One in 10 people age 12 or older are current users of alcohol, illicit drugs, marijuana, prescription drugs, cocaine, methamphetamines, heroin, and/or stimulants (Substance Abuse and Mental Health Services Administration [SAMHSA], 2015). According to SAMHSA, approximately 22% of persons ages 18-25 are affected, and more than 8% of those age 26 and older are affected. Despite its increasing incidence, substance abuse is not well understood by the general public or even by many healthcare providers. Nurses encounter patients every day with substance abuse problems (D’Onofrio & Bernstein, 2015; Rathlev et al., 2016; Wasan et al., 2015). They may be able to improve their ability to manage affected patients by learning about substance use disorders (SUDs), recognizing risk factors, and adopting an attitude that supports treatment for this chronic disease. The purpose of this article is to review SUDs using opioid abuse as the exemplar, its risk factors, and discuss nursing implications of those afflicted.

Statistics indicate 119 million Americans age 12 and older used prescription psychotherapeutic drugs in 2015; for 2.1 million, it was the first time (Hughes, Williams, Lipari, & Bose, 2016) (see Table 1). Nurses are likely to encounter people in their work setting every day who misuse drugs. This likelihood was illustrated by Elliot, Singh, Tyebally, Gedela, and Nelson (2017), who enrolled patients in their study who were admitted to a hospital for an acute medical reason unrelated to drug addiction. Most (91%; n=59) consented to take a drug-use survey and provide urine for drug screening; almost half tested positive (n=26). Another group from Chile (Poblete et al., 2017) screened over 12,000 clients ages 19-55 for alcohol and illicit drug use from 19 primary care centers, eight emergency rooms, and five police stations. They identified 1,178 people with SUDs, only 12 of whom were receiving current treatment. They enrolled 806 non-treatment seekers who agreed to participate in their study. Subjects were randomized to a brief intervention or an informative pamphlet. Due to high dropout rates, they were unable to determine effectiveness of their intervention. However, these studies suggested healthcare encounters may create a teachable moment for nurses to engage people in treatment.

Exposing the Myth of Addiction

The most dangerous myth of addiction is that abusing illicit substances (including alcohol) is a deliberate choice that affects people with low moral character (Frank & Nagel, 2017). Only those who lack moral judgment or willpower, then, become addicts. The myth also can be illustrated by the belief that people who drink responsibly must have the moral fortitude to avoid overindulgence. As a result of the biases...
that perpetuate the myth, people with addiction may find themselves marginalized by society (Hanson & Venturelli, 2017). Addicts can sense bias and judgmental attitude immediately in a healthcare provider, which creates an impenetrable barrier. Additionally, many inaccurate assumptions are made, such as “they must like living like that” and “they can stop whenever they want.” Addicts struggle to get through every day, either with their addiction or with their recovery (Maguire, 2014). Sometimes a character trait is blamed, or tendency toward a personality predisposition. Although these sentiments may characterize the prevailing attitude among many Americans (Konkoly Thege et al., 2015), no evidence supports a theory of moral failure.

**The Biologic Theory of Addiction**

Evidence for the biologic theory of addiction has been growing for 30 years. Initially focused on alcohol abuse, research has expanded to drugs of abuse such as heroin, methamphetamine, prescription opioids, and cocaine (Jones, Woods, & Usher, 2018; Liu, Williamson, Setlow, Cotterl, & Knackstedt, 2018; Cornell et al., 2018). The biologic theory asserts drug addiction is an acquired disease that develops in part from certain life choices, much in the same way as type 2 diabetes may develop from a lifetime of poor eating choices. Both diseases are avoidable and treatable. Addiction is considered a disease of the brain because drugs of abuse change its structure and cause pathophysiology (Bickel et al., 2018). The pathophysiology is treatable, but the disease is chronic. Risk factors for addiction have been identified, with biology, environment, and development all playing important roles in the development of addiction (Jordan & Andersen, 2017; Sharma, Bruner, Barnett, & Fishman, 2016). One of the most comprehensive sources of information is the National Institute of Drug Abuse (NIDA), which provides most of the funding for such research. The website has the most current information about drugs of abuse (www.drugabuse.gov).

**Risk Factors**

One of the most significant risk factors for drug addiction is adolescence. The earlier in life a person starts to experiment with drugs, the more likely it is that addiction will occur (Jordan & Andersen, 2017). The risk is related to the immaturity of the adolescent pre-frontal cortex, which is responsible for decision making, impulse control, reasoning, and delayed gratification. Most adults successfully transition through adolescence with the help of their parents and others who positively influence their behavior. Peer groups also wield tremendous influence. Teenagers may be dealing with low self-esteem, conflicts with peers or parents, and peer pressure. The immature brain can be damaged permanently from drugs and alcohol. Jordan and Andersen noted legal substances such as tobacco are considered to be gateway drugs, along with marijuana, which is becoming increasingly available for sale in a legal market.

The environment itself may be a risk factor. Someone in the household may misuse drugs or alcohol, or the adolescent may have abusive or neglectful parents or live in a neighborhood where drugs are sold openly. Biology is also a risk factor, with a great deal of work being done to understand this mechanism more fully. For example, a family history of addiction or mental illness contributes to individual risk, which may be related to genomics, genetics, or epigenetics (Wachman et al., 2017). Women are at more risk than men for drug dependence and addiction, and typically present with a more severe addiction over a shorter time period even when they have used less drug (NIDA, 2015). Additionally, women with mood, depressive or eating disorders, or with a history of sexual or physical abuse have an increased risk of addiction. Nurses who take the time to listen to the background story may be able to initiate an intervention that guides the patient toward a path of recovery.

**Pathophysiology of Drug Addiction**

The human brain develops from back to front, completing development of the pre-frontal cortex in the mid-20s (Brossard-Racine & Limperopoulos, 2016). The limbic system in the center of the brain thus develops before the pre-frontal cortex. The amygdala (pleasure center) and the hippocampus (memory) of the limbic system work as the “let’s go!” part of the brain, driving the adolescent or young adult to possible risky behavior without the benefit of a mature pre-frontal cortex. The brain is not yet able to stop and consider the consequences, putting the individual at risk for poor choices that may lead to addiction.

Opioids activate the limbic system, causing the brain to release dopamine and other chemical messengers, and block the natural reuptake mechanisms (Motahari, Sahraei, & Meftahi, 2016). As a result of opioid use, the brain becomes flooded with dopamine, which then overstimulates the amygdala. Persons who find this feeling pleasant are
more likely to repeat the process, while those who do not will avoid it. When the choice to take opioids is repeated again and again to achieve that high, the brain begins a process of homeostasis by decreasing the production of dopamine and/or eliminating the neurotransmitter receptors (Thiele, 2017).

These microscopic changes constitute a fundamental change in brain physiology, marking the advent of addiction as a chronic disease. The user’s brain begins to rely on an external source of dopamine to feel normal so, without it, the user is depressed and feels bad. The user now has a physiologic need for opioids to feel normal, signaling opioid dependence. That dependency may drive the user’s focus on how to obtain more drug, no matter the cost, indicating the hallmark sign of addiction. The cost is often neglect of self and loved ones. The user may resort to illegal activities to support the drug habit, such as stealing and prostitution, further compounding the psychological problems he or she may have been trying to escape (Maguire, 2014). At this point, the addict needs medical treatment to begin a path to recovery (NIDA, 2018a).

**Treatment for Drug Addiction**

SUD evolves over time, and depends on many factors, such as gender, risk profile, and frequency of use (Hanson & Venturelli, 2017). Not everyone who uses drugs is an addict (Hanson & Venturelli, 2017). Addicts tend to seek treatment when they experience an internal or external crisis caused by their substance abuse (Stokes, Schultz, & Alpaslan, 2018), but also when approached by a non-judgmental provider with an offer to help (Elliot et al., 2017).

**Pharmacologic Interventions**

SUD is a chronic illness and should be treated as such. For comparison, the relapse rate of SUD is 40%-60%, while that of asthma and hypertension is 50%-70% (NIDA, 2014). The approach for people who relapse is to adjust current treatment, or try a different approach tailored to the individual need, just as different medications are tried with asthma and hypertension to control the disease. The National Institutes of Health identified 13 evidence-based principles to guide drug abuse treatment for individuals suffering from substance abuse (NIDA, 2018b). The principles focus on understanding drug addiction alters brain chemistry and anatomy. According to NIDA, one of the first steps to support recovery is to complete a comprehensive patient assessment and tailor a treatment based on individual needs while remembering treatment is continuous and relapses are likely to occur.

Methadone maintenance programs appeared in 1964 for heroin addicts (Galanter & Kleber, 2008). Early results included reduced crime and improved well-being, findings that still apply (Hanson & Venturelli, 2017). In addition, disease transmission and overdoses decreased as a result of these programs (Galanter & Kleber, 2008). During the 1970s, treatment programs expanded to include methadone. Methadone is a full agonist used to reduce cravings for opioids, prevent withdrawal symptoms, and block effects of some additional substances. It is given daily and adjusted to patient needs. It is usually a short-term method but can be used for long-term maintenance (Novick, Salsitz, Joseph, & Kreek, 2015). Methadone is used for people with long-standing addiction and has high participant retention. Methadone also is approved for use in pregnant women, starting at a daily dose of 20 mg with adjustments of 5 to 10 mg to avoid overdose; doses can increase as gestation advances (Reddy, Davis, Ren, & Greene, 2017). Methadone is available at a lower cost compared to buprenorphine but is not covered by Medicaid in some states (Saloner et al., 2016). However, infants exposed to opioids during pregnancy had fewer signs of withdrawal when their mothers were treated with buprenorphine. According to Reddy and co-authors, infants exposed to buprenorphine during gestation have a shorter duration and severity of neonatal opioid withdrawal and shorter hospital stay. Buprenorphine is covered by Medicaid in many states, so persons who have Medicaid could pay nothing to receive the medication (Saloner et al., 2016).

**Non-Pharmacologic Interventions**

Opioid treatment programs consist of pharmacologic and non-pharmacologic interventions (NPI), both of which are critical for addiction recovery. Non-pharmacologic methods include counseling and the 12-Step Program. Treatments can be inpatient or outpatient. Residential programs are usually long term, and individuals work with their community and a healthcare professional to get treatment. Residential treatment can last from 1 month to over 2 years. The goal of treatment is to help addicts examine their patterns of destruction and learn ways to counter them. Short-term treatment may be as an inpatient or outpatient to manage signs and symptoms of withdrawal. All short-term treatment should be paired with an outpatient service to help maintain sobriety (McCarty, Priest, & Korthuis, 2017).
Counseling is used to help clients remain motivated to continue abstinence, solve problems, and cope with their chronic illness (Jung Kim, Marsch, Acosta, Guarino, & Aponte-Melendez, 2016). Counseling is important for inpatients and outpatients. It may be enhanced with computer-based programs and telephone services to help clients meet goals to overcome substance abuse. Types of counseling include cognitive behavior therapy, contingency management, and behavioral couple’s therapy. Cognitive behavior therapy approaches substance abuse as a coping mechanism, and therapy focuses on conveying general skills to help clients recognize, avoid, and cope with high-risk situations to prevent relapse (Kiluk et al., 2017). The contingency management type of therapy uses incentives to modify behavior, and withholds reinforcers when the desired behavior does not occur (Hartzer, Beadnell, & Donovan, 2017). Incentives are often voucher-based or prize rewards given when patients meet a certain goal such as negative drug or alcohol screenings. Behavioral couple’s therapy is used for those who seek therapy together, and it has a strong research base for its efficacy. The goals of this method are to help the patient and partner find ways to maintain abstinence in the patient and improve their relationship (O’Farrell, Schummm, Murphy, & Muchowski, 2017).

Another important NPI is the 12-Step Program, which follows the traditional program first described by Alcoholics Anonymous to help people create an individualized treatment plan (Galanter, 2018). The 12-Step Narcotics Anonymous Program concentrates on acceptance and surrender, and is shown to be effective in enhancing positive emotions while negotiating recovery. Acceptance focuses on admitting there is a problem, and surrender involves submitting oneself to a higher power to get help and follow the 12 steps to recover slowly (Bergman, Hoeppner, Nelson, Slaymaker, & Kelly, 2015).

Nursing Care of Patients and Families Affected by Addiction

Motivational Interviewing

Hospital admission interviews often include a question about the use of recreational or non-prescribed drugs. Although the questions usually are stated in a non-judgmental manner, some nurses may be uncomfortable asking them. Motivational interviewing (MI) is an evidence-based technique developed to help influence a client’s readiness to change (Gilder et al., 2017). The basic principles of MI include the following: “Resist the righting reflex; Understand your client’s motivation; Listen to your client; Empower your client” (Miller & Rollnick, 1991, pp. 51-52). The process guides clinicians to avoid trying to convince clients they must change, how to change, and warning of the consequences of not changing. Instead, they help clients make personal arguments for change. Change is not a linear process for most people, but clients must be ready for it. The nurse can become the guide to offer information about possible paths, but clients should choose the destination. The MI communication is like a dance: it only works when two people move together in partnership. The techniques of MI are not hard to learn and are being taught in undergraduate nursing students. An excellent resource is the Motivational Interviewing Network of Trainers (MINT) (www.motivationalinterviewing.org).

Optimizing Interactions

Nurses who identify SUD as a chronic disease rather than a moral failure are likely to have a positive impact on patient outcomes through their non-judgmental attitude (Frank & Nagel, 2017). Attitudes are among the most difficult characteristics to change, and a poor one can be sensed immediately, raising impenetrable barriers. Treating addiction as a chronic disease creates an atmosphere of objectivity that is more likely to engage the addict in therapeutic discussion (Maguire, 2014). Understanding the pathophysiology of substance abuse coupled with a desire to impact positively a life may help to soften a judgmental attitude, and enable more healing relationships. Nurses would never expect people with chronic diseases to be controlled without medical treatment, nor do they consider them as moral failures. Nurses approach people with chronic disease objectively, armed with knowledge of the pertinent pathophysiology, medication management, and adjuvant therapies that support successful treatment. Those principles also guide caring for families with SUDs (Potter & Perry, 2017).

Universal Drug Screening in Pregnancy

An estimated 1 in 10 infants is exposed to drugs in utero (Patrick, Davis, Lehman, & Cooper, 2015). The early identification of infants at risk for neonatal opioid withdrawal is important to optimize non-pharmacologic care and determine which infants require pharmacologic management. All pregnant women should be screened for substance use using validated questionnaires or brief interviews during their first prenatal visits; if a woman is positive for past use, the screening should be repeated at minimum every trimester (Wright et al., 2016). However, there is insufficient research to suggest universal drug screening of pregnant women or infants will improve health outcomes and it should not be used as a primary method to identify drug use prenatally. Pregnant women at high risk for drug abuse (e.g., engaged in high-risk behaviors, known history of illicit drug use or abuse, enrollment in a drug treatment facility, placental abruption) should have urine drug screen testing and be referred to a treatment facility for further education, support, and potential conversion to medication-assisted treatment (Haycraft, 2018).
Conclusion

Nurses are very likely to encounter patients every day with treated and untreated addiction (D’Onofrio & Bernstein, 2015; Rathlev et al., 2016; Wasan et al., 2015). Those in recovery may face a daily struggle (Maguire, 2014), and a kind word from a nurse may be the best part of their day that encourages them to continue. Positive reinforcement is needed by most people who face a challenging future, especially those recovering from addiction (Frank & Nagel, 2017). Hospital patients who are not in recovery may not have experienced the necessary crisis to launch a successful recovery (Stokes et al., 2018). Each has a story to tell someone willing to listen; the story will help the nurse request the needed services to begin the path toward recovery. Listening to patients is well within the nursing scope of practice, and in itself is a powerful intervention that can make a significant difference in the lives of patients and their families.

REFERENCES


