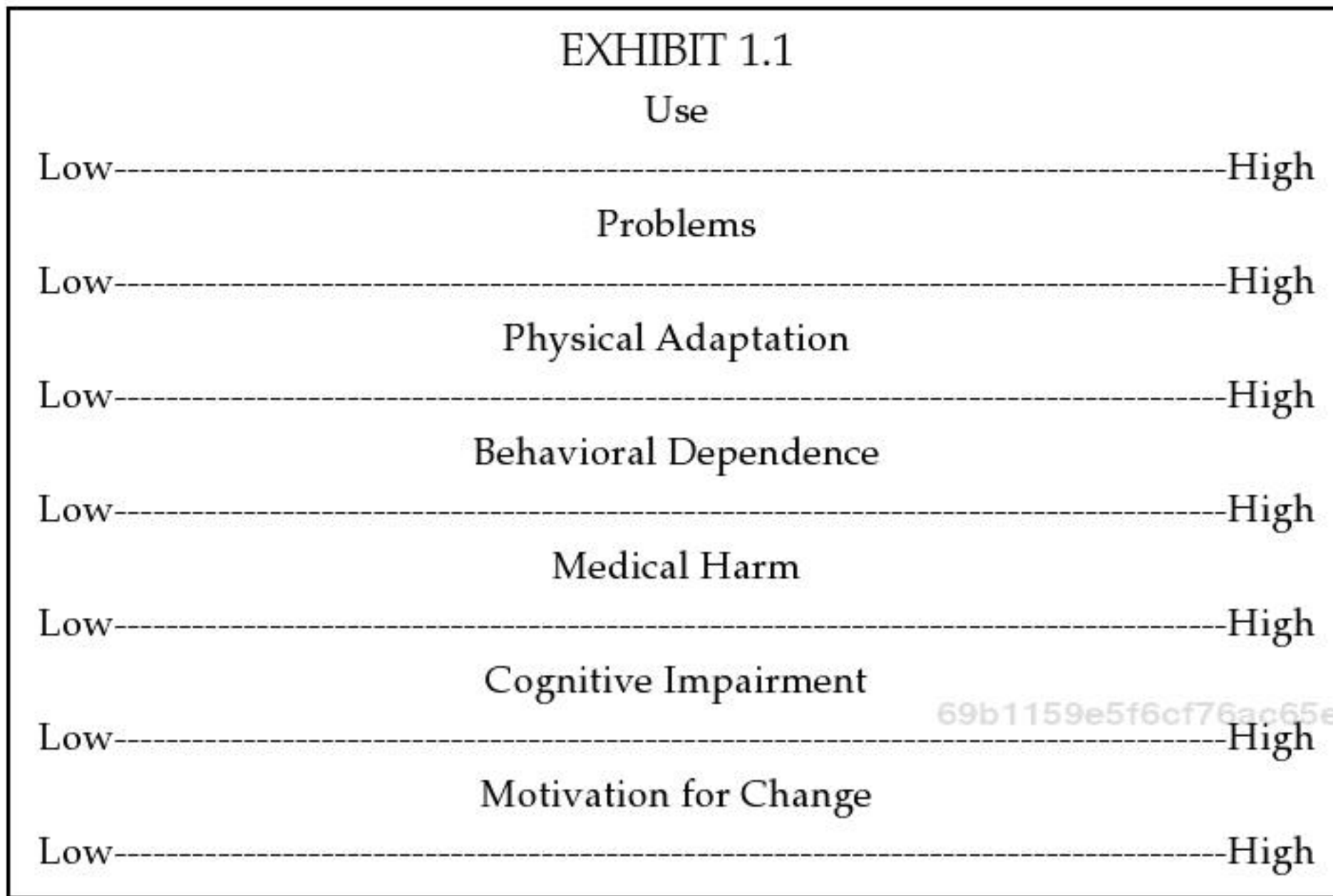
Engs (2012) noted the following common characteristics of an addict:

1. The person becomes *obsessed* with (constantly thinks of) the object, activity, or substance.
2. The person will seek it out or *engage in the behavior even though it is causing harm* (physical problems; poor work or study performance; problems with friends, family, fellow workers).
3. The person will *compulsively engage* in the activity, that is, do the activity over and over even if he or she does not want to, and finds it difficult to stop.
4. On cessation of the activity, the person often experiences *withdrawal* symptoms. These can include irritability, craving, restlessness, or depression.
5. The person does not appear to have control over when, how long, or how much he or she will continue the behavior (*loss of control*; e.g., he drinks six beers when he only wanted one, she buys eight pairs of shoes when she only needed a belt, he ate the whole box of cookies, etc.).
6. The person often *denies problems* resulting from his or her engagement in the behavior, even though others can see the negative effects.
7. The person *hides the behavior* after family or close friends have mentioned their concern (e.g., hides food under the bed, hides alcohol bottles in the closet, does not show his or her spouse the credit card bill, etc.).
8. The person reports a *blackout* for the time he or she was engaging in the behavior (e.g., doesn't remember how much or what was bought, how much was lost gambling, how many miles were run on a sore foot, what was done at the party while drinking).
9. The person experiences *depression*. Because depression is common in individuals with addictive behaviors, it is important to make an appointment with a physician to find out what is going on.
10. The person has *low self-esteem*, feels anxious if he or she *does not have control over the environment*, and comes from a *psychologically or physically abusive family*.

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ebruary It is suggested that in addition to using the *DSM-5*, clinicians refer to listings as those from Engs (2012) and Hartney (2011a) during the assessment process.

In *Treating Addiction: A Guide for Professionals*, W. R. Miller et al. (2011) suggested a set of guidelines for assessing addictions (see Exhibit 1.1). The first dimension provides a baseline by identifying the number of occasions on which one engages in the addiction. Information on variability and other specifics related to drug use can be further queried. Under the category "Problems," one obtains information about the consequences resulting from the addiction. Specificity is emphasized. Tolerance, or the body's adjustment to a drug or activity, is examined under the category "Physical Adaptation." Questions such as the following are asked: Does the patient require more of the drug in order to receive the same reward? Does the patient need to take more risks in order to obtain the same high?

Under the category "Behavioral Dependence," the clinician focuses on the role of the drug or behavior. For example, does the patient depend on the drug for his or her very existence, or is it used as a way of coping? Is use of the drug or behavior becoming detrimental to other activities? Under "Medical Harm," physiological and psychological changes are examined. "Cognitive Impairment" involves as-



sessing changes in brain chemistry, frequently affecting one's memory, decision making, and reward seeking. The final dimension, "Motivation for Change," assesses whether the person recognizes a problem or a potential problem related to the continued use of the drug or behavior.

In applying the dimensions of addictions, W. R. Miller et al. (2011) believe that it is possible to view addiction on a continuum. However, this view, supported by the World Health Organization and the National Institute on Alcohol Abuse and Alcoholism (NIAAA), remains controversial.

Table 1.1 and Exhibit 1.1 provide clinicians with tools to assess addictions. A wide range of theories and hypotheses regarding addictions and methods of assessment are available in the literature. For example, *Theories on Drug Abuse: Selected Contemporary Perspectives* (Lettieri, Sayers, & Pearson, 1980) identified 43 theories of chemical addiction and 15 methods of treatment. What is interesting is that most of the theories include similar characteristics that are associated with the process of becoming addicted. This process includes the following:

1. Trying a behavior, such as gambling, or a drug, such as alcohol, for the first time, often voluntarily
2. Expecting to obtain a reward or some pleasure from the activity pursued or substance ingested
3. Being reinforced, or rewarded, with a sense of satisfaction
4. Enjoying a pleasurable feeling as a result of an increase in the neurotransmitter dopamine (dopamine floods the brain faster and with greater potentiality than what can occur as the result of everyday activities)
5. Creating a memory of the pleasurable process and remembering the resultant reward produced by the activity or drug
6. Wanting to experience more of the pleasurable event, obsessively recalling the behavior or substance that created the sought-after high

7. Minimizing the natural production of dopamine in the brain as it waits, and craves, for the real thing, which is the behavior or drug that produced the pleasurable response
8. Losing control as the activity or drug takes over
9. Allowing the activity or drug to become the highest priority in one's life
10. Viewing the activity or drug as necessary for survival
11. Becoming desperate and taking greater risks in order to continue the behavior or ingest the drug
12. Experiencing the loss of family, friends, one's health, and one's career
13. Altering the mechanisms of the brain, including disruption of decision making, memory, and judgment

SUBSTANCE AND PROCESS ADDICTIONS

The concept of addiction has most often been associated with the continued misuse of a substance. *Addiction* has also been used synonymously with *dependence*, typically involving drugs such as alcohol, heroin, cocaine, marijuana, or prescription medications. Substances of addiction have increased over time and now include an array of designer drugs, paint, kerosene, glue, gasoline, funeral balm, food products, feces, wood, chalk, cat hair, dirt, paste, drywall board, toilet paper, and so on. There is an unlimited number of substances to which an individual can be addicted. This includes anything one can ingest, sniff, snort, or place in the body. Experimentation with these substances is often not consequential, particularly when tried over a brief period of time. However, the consistent misuse of any substance over a long period of time can lead to an addiction.

The etiology, prevalence, treatment, and consequences of substance addictions have been given significant attention during the past several decades. Yet process addictions, also referred to as *behavioral addictions*, have only recently gained attention within the public and scientific community. The distinguishing feature of process addictions is that they do not typically involve a substance. Process addictions often co-occur with a drug addiction. It is the high produced by a continued activity or behavior, not a drug, that identifies a process addiction. Gambling is the most studied of the process addictions. An individual addicted to gambling is addicted to the pleasure, excitement, or high that takes place when participating in this activity. When natural everyday activities are unable to compete with the high (mainly the rush of dopamine) produced by gambling, the individual is on the road to becoming addicted. The individual begins to crave the high that only gambling can produce. When he or she continues to participate in the act of gambling, including the anticipation of gambling, the addict experiences changes in brain functioning. At this point, despite the consequences, the individual continues the behavior.

Process addictions frequently mentioned include exercise, hand washing, Internet use, love, money, relationships, self-injurious behaviors, sex, shopping, sleep, spending, stealing, television, trichotillomania, video games, and work. Participation in these behaviors does not mean that one is, or will become, addicted. Individuals who maturely enjoy these activities in ways that have not produced negative consequences should not be referred to as addicts. "Addictions List" (n.d.) shows the scope of potential addictions, both substance and process.

THE PREVALENCE OF ADDICTIONS

Prevalence is the epidemiological term for the percentage of a population identified as having a specific problem or addiction. Prevalence rates for process addictions have been infrequently reported because of a lack of research, whereas prevalence rates for drug abuse in the United States and across the globe have been widely reported.

Drug Addictions: Alcohol and Nicotine

Substance use and misuse is costly. NIDA (2012b) estimates the cost of drug addiction in the United States to be more than \$600 billion yearly in health care, law enforcement, subsidized treatment, and prevention efforts. Additional costs to individual patients and their families are significant but difficult to calculate.

The National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2012) reported an increase in the use of illicit drugs from 2009 to 2010, with 2010 having the highest reported drug use since 2002. The survey, released in September 2011, indicated that marijuana use was the reason for the overall increase in drug use, with about 17.4 million Americans using marijuana in 2010.

Alcohol remains one of the most prevalent drugs used and abused in the United States. Results of the Monitoring the Future survey revealed that 25% of 18-year-olds, 42% of 20-year-olds, and 20% of 50-year-olds reported engaging in alcohol use (five or more drinks at least once in the past 2 weeks; Johnston, O'Malley, Bachman, & Schulenberg, 2011). These findings cite the use of alcohol but fail to identify problem drinking. It has been estimated that approximately 10% of the adult population in the United States abused or was dependent on alcohol in the past 12 months (Pirkola, Poikolainen, & Lonnqvist, 2006; Teesson, Baillie, Lynskey, Manor, & Degenhardt, 2006). Alcohol use (binge and heavy drinking) was the same in 2010 as in 2009 but with a decline in drinking among adolescents ages 12 to 17.

The prevalence of tobacco use and other drug use has also been studied by the Monitoring the Future research group (Johnston et al., 2011). Daily cigarette smoking (20 or more days in the past 30 days) was reported by 11.4% of 18-year-olds and 17% of 50-year-olds (Johnston et al., 2011). Daily cigarette smoking, considered tobacco addiction (dependence) among older teenagers, has been reported among 6% to 8% of the U.S. population (Chen, Sheth, Elliott, & Yeager, 2004; Young et al., 2002). Studies have found prevalence rates for tobacco addiction of 9.6% among college students and 4.4% among incoming college students (Cook, 1987; Dierker et al., 2007). Other studies have reported a prevalence rate of 12.8% for tobacco addiction among a national sample of U.S. adults (Grant, Hasin, Chou, Stinson, & Dawson, 2004). Goodwin, Keyes, and Hasin (2009) reported prevalence rates of 21.6% and 17.8% for tobacco addiction among male and female adults in the general U.S. population. Tobacco dependence among adults in the United States has been estimated at 15% (Sussman, Lisha, & Griffiths, 2011).

Process Addictions

There are limited research findings on the prevalence of process addictions, which are more difficult than substance addictions to define and measure (Gambino,

2006). Of the process addictions, gambling is the most widely researched (Griffiths, 2009). As a disorder, gambling had a prevalence rate in 2012 of 0.2% to 0.3% in the general population and a rate of 0.4% to 1.0% over a lifetime (APA, 2013, p. 587). A gambling addiction has been reported among 1% to 3% of adults in the United States (Bondolfi, Osiek, & Ferrero, 2000; Griffiths, 2009; Volberg, Gupta, Griffiths, Olason, & Delfabbro, 2010). Males have a higher prevalence of gambling addiction than females, and African Americans are believed to have a higher rate of gambling addiction than Whites, who are estimated to have a higher rate than Hispanics. Note, however, that any study or estimate related to gambling or any other process addiction needs to be critically examined, keeping the following in mind: origin of the study, date of the investigation, sample size, sample demographics, geography, and culture. Estimates of the prevalence of the process addictions covered in this text vary based on the year of the study and the sample.

A limited amount of data have been reported for sexual addictions and food disorders. Kaplan and Krueger (2010) estimated that approximately 3% to 6% of adults in the United States have a sexual addiction. Anorexia nervosa, a food disorder, is believed to have had a prevalence rate in 2012 of approximately 4%, with most of those affected being female (APA, 2013, p. 341). Prevalence rates for bulimia nervosa in 2012 were approximately 1% to 1.5%, again with most of those affected being female (APA, 2013, p. 347). Earlier studies on food disorders among older teens and adults reported prevalence rates between 1% and 2% (Allison, Grilo, Masheb, & Stunkard, 2005; Gadalla & Piran, 2007; Gleaves & Carter, 2008).

Early studies on video gaming found that 10.3% of students in Grades 7–12 in Ontario, Canada, reported having a video gaming problem (Keowan, 2007). Additional studies reported that 6% to 10% of university students had an Internet addiction (Grüsser, Thalemann, & Griffiths, 2007; Kubey, Lavin, & Barrows, 2001; Morahan-Martin & Schumacher, 2000).

Sussman et al. (2011) reported a study by Keowan (2007) that found that 31% of working Canadians between the ages of 19 and 64 viewed themselves as workaholics. This percentage is one of the highest recorded in studies of self-identified workaholics. The prevalence rate of workaholism among college graduates has been reported at 8% to 17.5% (Burke, 2000; MacLaren & Best, 2010). An estimated prevalence rate for workaholism in the U.S. adult population is 10% (Sussman et al., 2011).

Previous studies have estimated that exercise addiction affects 3% to 5% of college students (Allegre, Souville, Therme, & Griffiths, 2006; D. Downs, Hausenblas, & Nigg, 2004; Terry, Szabo, & Griffiths, 2004). However, one study of college students reported prevalence rates at 21.8 to 25.6% (MacLaren & Best, 2010).

Estimates of shopping addictions have ranged from 1% to 6% among adults (Freimuth et al., 2008; Koran, Faber, Aboujaoude, Large, & Serpe, 2006). Koran et al. (2006) estimated the prevalence rate of shopping addiction in the United States at 6%.

Gambling, work, sex, video games, and exercise have been ranked as the top five process addictions according to prevalence (Griffiths, 2009). Further studies will reveal changes in ranking among process addictions, with Internet and gaming addictions becoming more prevalent. Additional information on prevalence estimates for process addictions is available in subsequent chapters of this text.

In summary, a greater number of studies have focused on substance addictions compared to process addictions. Individual researchers have reported prevalence rates of process addictions, but large-scale studies by government agencies such as NIDA and the Substance Abuse and Mental Health Services Administration are lacking. Current data on prevalence rates of process addictions need to be reviewed with care, considering the following:

1. Process addictions lack agreed-on, identifiable criteria.
2. Process addictions are more difficult to identify than drug addictions.
3. Consequences of process addictions are more subtle than those of drug addictions.
4. Studies examining the cost and prevalence of process addictions are not government funded.
5. The impact of process addictions, or repeated behaviors, on brain functioning requires further research to be convincingly viewed as a disease.
6. Process addictions are less likely than substance addictions to cause a breakdown of bodily organs, leading to death.

Many of the same indicators are present with behavioral addictions as with drug addictions. In both cases, loved ones, friends, and families suffer the emotional pain caused by the addiction, as well as a loss of resources. Individuals' jobs, careers, reputations, social lives, marriages, and relationships with children and others are severely affected or destroyed. Despite these consequences, individuals continue to repeat the behavior to the point that little else matters in their life. The repeated behavior (process addiction) becomes a top priority. As with a drug addiction, individuals are convinced of the need to continue the behavior in order to survive. Similar chemical and biological changes seem to occur with both types of addictions, taking it out of the individual's control ("What Is a Process Addiction?" 2012).

Treatment is necessary for both substance and process addictions. Yet the results of a 2010 study of 67,500 civilians revealed that only 11.2% of individuals who needed treatment for a substance addiction actually received help at a specialty facility (Substance Abuse and Mental Health Services Administration, 2011). Research studies on treatment provided for those suffering from process addictions are unavailable. There is reason to believe that the percentage of individuals who receive help for process addictions from a specialty facility is less than the 11.2% currently reported for substance addictions.

THE ETIOLOGY OF ADDICTIONS

Addictions, including the road to an addiction, vary widely. The addictive process is complex, including several influencing factors. An individual's mental state, genetics, social status, and experiences influence the addict and the timeline the addiction takes. Despite several theories on the causes of addiction, definitive reasons for why and how one becomes addicted remain a mystery. Several research questions beg investigation: Why is one individual able to drink in moderation whereas another needs to remain abstinent? Why are addictions intergenerational in nature, but only with certain members of a family? To what degree does the

specific substance or behavior play a role in determining whether one will become addicted? Longitudinal studies will eventually answer these questions. Some factors currently identified as potential causes of addictions include genetic factors, brain structure and function, environmental factors, and individual development.

NIDA (2010) provided a basic explanation for why people take drugs or become addicted to a particular behavior:

- *To feel good.* Drugs and certain activities produce intense feelings of pleasure. Many individuals want to revisit the pleasurable situation caused by taking a drug or continued involvement in an exciting activity such as gambling or sex. Other effects follow the initial sensation of euphoria, a dopamine rush with drugs. With stimulants such as cocaine, the high is followed by feelings of power, self-confidence, and increased energy, whereas the euphoria caused by opiates such as heroin is followed by feelings of relaxation and satisfaction. In both situations the individual experiences pleasurable feelings. With a process addiction such as gambling, a high is obtained with the thought of winning and the risk involved. With many process addictions, such as gambling, sex, and exercise, the greater the risk, the greater the high produced.
- *To feel better.* Stressful situations occur in the lives of all individuals. The kind and degree of stress plays a role in whether one begins to use drugs or engage in stress-relieving behavior. To relieve stress or to feel better, individuals return to the behavior, such as sex, or the drug, such as marijuana. Soon the behavior or drug is viewed as the only thing that can alleviate their stress.
- *To do better.* Individuals can be drawn to drugs, such as steroids, or behaviors, such as exercise, to enhance their performance. Competition is a driving force to do better. Using chemicals or high-stress exercise programs to enhance or improve athletic or cognitive performance is tempting.
- *To satisfy curiosity.* Statements such as "I'd like to try it just once" or "I wonder what that feeling is like" involve one's curiosity. Unfortunately, the innocent trial of a drug or high-risk behavior can lead to its repeated use and possibly become an addiction. Adolescents are particularly vulnerable because of the strong influence of peer pressure and therefore are more likely to satisfy their curiosity and engage in thrilling and daring behaviors (NIDA, 2008).

Genetic Factors

Genetic factors are believed to account for 50% of an individual's vulnerability to an addiction (Volkow, 2011). DNA is made up of genes that are nearly identical for 99.9% of individuals. However, it is believed that the 0.1% variation contributes to a person's vulnerability to an addiction, as well as to other diseases such as diabetes, heart problems, and stroke (NIDA, 2008). Studies of identical twins have supported the role of genetic properties in vulnerability to addiction. Using a sample of 861 identical twin pairs and 653 fraternal twin pairs, researchers found that when one identical twin was addicted to alcohol, the other twin had a high probability of having the same addiction, although this was not true for nonidentical (fraternal) twins (Enoch & Goldman, 2001; Prescott & Kendler, 1999). Other studies (Enoch & Goldman, 2001; Prescott & Kendler, 1999) have found

that children of addicts (to alcohol or other drugs) are 8 times more likely to develop an addiction, supporting the premise that substance addictions seem to run in families as the result of a genetic predisposition. There is speculation that genetics also plays a role in behavioral addictions, despite insufficient research tracing gambling, sex, work, exercise, shopping, and other process addictions to one's genetic makeup.

Addiction as a Brain Disease: Brain Structure and Function

Closely aligned with genetic research are studies related to the brain and its importance in addictions. The brain, weighing approximately 3 pounds, controls and directs just about everything people do, including how they respond to the intake of substances, other people, stress, work, pleasure, loss, disease, and so on. It is therefore understandable that the brain plays a major role in addictions, leading to the identification of addiction as a brain disease. The functioning of the brain as it relates to addictions is demonstrated in Figure 1.1.

Neuroscience research provides evidence that the long-term use of drugs can change brain structure and functioning (NIAAA, 2009; Smith 2013). Changes in brain structure and functioning are also believed to take place with process addictions. Addiction is therefore viewed as a brain disease, as it plays a major role in the disease model of addiction that includes biological, neurological, genetic, and environmental factors (NIDA, 2012d). The definition of disease provides the possible inclusion of both substance and process addictions. Components of the brain, brain functioning, and related concepts are central to the consideration of addiction as a brain disease. Several parts of the brain have been identified as playing a role in the addiction process. However, the midbrain and the frontal cortex (refer to Figure 1.1) have been given the most attention, particularly as related

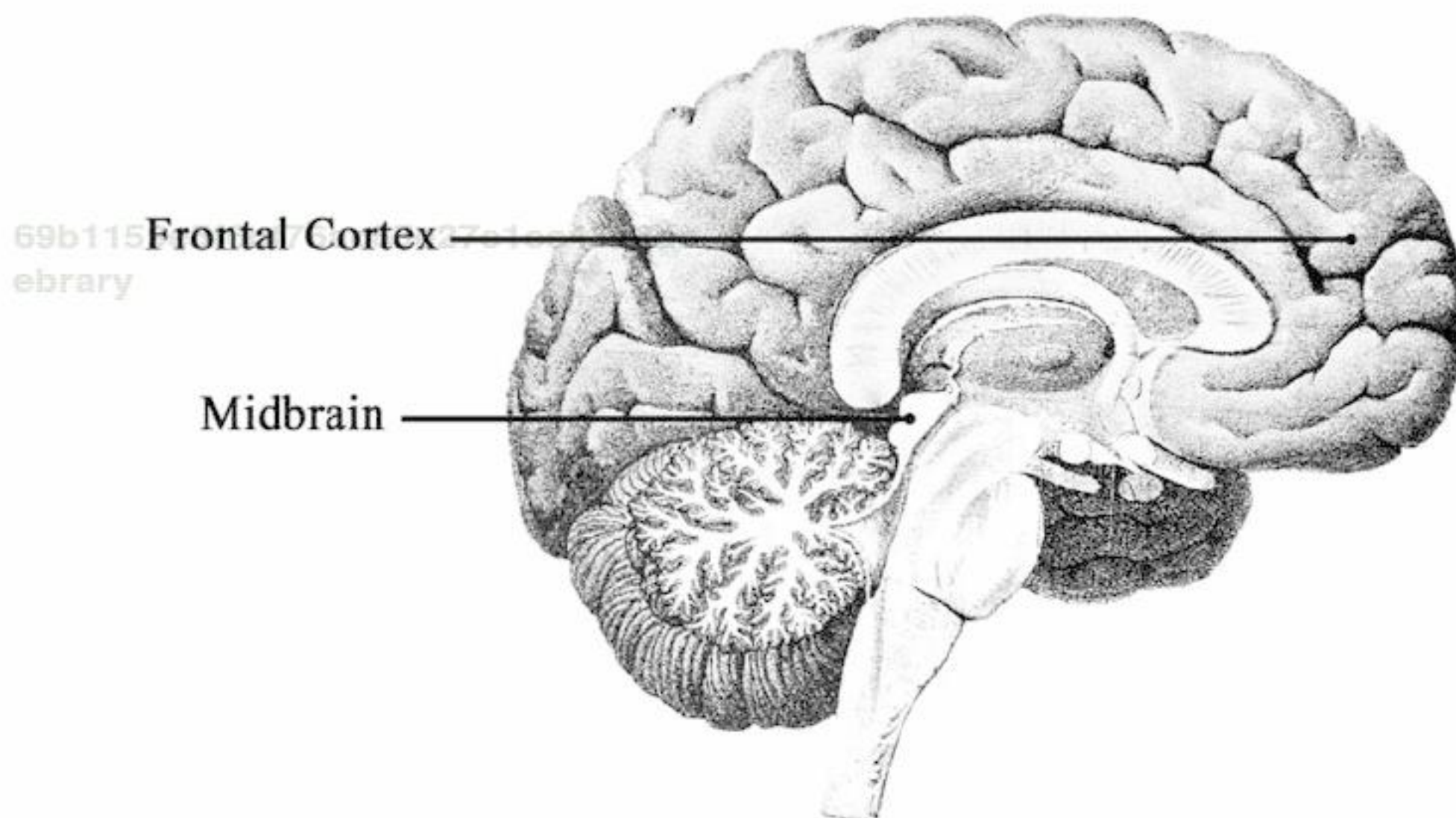


FIGURE 1.1 THE HUMAN BRAIN AND ADDICTION

Note. Two central components of the human brain, the frontal cortex and the midbrain, relate to addiction. Image from http://commons.wikimedia.org/wiki/File:PSM_V46_D168_Mesial_view_of_the_human_brain.jpg

to substance addictions. The midbrain, often referred to as the *lower brain* or *old brain*, is viewed as the area where drugs began. The midbrain does not think and is believed to handle things only in the next 15 seconds in order to survive (Institute for Addiction Studies, 2009). The midbrain tells people to eat and drink, and it is the pleasure system of the brain (Olds & Milner, 1954). The midbrain releases dopamine, a neurotransmitter, a pleasurable reward, induced by drugs as well as other activities and experiences. The excessive flow of dopamine generated by drugs is known as the *dopamine hypothesis*. Dopamine is also released as a reward in process addictions. When a behavior or drug is used over and over again, it is the midbrain's survival characteristic that helps create the craving, placing the drug or activity at the highest priority level for everyday functioning.

The frontal cortex is the most evolved part of the brain. Because it continues to develop throughout adolescence, it is negatively affected by early and continued use of drugs. The frontal cortex makes decisions, serves as the moral compass and conscience, and keeps the midbrain in control (Institute for Addiction Studies, 2009). The frontal cortex is the thinking center of the brain involved with planning, problem solving, and decision making. Imaging research has provided information on the role played by the prefrontal cortex in the regulation of the midbrain reward regions. Neuroimaging has revealed that drug addiction affects the prefrontal cortex as related to self-control, salience attribution, awareness, as well as the erosion of free will (Goldstein & Volkow, 2011). Goldstein and Volkow (2011) emphasized the importance of the prefrontal cortex in drug addiction, postulating that drug-addicted individuals attribute excessive salience to the drug and drug-related cues and insignificant salience to non-drug-related stimuli such as food or social relationships. This change of impaired behavioral control and movement toward impulsivity is hypothesized to take place in the prefrontal cortical brain regions (Patoine, 2007). Addiction, as related to these findings, supports the disease concept and includes disorders of neural pathways. Disorders in neural pathways result in hypofrontality leading to performance decline in the prefrontal cortex and loss of executive functioning (Institute for Addiction Studies, 2009). Evidence suggests that these changes in the brain are the origin of the cognitive and emotional problems of individuals who have an addiction.

Environmental Factors

A wide range of environmental factors, many of which are social, play a role in the addiction process. These include family, friends (peers), socioeconomic status, cultural norms, career, job, stressors, and so on. For an adolescent, social factors involving family, peers, school, and community are of major importance (Lundberg, 2013). A parent's attitude toward drugs is also significant. However, drug use by peers places adolescents at the greatest risk for becoming addicted. Student performance and participation in school are mitigating factors related to drug use, as is the community's overall attitude toward the use of drugs.

Additional factors contributing to an addiction include early substance use. For example, if one tries drugs or participates in a repeated behavior at an early age, there is a greater risk of becoming addicted as an adult. If a young person becomes accustomed to a substance or behavior early in his or her development, it can lead to a habit and eventually to an addiction.

With drugs, the method used to take the drug is often relevant. Injecting, snorting, or smoking drugs tends to facilitate the addiction process. These methods quickly introduce drugs to the brain. But the effect is often short lived, leading the individual to want to use again.

Stress in one's life, early physical or sexual abuse, witnessing violence, and the availability of drugs are additional environmental factors contributing to an addiction (NIDA, 2008). Research with nonhuman primates has demonstrated that levels of dopamine receptors in the brain are influenced by the environment, particularly social factors that lead to the propensity to self-administer drugs (NIDA, 2008).

Individual Development

In the early 1970s, researchers believed that having an addictive personality was responsible for the development of addictive behavior. Then Alan R. Lang (1983) researched personality traits as they related to addiction. Lang concluded that no single set of traits was definitive of an addictive personality. However, he did cite several traits thought to be common among individuals who are addicted, including impulsivity, nonconformity, lower achievement goals, social alienation, stress, deviance, and poor coping skills. Most of the traits attributed to addicts were negative. The negativity of these traits was believed to have affected treatment and disposition by individuals who administered treatment to those suffering from an addiction, particularly an addiction to alcohol. Today, however, most professionals view these character traits as occurring because of the addiction rather than as part of an individual's basic personality.

TREATMENT STRATEGIES

The treatment of substance and process addictions is a global concern. Interventions and complete treatment programs concerning addictions continue to increase in complexity as more drugs are developed and as experts learn more about co-occurring process addictions. Ongoing research, particularly technology used to study brain functioning, perhaps can provide avenues for designing effective treatment programs that include medications and interventions for drug and process addictions. Findings identifying changes in brain makeup and functioning resulting from addictions hold promise for the discovery of medications that, combined with behavioral interventions, will provide more expedient and effective interventions.

Several substance and process addiction treatment programs have been subjected to efficacy research that has led to their identification as evidence-based programs. However, the administration of an addiction treatment program, mainly the relationship between the clinician and the patient, is as important as the intervention itself. All addiction treatment programs require that clinicians possess superb relationship skills. Professionals working with clients who are challenged by an addiction need to possess and demonstrate the necessary and essential conditions for change as identified by Rogers (1957). Research supports the importance of the relationship in counseling and psychotherapy (Lambert, 1991; S. D. Miller, Duncan, & Hubble, 2005). Research findings have shown that the relationship between the counselor and client accounts for no less than 30% of any change in therapy with individuals suffering from a wide range of problems, including

addictions. An effective relationship is critical in work with clients with drug and process addictions (W. R. Miller et al., 2011). Relationship skills are often referred to as *core dimensions* or *core conditions* of counseling. These dimensions include empathy, congruence, genuineness, positive regard, immediacy, and concreteness.

In an attempt to provide proven treatment interventions for clients experiencing addictions, the scientific community has targeted the use of evidence-based treatment programs. Evidence-based programs have been submitted to rigorously controlled research studies and consistently emphasize positive outcomes. To be considered evidence based, programs must meet standards similar to the following:

1. *Randomized clinical trials of the practice or intervention.* Randomized clinical trials demonstrate the effectiveness of the programs.
2. *Demonstrated effectiveness using different samples.* Programs have been effective in a variety of settings with diverse samples, such as hospitals, clinics, business settings, and universities.
3. *Clear definition of dependent and independent variables.* Dependent, outcome variables are clearly defined, as are predictor variables.
4. *Feasibility of the practice or program.* Programs have been implemented in a wide range of settings with clarity of practices and procedures.
5. *Grounded in theory.* Programs are grounded in and supported by theory.
6. *Assurances of fidelity.* Programs are consistent in infusing concepts with clear, ethically based procedures.
7. *The practice addresses diversity.* Programs have been used in a variety of settings with diverse populations (R. L. Smith, 2011).

Over the past decade, NIDA has identified a number of evidence-based programs considered effective for working with addictions. These include treatment with medication and behavioral treatment programs.

Medication

It is recommended that treatment with medication concurrently include behavioral interventions. Treatment with medication most frequently occurs in a hospital setting, involving withdrawal from a drug. For example, methadone and naltrexone are two anti-addiction medications used to suppress withdrawal symptoms during detoxification. However, heroin addiction can also be treated by a physician in his or her office with buprenorphine (Suboxone). Since 2004, clinical trials have investigated whether drugs currently used to treat other diseases can also be used to treat addictions. Supported by the dopamine hypothesis, Ritalin, which is used to treat attention-deficit/hyperactivity disorder, produces dopamine at a lesser level than cocaine; therefore, it is used to provide a more gradual withdrawal from cocaine.

Goals of treatment with medication include the extinction of craving, the prevention of relapse, and the establishment of normal brain functioning. NIDA has identified medications for the treatment of addictions to opioids (heroin and morphine), tobacco (nicotine), and alcohol.

Opioids

Methadone, buprenorphine, and naltrexone are medications used to treat an opiate addiction. These medications act on the same regions of the brain as heroin

and morphine (Goldstein & Volkow, 2011) but suppress withdrawal symptoms and relieve cravings. Naltrexone works by blocking the effects of opioids at their receptor sites and is administered following detoxification. The goal of administering these medications is to eliminate drug seeking and dysfunctional behavior while receiving behavioral treatment.

Tobacco

A large number of nicotine replacement therapies (the patch, gum, nasal spray, oral inhalers, and lozenges) have been used. These interventions have few side effects and are available over the counter. Bupropion SR tablets and varenicline tablets, two prescription medications, have been approved by the U.S. Food and Drug Administration (FDA) for treating tobacco addiction. They act on the brain through different mechanisms, but both help prevent relapse. These medications are usually used in combination with behavioral treatment (e.g., educational groups, group therapy, group counseling).

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Alcohol

The medications naltrexone, acamprosate, and disulfiram have been approved by the FDA to treat alcohol dependence. Naltrexone blocks the opioid receptors affecting the reward system and the craving for alcohol. Studies have indicated that naltrexone has a greater effect on drinking when craving is high (Richardson et al., 2008). Acamprosate is thought to reduce symptoms of protracted withdrawal, such as insomnia, anxiety, restlessness, and dysphoria (an unpleasant or uncomfortable emotional state, such as depression, anxiety, or irritability). It may be more effective in patients with severe dependence. Acamprosate appears to be an effective and safe treatment for alcohol-dependent patients as a support for continued abstinence after detoxification (Rösner et al., 2011). Disulfiram works by blocking the processing of alcohol in the body. It causes one to have an unpleasant reaction when drinking alcohol, including flushing, nausea, and palpitations. Compliance is a problem, despite the effectiveness of disulfiram. Topiramate, approved to treat certain types of seizures and migraine headaches, has been successfully used to treat individuals who are still drinking. However, because of its severe side effects, Topiramate does not have FDA approval (Hanson, 2007).

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Behavioral Strategies

According to NIDA (1999), several behavioral treatment programs are evidence based. These programs, many of which are described in greater detail later in this chapter, include outpatient and residential programs:

- *Cognitive behavior therapy (CBT)*. CBT works with cognitive processes, helping clients to recognize prevailing thoughts, disrupt and change self-defeating thinking, and develop effective coping strategies.
- *Multidimensional family therapy*. Multidimensional family therapy is primarily used with adolescents who have drug abuse problems. Family participation is necessary in order to address systemic influences on drug abuse patterns while improving family functioning.
- *Motivational interviewing*. Motivational interviewing approaches clients from a humanistic perspective, facilitating change and bringing out ambiguity related to continued drug use.

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- *Motivational incentives/contingency management.* Contingency management programs focus on incentives and positive reinforcement to move toward abstaining from drug use.
- *Therapeutic communities.* Therapeutic communities are residential programs 3 to 12 months in duration that focus on changing one's lifestyle and becoming drug free. These structured programs utilize the community and include the treatment staff and individuals in recovery. Therapeutic communities accommodate women who are pregnant or have children.

Several other treatment strategies and programs warrant further examination of their content before they can be characterized as evidence based.

12-Step Programs

Twelve-step programs are frequently recommended as outpatient treatment for various types of addiction. It is commonly acknowledged that anyone, regardless of his or her religious beliefs or lack thereof, can benefit from participation in 12-step programs such as Alcoholics Anonymous or Narcotics Anonymous. The number of visits to 12-step self-help groups exceeds the number of visits to all mental health professionals combined. There are 12-step groups for all major substance and process addictions.

The 12 steps, paraphrased, are as follows:

- Admit powerlessness over the addiction.
- Believe that a Power greater than yourself can restore sanity.
- Make a decision to turn your will and your life over to the care of God as you understand him.
- Make a searching and fearless moral inventory of self.
- Admit to God, yourself, and another human being the exact nature of your wrongs.
- Become willing to have God remove all of these defects from your character.
- Humbly ask God to remove your shortcomings.
- Make a list of all persons harmed by your wrongs and be willing to make amends to them all.
- Make direct amends to such people, whenever possible, except when to do so would injure them or others.
- Continue to take personal inventory and promptly admit any future wrongdoings.
- Seek to improve contact with the God of your understanding through meditation and prayer.
- Carry the message of spiritual awakening to others and practice these principles in all your affairs. (Alcoholics Anonymous, n.d.)

CBT

CBT was first used as a method to prevent relapse when treating problem drinking. It has since been adapted for use in treating most drug addictions, including addictions to cocaine, marijuana, and methamphetamines. Cognitive-behavioral programs utilize an approach that focuses on self-defeating thoughts that lead to maladaptive behavior patterns. CBT helps clients identify problematic thinking sequences and behaviors.

CBT focuses on helping clients develop effective coping strategies rather than depend on past behaviors, including drug abuse or involvement in process addictions as gambling or spending. Greater self-control is emphasized. Individuals are taught how to recognize cravings, including the thought processes associated with the cravings. Techniques are used to disrupt the thinking and the craving. New thought processes are introduced and developed with clients that can lead to new behavior patterns. As part of a CBT program, clients explore both positive and negative consequences of continuing an addiction. They also are taught to become cognizant of their surroundings, including peers who could influence drug use.

Contingency Management

Contingency management involves the use of tangible rewards to reinforce positive behaviors such as abstinence. Such incentive-based interventions are believed to be highly effective in increasing treatment retention and promoting abstinence from drugs. *Voucher-based reinforcement* treatments are used with adults who have abused drugs, including heroin and cocaine. For example, patients might receive a voucher for every drug-free urine sample. Vouchers have a monetary value and can be used to purchase groceries and entertainment, such as movie passes. The rewards available increase gradually the longer one is drug free. Additional reward systems, as drawings and lottery-type systems, are used in contingency management. Opportunities for additional rewards are provided to individuals who remain drug free and participate in programs such as individual and group counseling. The goal is to create a healthy lifestyle that does not depend on drugs or include self-defeating behaviors. By being rewarded for positive behavior patterns rather than ingestion of a drug, the individual develops a lifestyle that is free of drugs.

Motivational Enhancement Therapy (MET)

MET focuses on the ambivalence one has about changing his or her use of a drug or a self-defeating behavior. MET can be used with substance and process addictions. The emphasis of MET is to facilitate change through one's internal motivation. A series of initial assessments are used to begin therapy, followed by several individual counseling sessions. Relationship building is important in the initial sessions. A trusting relationship needs to be built in order for the client to discuss his or her problems and any ambiguity about changing drug use or a behavior. Motivational interviewing principles guide the sessions and create an atmosphere in which change can take place. The counselor does not judge or evaluate the client but rather rolls with the conversation. Effective coping strategies are often part of the counselor–client interaction. The sessions focus on change, including just examining the possibilities of change. Once changes are made, the client is reinforced and encouraged to continue progress.

MET has been used successfully with individuals addicted to alcohol as related to participation in treatment and reduction in drinking. MET has also been used with marijuana-dependent adults. MET has been successful when combined with CBT.

Community Reinforcement Approach

NIDA (2012a) describes Community Reinforcement Approach Plus Vouchers:

Community Reinforcement Approach (CRA) Plus Vouchers is an intensive 24-week outpatient therapy for treating people addicted to cocaine and alcohol. It uses a range of recreational, familial, social, and vocational reinforcers, along with material incentives, to make a non-drug-using lifestyle more rewarding than substance use. The treatment goals are twofold:

- To maintain abstinence long enough for patients to learn new life skills to help sustain it; and
- To reduce alcohol consumption for patients whose drinking is associated with cocaine use

Patients attend one or two individual counseling sessions each week, where they focus on improving family relations, learn a variety of skills to minimize drug use, receive vocational counseling, and develop new recreational activities and social networks. Those who also abuse alcohol receive clinic-monitored disulfiram (Antabuse) therapy. Patients submit urine samples two or three times each week and receive vouchers for cocaine-negative samples. As in [voucher-based reinforcement], the value of the vouchers increases with consecutive clean samples, and the vouchers may be exchanged for retail goods that are consistent with a drug-free lifestyle. Studies in both urban and rural areas have found that this approach facilitates patients' engagement in treatment and successfully aids them in gaining substantial periods of cocaine abstinence.

A computer-based version of CRA Plus Vouchers called the Therapeutic Education System (TES) was found to be nearly as effective as treatment administered by a therapist in promoting abstinence from opioids and cocaine among opioid-dependent individuals in outpatient treatment. A version of CRA for adolescents addresses problem-solving, coping, and communication skills and encourages active participation in positive social and recreational activities.

The Matrix Model

The Matrix Model has been used as a framework for working with individuals who abuse stimulants (methamphetamine and cocaine). The treatment goal is abstinence. Education sessions involve learning about addictions and relapse. Professionals trained in addictions counseling work with patients. Self-help programs are used as an adjunct to therapy. Patients are monitored for drug use through urine testing. The relationship between the therapist and patient is critical to eventual change. The therapist provides a support system for patients and often functions as a teacher and coach. The building of the patient's self-esteem, dignity, and self-worth is emphasized. The overall treatment program includes relapse prevention, family and group therapies, drug education, and self-help activities. Treatment manuals are utilized. Patients often utilize worksheets found within the treatment manuals. In addition, patients participate in 12-step programs and social support groups. Patients are monitored through urine tests. According to NIDA (2012a), the Matrix Model has shown statistically significant reductions in drug and alcohol use, improvements in psychological indicators, and reduced risky sexual behaviors associated with HIV transmission.

Family Behavior Therapy

Family behavior therapy, utilized with both adults and adolescents, focuses on substance abuse and other co-occurring issues. A wide range of family-related concerns are often covered, including family violence, child abuse, depression, family communication, family finances, and unemployment. Behavioral contracting is used, along with contingency management. Behavioral goals are reviewed at the beginning of each session. Goal accomplishments are rewarded.

When possible, the entire family is involved in treatment. However, many sessions might involve an adolescent and one family caregiver. Behavior therapy is emphasized with psychoeducational activities that teach family members new skills. A cohesive and adaptable home environment is emphasized. Behavioral goals to stop or prevent substance misuse are utilized. Positive communication skills are taught along with effective parenting skills. The participatory treatment allows patients to choose interventions. Family behavior therapy has been found to be effective, particularly along with other approaches (NIDA, 2012c).

Dialectical Behavior Therapy (DBT)

DBT is an evidence-based therapy for individuals with co-occurring disorders. Evidence supporting the use of DBT with substance dependence issues is being recognized. For example, the Substance Abuse and Mental Health Services Administration presented a 2008 Science and Service Award to a DBT program based in Portland, Oregon. In addition, NIDA published a paper recommending the use of DBT with co-occurring disorders (A. Downs, 2010). DBT emphasizes quality-of-life issues when working with substance abuse problems. Behavioral targets in a DBT substance-abuse treatment program include

- decreasing the abuse of substances, including illicit drugs and legally prescribed drugs taken in a manner not prescribed
- alleviating physical discomfort associated with abstinence and/or withdrawal
- diminishing urges, cravings, and temptations to abuse
- avoiding opportunities and cues to abuse, for example, by burning bridges to persons, places, and things associated with drug abuse and by destroying the telephone numbers of drug contacts, getting a new telephone number, and throwing away drug paraphernalia
- reducing behaviors conducive to drug abuse, such as momentarily giving up the goal to get off drugs and instead functioning as if the use of drugs cannot be avoided
- increasing community reinforcement of healthy behaviors, such as fostering the development of new friends, rekindling old friendships, pursuing social/vocational activities, and seeking environments that support abstinence and punish behaviors related to drug abuse (Dimeff & Linehan, 2008)

Aversive Behavior Therapy Programs: Counterconditioning

The physical and psychological aspects of drug addiction are the focuses of the drug treatment program at Schick Shadel Hospital in Santa Barbara, California. Abstinence is emphasized. An aversive behavior therapy approach is utilized that involves mild counterconditioning and sedation-assisted therapy to relieve

the desire for the addictive substance. Alcohol or drug use is associated with discomfort, and the craving to use a substance is eliminated.

The Schick Shadel treatment program also focuses on relationships, involving positive sessions with the professional staff and other patients. Nutrition, exercise, and rest are emphasized as a lifestyle change. The goal is to have individuals obtain pleasure from natural, healthy activities rather than drugs. Research findings for this aversive behavior therapy program are promising (J. W. Smith & Frawley, 1993). A sample of 600 patients treated in a multimodal treatment program using aversion therapy and narcotherapy was studied at three freestanding Schick addiction treatment hospitals and one Schick unit in a general hospital. Telephone contact was made by an independent research organization with 427 of the patients (71.2%) 12 to 20 months after completion of treatment. Of these, 65.1% were totally abstinent for 1 year after treatment, and 60.2% were abstinent until follow-up ($M = 14.7$ months; J. W. Smith & Frawley, 1993).

CONCLUSIONS

Addiction is a complex term, often difficult to define. However, in recent years, *drug addiction* has been defined as a chronic, relapsing brain disease characterized by compulsive drug seeking and use despite harmful consequences. It is considered a brain disease because drugs change the structure of the brain and how it works. These changes in the brain can be long lasting and can lead to the harmful behaviors seen in people who abuse drugs (NIDA, 2010). Process addictions, such as addictions to gambling, sex, the Internet, food, work, exercise, and shopping, are believed to involve similar pleasure-seeking principles, with the brain rewarding a behavior that is exciting and high risk. Many view addiction as similar to other diseases, such as heart problems, diabetes, and cancer, as it disrupts the normal, healthy functioning of an individual; has serious harmful consequences; is preventable and treatable; and, if left untreated, can last a lifetime (NIDA, 2010).

Certain criteria can help clinicians in assessing whether a person has an addiction. Criteria found within the *DSM-5* are recommended for assessing substance and process addictions, as is information on assessing addictions found in the literature (Engs, 2012; Hartney, 2011a; W. R. Miller et al., 2011). These criteria include several common factors: increased tolerance, decreased willpower, continued use, lack of control, withdrawal, and consequences. Generic criteria for assessing process addictions (see Table 1.1) have been offered with the hope this will lead to more clearly identifying process addictions. In addition to defining addiction and examining the criteria used in determining an addiction, this chapter has discussed the etiology of addictions, concluding that there are multiple reasons why individuals become addicted.

As experts learn more about addictions, human behavior, and the mechanisms of the brain, they perhaps can further understand addictions, their etiology, and the best methods for addressing both substance and process addictions. It is reasonable to believe that no single factor determines whether a person will become addicted to a substance or behavior. Research has indicated that the overall risk of developing a substance or process addiction is affected by one's biological makeup, gender, ethnicity, developmental stage, and surrounding environment

(family, friends, peers, school, and neighborhood). Scientists have estimated that genetic factors account for between 40% and 60% of a person's vulnerability to addiction. Adolescents and individuals with mental disorders are at greater risk for drug abuse and addictive behaviors than the general population.

After genetics, environmental factors play a major role in addictions. The influence of one's home environment is important in childhood, as are a child's earliest interactions within the family. Having family members, particularly parents, who abuse alcohol or drugs or who engage in criminal behavior is believed to increase a child's risk of developing his or her own drug problems or addictive behavior patterns. Peers, one's school, and friends are highly influential during the adolescent years. Peers in particular can be very influential in persuading an adolescent to try a drug or participate in a high-risk behavior. Peer influence can mitigate protective factors provided by the family or school. Lack of success in academics and ineffective social skills place one at risk for engaging in destructive behaviors or abusing drugs.

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Although taking drugs at any age can lead to addiction, research shows that the earlier a person begins to use drugs, the more likely he or she is to progress to more serious abuse. This may reflect the harmful effect that drugs can have on the developing brain; it also may result from a constellation of early biological and social vulnerability factors, such as genetic susceptibility, mental illness, unstable family relationships, and exposure to physical or sexual abuse. The fact remains that early use is a strong indicator of problems ahead with substance abuse and addiction. The initial decision to take drugs is often voluntary. At first, people may perceive what seem to be positive effects of drug use. They also may believe that they can control their use. However, drugs can quickly take over their lives. Consider how a social drinker can become intoxicated, put himself behind a wheel, and quickly turn a pleasurable activity into a tragedy for himself and others. Over time, if drug use continues, pleasurable activities become less pleasurable, and drug abuse becomes necessary for abusers to feel normal. Drug abusers reach a point where they seek and take drugs despite the tremendous problems for themselves and their loved ones. Some individuals may develop a tolerance and start to feel the need to take higher or more frequent doses, even in the early stages of their drug use.

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After continued use of a substance or process, a person's ability to exert self-control can become seriously impaired. Brain-imaging studies from addicted individuals show physical changes in areas of the brain that are critical to judgment, decision making, learning and memory, and behavior control. Scientists believe that these changes alter the way the brain works and may explain the compulsive and destructive behaviors of addiction. The prefrontal cortex, the part of the brain that enables people to assess situations, make sound decisions, and keep their emotions and desires under control, changes as the result of continued addiction. This part of the brain is still developing throughout adolescence and therefore places one at increased risk for poor decision making and judgment.

Several treatment strategies and programs addressing substance and behavioral addictions have been studied. Evidence-based treatment strategies included in this chapter and examined further in this text included CBT, MET, contingency management, community reinforcement, DBT, 12-step programs,

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medication, the Matrix Model, family behavior therapy, and counterconditioning. The research on many of these strategies and treatment programs has focused on substance addictions. Efficacy research on interventions that address process addictions is currently lacking. It is hypothesized that the dearth of efficacy studies involving process addictions is the result of a gap in the literature related to process addictions as well as limited skills training in treating behavioral addictions (Wilson & Johnson, 2013). Perhaps this text and others like it that address the exponential growth of process addictions, along with continued crises surrounding substance misuse, will encourage further research on and direct greater attention toward treatment strategies addressing these co-occurring disorders.

RESOURCES

Resources for Treatment

Addiction Treatment Forum
<http://atforum.com/>

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Initiatives Designed to Move Treatment Research Into Practice

Blending Teams

www.drugabuse.gov/nidasamhsa-blending-initiative

Criminal Justice-Drug Abuse Treatment Studies

<http://tpj.sagepub.com/content/87/1/9.short>

NIDA's National Drug Abuse Treatment Clinical Trials Network

www.drugabuse.gov/CTN/Index.htm

National Agencies

Center for Substance Abuse Treatment

www.samhsa.gov/about-us/who-we-are/offices-centers/csat

National Institute of Mental Health

www.nimh.nih.gov

National Institute on Alcohol Abuse and Alcoholism

www.niaaa.nih.gov

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National Institute on Drug Abuse

www.drugabuse.gov

Selected NIDA and Other Educational Resources on Drug Addiction Treatment

Alcohol Alert (published by NIAAA)

www.niaaa.nih.gov/publications/journals-and-reports/alcohol-alert

Addiction Severity Index

<http://www.tresearch.org/tools/download-asi-instruments-manuals/>

Drugs, Brains, and Behavior: The Science of Addiction

www.drugabuse.gov/publications/science-addiction

Helping Patients Who Drink Too Much: A Clinician's Guide (published by NIAAA)

http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm

NIDA DrugFacts: Treatment Approaches for Drug Addiction

www.drugabuse.gov/publications/drugfacts/treatment-approaches-drug-addiction

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Principles of Drug Abuse Treatment for Criminal Justice Populations: A Research-Based Guide
www.drugabuse.gov/publications/principles-drug-abuse-treatment-criminal-justice-populations/principles

Research Report Series: Therapeutic Community

<http://archives.drugabuse.gov/researchreports/Therapeutic/>

Seeking Drug Abuse Treatment: Know What to Ask

www.drugabuse.gov/publications/seeking-drug-abuse-treatment

Other Federal Resources

ClinicalTrials.gov

<http://clinicaltrials.gov>

NIDA DrugPubs Research Dissemination Center

<http://drugpubs.drugabuse.gov>

National Institute of Justice

<http://nij.gov>

National Registry of Evidence-Based Programs and Practices 159e5f6cf76ac65e27e1ee4348ac

<http://nrepp.samhsa.gov> ebrary

Substance Abuse and Mental Health Services Administration

www.samhsa.gov/

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