

Advanced Research in Addiction and the Brain Online Certificate

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Example of a Lesson

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Module One: Overview of Addiction and the Nervous System Lesson One: Addiction

Lesson One gives an overview of addiction and factors related to it, as well as clinical definitions of drug abuse and dependence according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, (DSM-IV), published by the American Psychiatric Association. Because there are many ways of interpreting the construct of addiction, it is helpful to know how addiction is conceptualized and documented in the realm of

medical professionals. With these definitions in mind, you will be able to reflect upon the meaning of addiction in your profession, and you will have a common language for communicating with your peers and instructors in this course.

Assignment Preview

Assignment 1 asks you to apply your developing knowledge of the process of addiction to your own work, and gives you an opportunity to practice Web search and evaluation skills.

Objectives

After successfully completing this lesson you will be able to

- define addiction;
- define key terms used in the study of drug addiction; and
- describe environmental factors influencing drug abuse and dependence.

Activity One: Reading

Your Digital Notebook

Keep an [electronic notebook](#) so you can record definitions of Key Terms and responses to Guiding Questions as you read. This information will be useful as you prepare for your assignments, quizzes, and post-test.

Do these descriptions remind you of anyone you know?

"He was 14 years old. He slumped forward, head on his folded arms on the table attached to his desk in the social studies class, clearly uninterested in the historical information being shared by his instructor. He let his eyes shut, and waited for the bell to ring so he could meet his friends at the back of the field adjacent to the school."

"She arrived home from work, kicked off her shoes, and poured herself a cool glass of white wine . . . nothing like a little something to help her relax at the end of the day."

"It had been five years since the accident. No one ever told him it would be this hard. He had been back to work within six months, but the pain in his legs just never seemed to disappear. He took pain killers to take the edge off the misery, but they never seemed to do the trick. He needed something stronger."

These individuals all have something in common use of a drug to alter their reality. Whether this

drug use becomes an addiction, or simply exists at that moment in time as a way to cope with life, depends upon a variety of factors. As we begin the reading that sets the stage for this first course, think about individuals you know or work with who are somewhere in this spectrum. Their faces will remind you of an important reason we study addiction so there will be hope for these individuals if they become ravaged by this disease.

These readings will provide you with an overview of the study of addiction. They are intended to give you a sense of the current language used in the field. Alan Leshner, former Director of the National Institute on Drug Abuse (NIDA), says, "the essence of addiction, as defined by every major medical group (1), is compulsive, drug-craving and drug-seeking behavior and drug use, even in the face of negative consequences. . . ." See Leshner, A. I., and G. F. Koob. 1999. "Drugs of Abuse and the Brain," *Proceedings of the Association of American Physicians*, Vol. 111, Issue 2: p. 99.

Many scientific articles use the term "addiction" in their titles, as well as in the body of the papers. However, you will notice that the DSM-IV does not use the term "addiction." Language in this field has evolved over the years. It is important to recognize how it is used, and when terms are interchangeable.

Addiction is a disease that can be treated. There is hope. The treatments are varied, have success rates higher than those of treatment for diabetes and heart disease, and will be discussed in detail in the third course in this certificate program, "Neurobiology of Addiction: Issues and Resources."

Reading One

Levinthal. Part 1, Chapter 1, "Drugs and Behavior Today."

This chapter will provide an overview of the basic terminology related to drugs and drug-taking behavior, the origins and history of drug use in the United States, possible reasons people choose to take drugs or not, and current trends in drug-taking behavior. This chapter will provide a background and framework for the technical information that is to come in subsequent readings.

Guiding Question

Think about the patterns of drug use described in the United States. What lessons might be learned from these patterns that can help practitioners anticipate future concerns?

Reading Two

Levinthal. Part I, Chapter 2, "Drug-Taking Behavior: The Personal and Social Concerns." Read the sections entitled "Tolerance Effects in Drug-Taking Behavior," "Physical and Psychological Dependence," and "Psychiatric Definitions."

These sections orient you to the discussion of these definitions in subsequent readings. Compare the explanations.

Reading Three

Key Terms

- addiction
- craving
- physical dependence
- priming
- relapse
- reward
- sensitization
- substance abuse
- substance dependence
- withdrawal

Cami, J., and M. Farre. 2003. "[Mechanisms of Disease: Drug Addiction](#)." *New England Journal of Medicine*, Vol. 349, p. 10.

This article is written for physicians, and therefore can appear a bit daunting. As you read it, focus on the key terms and guiding questions in order to get a basic understanding of them. The rest of the article will give you a sense of the scope of the issues related to addiction, but don't be concerned

about understanding all of it right away. You can refer to this article again later in the course if you like.

Guiding Questions

1. What factors influence drug abuse and dependence?
2. What structural changes can occur in neurons because of exposure to addictive drugs?
3. What drugs are commonly abused by the individuals with whom you work professionally?

DSM-IV websites to explore

Key Terms

- drugs of abuse
- psychological dependence
- physical dependence
- tolerance
- abuse and dependence
- DSM-IV

These websites may be helpful if you want to know more about DSM-IV:

1. <http://www.psychology.net/dsm.html>
2. <http://mysite.verizon.net/res7oqx1/index.html>
3. <http://www.behavenet.com/capsules/disorders/>

[dsm4TRclassification.htm#Substance-Related](#)

Guiding Questions

1. How is the DSM-IV definition of dependence different from other definitions of dependence?
2. How are the DSM-IV classifications useful?

Reading Four

Key Terms

- Nothing new! Just review!

Leshner A.I., and G.F.Koob. "The Essence of Drug Addiction." National Institute of Drug Abuse (NIDA). Related Articles, Links. *Drugs of abuse and the brain*.

Read Leshner's article online at http://www.nida.nih.gov/Published_Articles/Essence.html

This article conveys findings from research translated for the lay public.

Guiding Questions

1. What emotions does the word "addiction" stir up for you?

2. Think about assumptions you may have regarding addiction. How might these assumptions influence the work you do related to addiction?

Activity Two: Web Site Review

Increase your understanding through reviewing Web resources. Read the material on [evaluating Web sites](#) and use the included Evaluation Table to review one of the websites below. Note what you discovered in your digital notebook.

These Web sites are supplementary resources in the course, so "Bookmark" them or add them to your "Favorites," and take time to learn how their information is organized. Include commentary in your Digital Notebook about features of the site that enhance your understanding of lesson content.

These Web sites have been selected for preview because they provide an overview of addiction from particular perspectives: "Close To Home" is presented for the general public; the Mayo Clinic staff gives a presentation intended for the general public but with a medical model perspective; the "Addiction Studies Program for Journalists" is a glossary of addiction terms defined in everyday language for media use; and the last site presents information for clinical professionals that is also useful to the general public.

Web Sites (Please select one of these four)

1. "Introduction to Addiction." Segment of the PBS On Line: Moyers on Addiction, Close to Home Series.
<http://www.thirteen.org/closetohome/science/index.html>
This article is written for a lay audience and would be easy for teens to understand.
2. "Understanding Addiction." Available at Mayoclinic.com
<http://www.mayoclinic.com/invoke.cfm?id=DS00183>
Scan the article "Understanding Addiction" produced by Mayo Clinic staff. There are ten sections available, covering topics such as signs and symptoms, risk factors, treatment, and prevention.
3. "Addiction Studies Program for Journalists"
<http://www.addictionstudies.org/glossary.html>
This glossary of terms related to addiction is meant for journalists. It is sponsored by Wake Forest University School of Medicine and Families in Action.
4. "DSM IV Diagnostics Treatment: Substance Abuse." Available at MFTSource.com
<http://www.mftsource.com/Treatment.substance.htm>

This site gives DSM-IV criteria for abuse and dependence. It is a professional site for marriage and family therapists, but has a great section of links to major Web resources, and material for understanding the DSM-IV.



Activity Three: Real World Connection

Addiction comes in many forms. Read one of the two articles from the links below. The first is a personal story of prescription drug addiction, and the second discusses prescription drug addiction as an issue.

Guiding Question

What assumptions about addiction might get in the way of getting treatment for addiction?

1. *Prescriptiondrug.com*. A resource for individuals and families.
<http://www.prescriptiondrugaddiction.com/colvin.asp>
This is a personal story of prescription drug addiction.
2. <http://www.prescriptiondrugaddiction.com/about.asp>

This is an overview of the prescription drug addiction problem.

Discussion Assignment

Post both your answer to the Guiding Question and your response to a classmate's posting by going to the bottom of the course syllabus, choosing the link to "Forums, Submission Areas, and Quizzes," and clicking on the link to the "Real World Connection 1" forum. Your posting and response to a classmate's posting are worth one point each.

Summary

This first lesson gave us an opportunity to build a strong foundation for understanding definitions of addiction related to neurobiology. Class activities encouraged you to relate these concepts to your professional life. The assignments you complete will be the first step in building your on-line community of professionals. The interaction you have with this community will build over the course of the quarter and throughout the year. The next lesson will continue our journey in developing an understanding of addiction. You will be able to expand your view of addiction using concepts related to the entire nervous system.



Quiz 1

Please go to the bottom of the course syllabus, choose the link to "Forums, Submission Areas, and Quizzes" and click on the link to "Quiz 1 " to begin the quiz.

While your answers are not graded, you will receive an answer sheet and two points for submitting the completed quiz. Review your Digital Notebook, the reading in your texts and online narrative, and the assigned Web sites to check any incorrect answers, and "Ask the Professor" if you have additional questions about the quiz material.



[Continue to Assignment 1](#)

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