SWK 3805: Module 2- Introducing Theories of Addiction

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Contents

Module 2: Preface

Welcome to the online coursebook for Module 2 of our Theories and Biological Basis of Addiction course. The material is designed to be read interactively or after downloading; while the embedded interactive exercises require internet connectivity, each can also be downloaded for offline work. These exercises are presented to help you test and apply what you are reading, challenge yourself, prepare for quizzes, and have a little fun along the way. The list of key terms at the end explains text ***highlighted in bold italics*** throughout the book—in the interactive mode you can click on a highlighted word to jump to its explanation in the key terms section. Use the back arrow to return to where you were reading.

Module 2: Introduction

The readings for Module 2 introduce content related to the definition and diagnosis of substance use disorders and addiction. In addition, you will read about some basic treatment principles and statistics concerning the prevalence/incidence of substance use disorders. This book includes chapters developed by the author (chapters 1-5), and public domain content published by the National Institute on Drug Abuse (NIDA).

Module 2 Reading Objectives

After engaging with these reading materials and learning resources, you should be able to:

- Describe contemporary thinking about the nature of substance use disorders;
- Identify current diagnostic criteria for substance use disorders and other forms of "behavioral" addiction;
- Interpret current statistics related to who in the population experiences substance use disorders and disparities between need for and receipt of treatment;
- Categorize most major theories about substance use disorders;
- Define key terms related to substance use disorders and addiction

Ch. 1: Substance Use & Misuse versus Substance Use Disorders

In the first 4 chapters[1], we look at substance use disorders from a social work point-of-view. You may be familiar with terms like alcoholism, drug addiction, and alcohol or other drug dependence—these terms all relate to the focus of this introductory reading. You will read about:

- current thinking about the nature of substance use disorders;
- criteria currently applied in the United States for distinguishing between substance use, substance misuse, and substance use disorders;
- key epidemiology trends related specifically to substance use disorders;
- a general framework for classifying theories about the origins and causes of substance use disorders; and,
- key terms used in the field of substance use disorders and addiction.

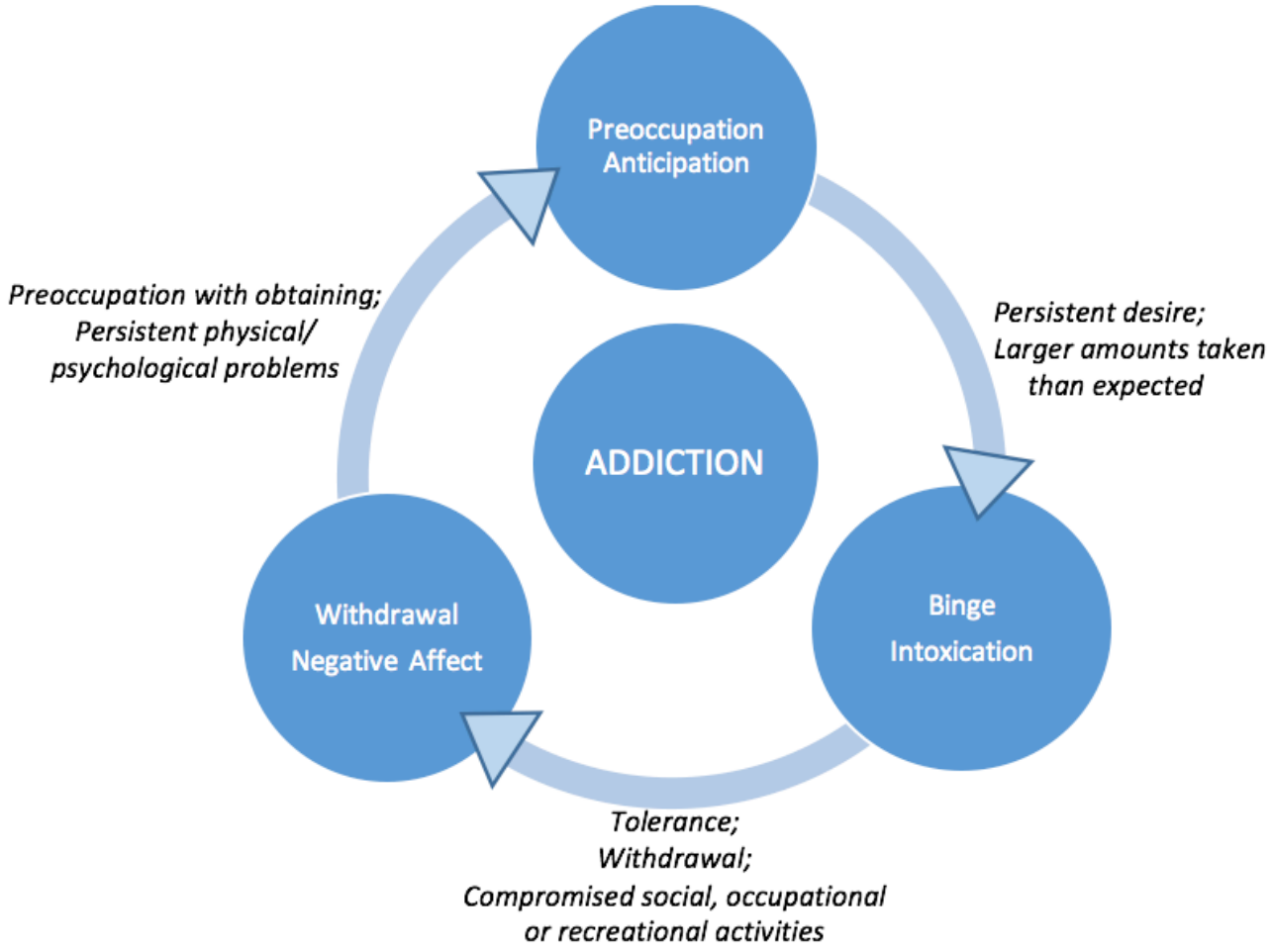
[1] Note: Portions of these chapters derived from Begun, A. (in press). Substance use disorders. Chapter to appear in S. Kapp, (Ed.), *Introduction to social work.* Thousand Oaks, CA: Sage.

Substance Use & Misuse versus Substance Use Disorders

There exist many different ways of defining and thinking about ***substance use disorders (SUDs)***. ***Alcohol use disorders (AUDs)*** represent a special class of SUDs. From a public health perspective, substance use disorders (SUDs) have much in common with other chronic, relapsing diseases like diabetes or high blood pressure. Chronic diseases with a strong behavioral health component may require a lifelong, ongoing commitment to manage and control them. This is in contrast to diseases caused by cancer, bacteria, viruses, or other microbes for which a medical cure exists. Many professionals consider substance use disorders to be naturally progressive in nature. In other words, without treatment, these diseases often get worse over time.

Koob and Simon (2009) characterized addiction in terms of a disorder that escalates from occasional, limited, controlled use of a substance to compulsive use. In addition, their conceptual framework for understanding addiction includes the experience of negative emotional states (anxiety, irritability, and other negative feelings) when unable to access the substance to which a person is addicted. They described three stages in the process of addiction; Figure 1 depicts how these three stages described by Koob and Simon (2009) are interrelated and can become a repeating cycle of addiction over time with increasing levels and persistence of psychological and physical problems.

Figure 1. Diagram depicting the addiction cycle, using DSM-IV criteria (adapted from Koob & Simon, 2009)



This chronic disease perspective is the subject of some debate. For example, there exists plenty of evidence to show that a chronic, relapsing, progressive pattern is true for many individuals, usually those experiencing the most severe forms of addiction. However, this pattern does not hold true for everyone diagnosed with a substance use disorder. *Some* people can overcome the problem on their own, without formal treatment; many people with milder, earlier-stage substance use disorders do not relapse and their substance-related problems do not progress (Cunningham & McCambridge, 2012). On the other hand, some professionals argue that these individuals may not have been experiencing a true substance use disorder, despite their patterns of serious substance misuse. You can see the complexity of the issues involved. One implication for the high degree of individual variability in the trajectory of substance use disorders is that it seems unwise to rely on a uniform treatment approach for all individuals diagnosed with a substance use disorder.

One factor involved in distinguishing between substance use and ***substance misuse*** involves looking at the various ways in which a person's use of substances may become problematic use. For example, substance use *may*:

- present a legal problem;
- contribute to other problem behaviors, such as committing crimes to obtain substances, acts of aggression while under the influence, or engaging in risky activities (like driving a vehicle while under the influence or engaging in unsafe sex practices);
- have a negative impact on social relationships with friends, families, or coworkers;
- lead to failure in fulfilling important social roles or responsibilities, including parenting;
- have a negative impact on a person's cognitive performance (such as perception, thinking, learning, problem solving, memory, and reaction time);
- have a negative impact on a person's physical or mental health; and,
- lead to development of a diagnosable substance use disorder.

It is also important note when an individual's use of substances becomes a problem at the level of family, workplace, community, or even globally. An individual's decision to use substances has a ripple effect on the rest of the family system. This decision can affect many family roles and responsibilities, having major implications for relationships with all of a person's significant others: parents, brothers and sisters, children, partners, friends, and kin from the extended family. It also has implications for neighborhoods where the substances are distributed and used. For example, the threat of weapons, property crimes, and community violence often accompany the distribution of illegal substances—supported by illegal drug use. Illegal drug use and trade may fund organized crime, gangs, and terrorist networks in any of a number of countries, not just in the United States—the problem has global ramifications. There also is a significant ripple effect on health, mental health, and criminal justice systems when a person gets into trouble by using substances.

The substances used need not be illegal for there to be significant negative consequences. You can probably think of instances where negative consequences were associated with someone drinking alcohol. For example, someone who has had too much alcohol to drink might be more likely to get into fights, fail to do what was expected at work or at home, or make poor decisions about potentially risky behaviors (such as driving while impaired or engaging in unsafe sex). For some vulnerable individuals, taking substances may induce or make worse existing psychiatric problems, such as a psychotic, bipolar, depressive, anxiety, obsessive-compulsive, sleep, sexual, or neurocognitive disorder. At what point does alcohol or other substance use become problematic? Sometimes, it is when life problems result from substance use. Other times, alcohol or other substance use only becomes problematic when a person develops a substance use disorder. The next chapter outlines the features of substance use disorders, which is where the concept of addiction fits.

Ch. 2: Diagnosing Substance Use Disorders

You might be wondering how definitions of ***substance use disorders*** are applied in practice to help diagnose individuals who may have a problem with their substance use. Currently, professionals in the United States heavily rely on the scheme for diagnosing substance use disorders detailed in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders version 5—called the DSM-5 for short (APA, 2013). Internationally, many countries apply the classification system detailed in the World Health Organization's (WHO) International Statistical Classification of Diseases and Related Health Problems version 10, or the ICD-10 for short (WHO, 2016). The 11th version (ICD-11) is scheduled for publication during 2018.

According to the DSM-5, diagnosis of a substance use disorder depends on a person meeting certain criteria. There are currently 11 criteria assessed when making this type of diagnosis (see Table 1, adapted from APA, 2013). The 11 criteria reflect 4 categories:

- Impaired control over use [items 1-4]
- social impairment/consequences [items 5-7]
- risky use of the substance(s) [items 8-9]
- pharmacological indicators/symptoms: tolerance, withdrawal [items 10-11]

A ***mild substance use disorder*** might be the diagnosis if a person experiences two or three of these symptoms.

A ***moderate substance use disorder*** would be a more appropriate diagnosis for a person experiencing four or five of these symptoms.

Ultimately, a ***severe substance use disorder*** exists when a person presents with six or more of these symptoms.

Substance withdrawal is a separate diagnosis that may or may not accompany the diagnosis of a substance use disorder.

Table 1. Eleven criteria in DSM-5 for diagnosing substance use disorders

1	Often taking alcohol or another substance in larger amounts or for a longer period than intending to
2	A persistent desire or unsuccessful efforts to cut down or control use of alcohol or another substance
3	Spending a great deal of time in activities necessary to obtain, use, or recover from the effects of alcohol or another substance
4	Strong desire, craving, or urge to use alcohol or another substance
5	Failure to fulfill major role obligations at work, school, or home resulting from recurrent use of alcohol or another substance
6	Continued use of alcohol or another substance despite persistent or recurring problems in social or interpersonal relationships that are caused or made worse by the effects of alcohol or another substance
7	Giving up or reducing important social, occupational, or recreational activities because of alcohol or other substance use
8	Recurrent use of alcohol or another substance in situations where it is physically dangerous to do so
9	Continuing to use of alcohol or another substance despite knowledge of having a persistent or recurring physical or psychological problem that could be caused or made worse by its use
10	Developing tolerance for alcohol or another substance
11	Experiencing withdrawal symptoms or taking alcohol or closely related substance in order to relieve or avoid withdrawal symptoms

There are 9 types of substance use disorders identified in the DSM-5 (see Table 2), each with these general criteria. The type of substance use disorders are related to the type of substance or substances that the person is known to be using.

Table 2. Types of substance use disorders identified in the DSM-5.

DSM-5 Code	Type of Substance
F10	alcohol
F11	opioid
F12	cannabis/marijuana
F13	sedatives, hypnotics, or anxiolytics
F14, F15	stimulants (the 14 code is specific for cocaine, 15 for amphetamines)
F16	hallucinogens (other than cannabis)
F17	tobacco
F18	inhalants
F19	other/unknown substance use disorder

Caffeine is a special case where a substance-related disorder exists, but there is not an actual substance use disorder associated with its use. ***Polysubstance misuse*** reflects problematic use of more than one substance type.

Thinking About It:

The focus of our course is on substance misuse and substance use disorders. However, many people argue that the principle of addiction apply to other types of behaviors, as well. For example, you may have heard discussions about what some people call "process" or "behavioral" addictions:

- Gambling addiction
- Internet/gaming addiction
- Sex addiction
- Shopping addiction

Based on what you have learned so far about defining substance use disorders and addiction, consider the following 3 questions:

- What do you think might be the similarities or differences between a person who experiences an alcohol use disorder or addiction to another substance and a person who is "addicted" to gambling?
- Do you believe that a person can be "addicted" to their cell phone or other technology (like internet or online gaming)? Why or why not?
- What do you think about people using the word "addiction" to describe how they feel about a favorite television show? What about advertisers describing their product as "the latest addiction" to promote its popularity?

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Ch. 3: Epidemiology of Substance Use Disorders

In our Module 1 coursebook you were exposed to statistics reported from the National Survey on Drug Use and Health (NSDUH; SAMHSA, 2016). We are going to return to that survey to examine evidence about the population distribution (epidemiology) of "past year" substance use disorders in the United States. First, we can look at how many people aged 12 years or older met the criteria for a substance use disorder in 2015: about 20.8 million people (7.8% of the population).

Second, we can look at which substances were involved in these disorders. By far, the majority involved alcohol (see Figure 2 and Figure 3), either alone or in combination with other substances.

Figure 2. Number of persons with a past year substance use disorder, by substance type

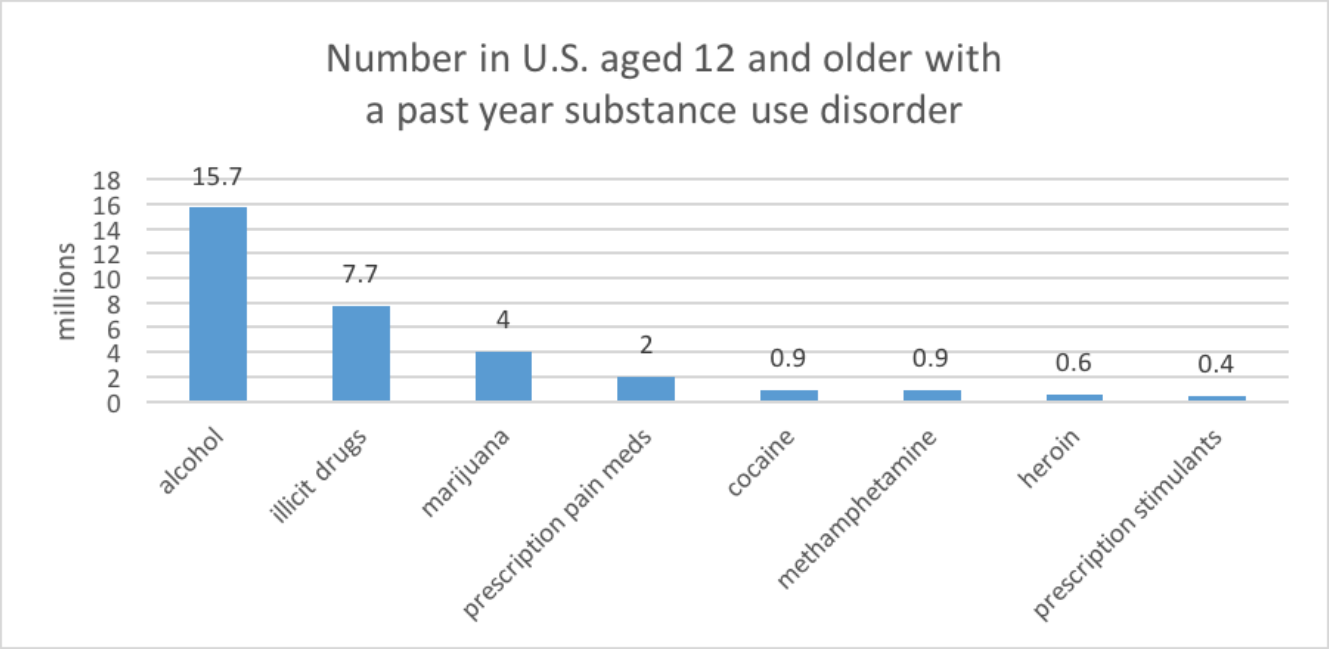

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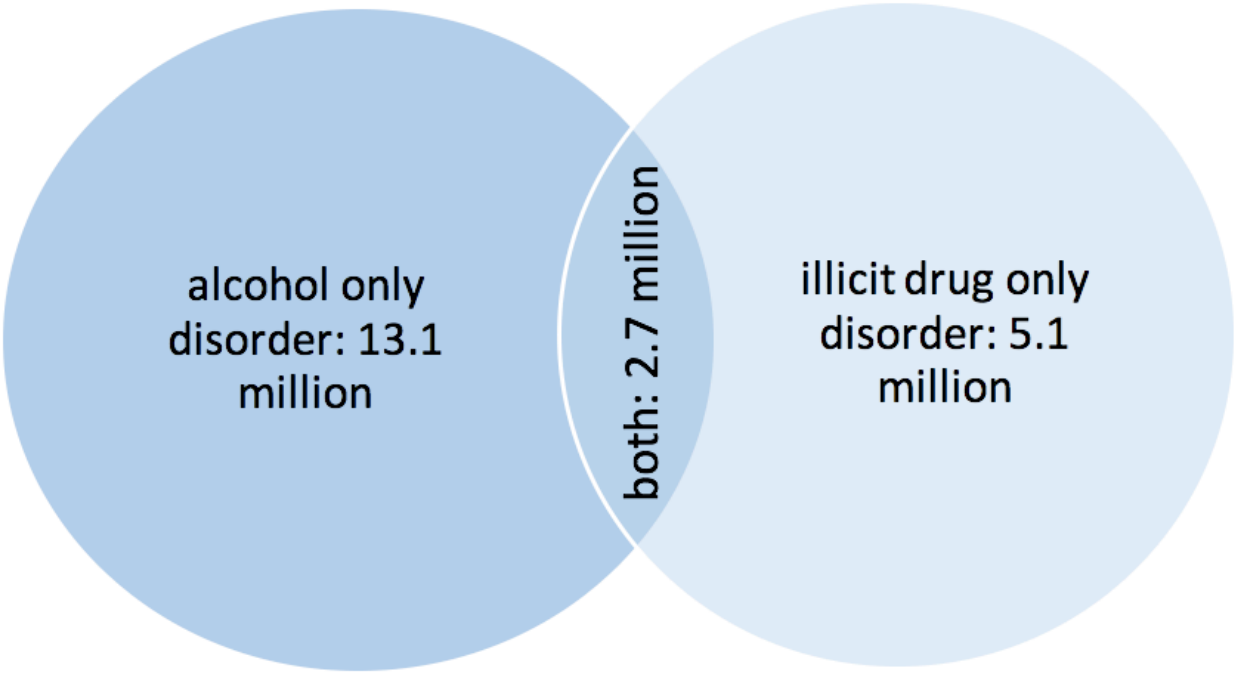
Figure 3. Number of persons with alcohol, illicit drug, or alcohol plus illicit drug use disorders



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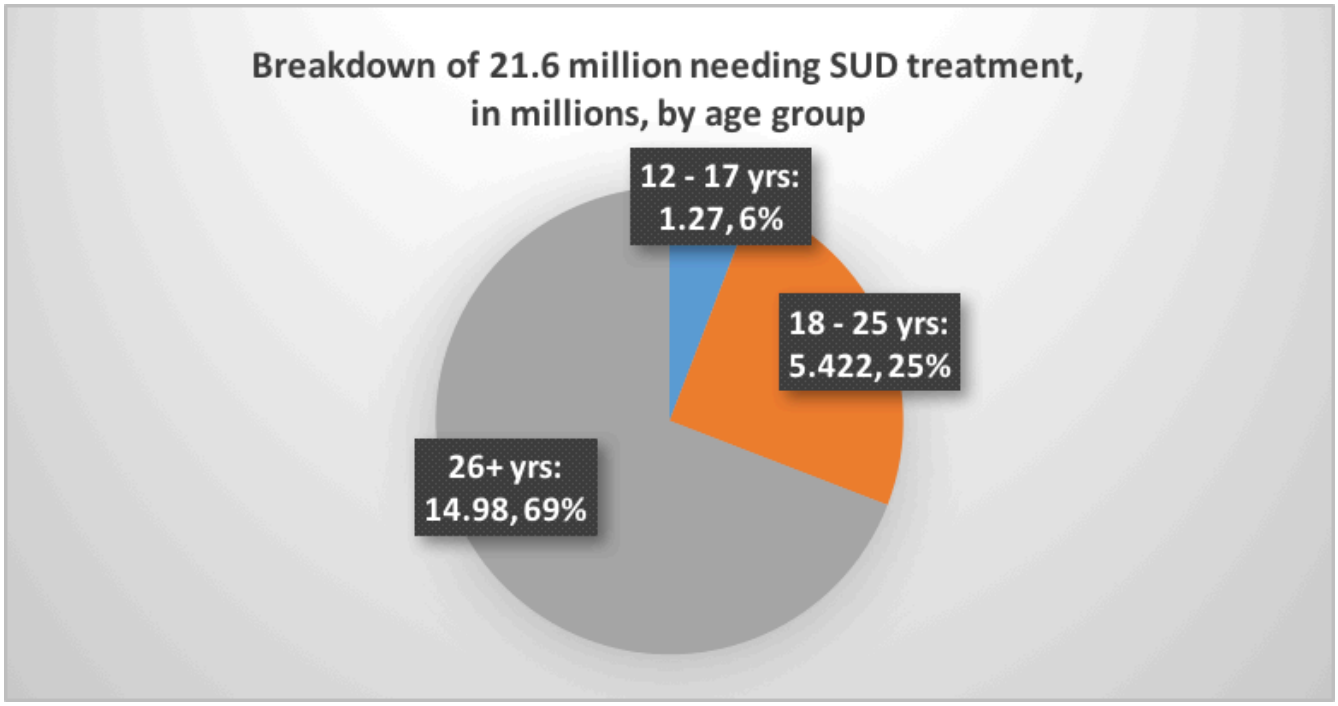
A third question that data can help us answer concerns the gap between who needs substance use treatment and who actually is able to receive treatment. According to the NSDUH 2015 survey, 21.7 million persons in the U.S., aged 12 or older, experienced a past year need for substance use treatment. This represents about 8% of the population (or, about 1 in 12 persons). Figure 4 shows how this number was distributed by age group.

Figure 4. Numbers in the U.S. in need of substance use treatment



The good news: about 2.35 million individuals received specialized substance use treatment. The sad news: that means about 19.35 million did not, either because they could not (a disparity gap) or because they did not wish to. A significant goal in social work and other professions is to reduce the gap between the need for services and access to services for all members of society. You might be interested to learn more about this "close the gap" issue in terms of health care in general, and alcohol misuse, by visiting the American Academy of Social Work and Social Welfare (AASWSW) website discussing the 12 Grand Challenges for Social Work (http://aaswsw.org/grand-challenges-initiative/12-challenges/).

Ch. 4: Classifying Theories

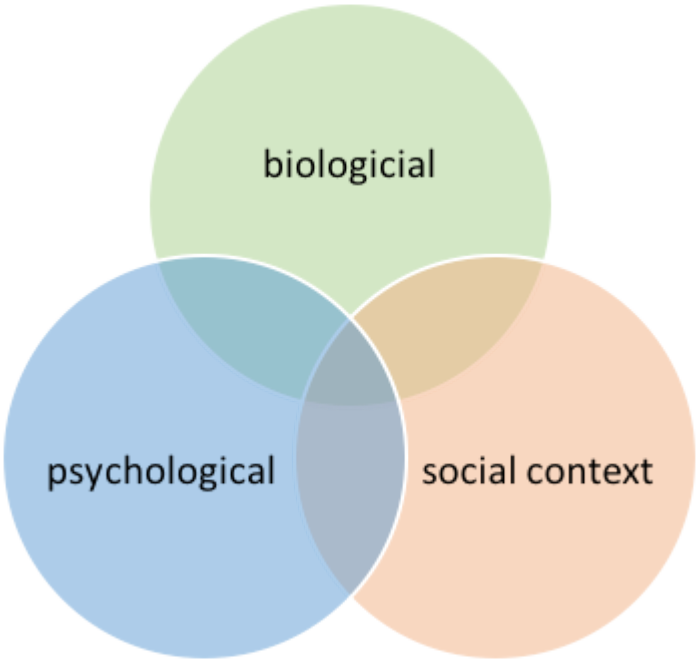
In social work and other professions, our solutions to a social problem are dictated by our theories and assumptions about the problem's root causes. ***Etiology*** is the science of the causes and natural course of a disease or problem, and etiology addresses the specific factors that shape the course of that disease or problem over time. We are going to examine a number of theories concerning substance use disorders and addiction in this course. This chapter provides an orientation to one way of classifying the theories about which we will be learning (especially in Modules 3 through 7). This presentation is not the only way to organize or categorize these theories, and it may not fit for every possible theory: there are many theories, in part because the problems are so complex, and because so many people have wrestled with these difficult questions for so many decades. But it is a useful way to think about the various theories presented in the literature.

In our scheme for classifying theories, we are going to work with 3 general theory domains that comprise a biopsychosocial framework:

- Biological
- Psychological
- Social Context

Discussing these 3 separately is a means of simplifying what we know and how we think about the issues. Critically important is understanding how these types of theories join together and intersect—if we have learned anything over a lifetime of research, it is that no one theory explains all of what we see in the realm of substance use, substance misuse, and substance use disorders/addiction (see Figure 5). Hence, the use of the term ***biopsychosocial*** which integrates these 3 domains.

Figure 5. Inter-related connected nature of 3 theory domains



As you review the following descriptions, ask yourself this question: "What would I recommend as a solution if this is, indeed, the root of the problem?" You may be very surprised to see how varied your solutions actually are!

Biological: A sizable body of research evidence addresses two types of potential biological influence on the development of substance use disorders: genetics and neuroscience. Important, too, is how substance use affects physical and mental health, as these also relate to the biological domain.

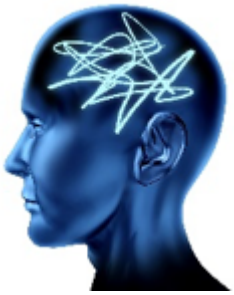
Genetics: First in the group of biological theories are those addressing genetics. Key points related to genetics and substance use disorders are:

- genetics contribute to both vulnerability and resilience for developing a substance use disorder;
- genetics alone do not establish a person's destiny: genetic makeup interacts with environment and experience to determine whether or not a substance use disorder emerges;
- there is no single, specific "addiction gene" that applies to all of the different types of substances–genetic susceptibility or resilience appears to be relatively specific to each different type of substance.

Neuroscience: The biological realm of addiction theories also includes neuroanatomy, neurophysiology, and neurochemistry. Maps of the brain regions show how the brain's powerful pain, pleasure, reward, learning, and memory systems interact in the process of developing a substance use disorder or addiction. They also help us understand how difficult it can be to recover from addiction. The science of neurochemistry addresses the different and specific ways that alcohol and other drugs affect the brain at the level of neurotransmitters, which in turn influence the human experience and behavior.

We will learn details about these biological topics in greater detail in Module 3 & 4.

Psychological: Over the years a number of theories about addiction have been developed based on psychological principles. These include, but are not limited to:



- Learning theory (operant and classical conditioning)
- Social learning theory (observational learning)
- Expectancies theory (a person's expected outcomes associated with using a substance)
- Information processing (effects of different types of substances on learning, thinking, behaving)
- Psychodynamic & attachment theory (including self-medication theory)

We will explore this psychological domain in greater detail in Module 5.

Social Context: In order to understand the phenomena of substance use, substance misuse, substance use disorders, and addiction, we need to understand the "familial, occupational, economic, social, religious, political, or educational context" (Hunt & Barker, 2001, p. 169). In the social context domain, we will explore the significance of:

- Ease of access to substances in the social and physical environment
- Social norms about substance use and misuse expressed in the social environment
- The role played by experiencing social oppression, discrimination, and exploitation in developing/ maintaining substance use and substance use disorders
- Impact of policy, programs/services, laws, and law enforcement in substance use and misuse.

We will explore this social context domain in greater detail in Module 6.

Together, these 3 domains interact to shape individuals' vulnerability, resilience, risk, and protection related to the emergence of, maintenance of, and recovery from substance use disorders or addiction. In Module 7 we will reintegrate these 3 domains into a coherent, more unified picture, and we will examine the implications for prevention.

Ch. 5: The Science of Addiction from NIDA

The final reading for Module 2 comes from the 2014 National Institute on Drug Abuse (NIDA) publication called *Drugs, Brains, and Behavior: The Science of Addiction*. When you link to this material, read the following sections:

Preface (pp. 1-2)
Introduction (pp. 3-4)
Part I. Drug Abuse and Addiction (pp. 5-10)
Part V. Treatment and Recovery (pp. 25-28)

(Don't worry, you will read the rest of this publication in other modules!)

Click here for a link to our Carmen course where you can locate the assigned pdf file(s) for this chapter. You will need to be logged into our Carmen course, select Module 10, and proceed to the Coursework area. Under the Readings heading you will find a box with links to the readings for relevant coursebook chapters. Don't forget to return here in your coursebook to complete the remaining chapters and interactive activities.

When you are finished reading this brief article:

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Ch. 6: Summary

In the readings for Module 2 you learned about:

- current thinking concerning the nature of substance use disorders and the “chronic disease” framework;
- how we might distinguish substance use from substance misuse;
- the 11 diagnostic criteria in the DSM 5 used to identify substance use disorders and the categories of SUDs by type of substance;
- key epidemiology trends related specifically to substance use disorders;
- ways to classify theories about substance use disorders; and,
- key terms used in the field of substance use disorders and addiction.

In addition, this module presented you with opportunities to challenge your thinking about several substance use and misuse topics. You are now well prepared to review the list of key terms introduced in these readings.

Module 2: Key Terms

alcohol use disorder (AUD): diagnosis for a person whose pattern of alcohol use reflects a sufficient number of the diagnostic criteria (using the DSM-5; incorporates criteria for alcohol abuse and alcohol dependence reflected in the older DSM-IV).

biopsychosocial: a framework for explaining human behavior that integrates biological, psychological, and social context elements and their interactions.

mild substance use disorder: diagnosis applied when a person experiences two or three of the 11 SUD symptoms identified in the DSM-5.

moderate substance use disorder: diagnosis applied when a person experiences four or five of the 11 SUD symptoms identified in the DSM-5.

polysubstance misuse: a term that reflects a person's problematic use of more than one type of substance.

severe substance use disorder: diagnosis applied when a person experiences six or more of the 11 SUD symptoms identified in the DSM-5.

substance misuse: use of a substance or substances leading to the person experiencing problems in the social, psychological, physical, and/or legal domain.

substance use disorder (SUD): diagnosis for a person whose pattern of substance use reflects a sufficient number of the diagnostic criteria (using the DSM-5; diagnoses are specific to the type of substance used).

substance withdrawal: a separate diagnosis that may or may not accompany the diagnosis of a substance use disorder and involves either the presence of a withdrawal syndrome characteristic for the substance that has been withdrawn, or the use of that substance or closely related substances to relieve or avoid withdrawal symptoms.

Module 2: References

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