

# HOW TO UNDERSTAND THE DISEASE OF ADDICTION

William Doverspike, Ph.D.

Drdoverspike.com

770-913-0506

*This paper is educational in nature and is not intended for distribution, publication, or commercial use. The paper is not to provide professional advice, diagnosis, or treatment. Material cited or quoted in this paper is limited to the purposes of commentary, criticism, reporting, teaching, scholarship, or research in addiction.*

When discussing any conceptual or theoretical model, it is important to remember the adage of British statistician George Box, Ph.D. (1953, Mathematics Genealogy, University of London) who wrote the famous line: “All models are wrong; some are useful” (1976, p. 972). His point was that we should focus more on whether something can be applied to everyday life in a useful manner rather than debating endlessly whether an answer is correct in all cases.

The inspiration for this article came from a comment made by someone, with two younger siblings in late stage chronic alcoholism, who made the following authoritative pronouncement: “Well, I disagree with the American Medical Association that alcoholism is a disease. If a person drinks too much, they just need to stop.” In defense of the bright and well-educated professional who made this comment, it should be acknowledged that the person was neither alcoholic nor trained in medicine, psychiatry, or psychopharmacology.

It’s not only the American Medical Association, but a variety of national and international professional organizations view addiction as a disease. These organizations include the following:

American Psychiatric Association  
American Hospital Association  
American College of Physicians  
American Public Health Association  
American Society of Addiction Medicine  
National Association of Social Workers  
National Institute on Alcohol Abuse and Alcoholism  
World Health Organization

## Definition of a Disease

Merriam-Webster’s dictionary provides the following definition of *disease*: “a condition of the living animal or plant body or of one of its parts that impairs normal functioning and is typically manifested by distinguishing signs and symptoms.” Since 1956, the American Medical Association (AMA) has defined addiction as a primary disease; that is, one that is not caused by any other disorder. The following AMA guidelines define disease: (1) an impairment of the normal functioning of some aspect of the body, (2) characteristic signs or symptoms, and (3) harm or morbidity. By 1991, the AMA had endorsed the dual classification of alcoholism contained in both the psychiatric and medical sections of the World Health Organization’s *International Classification of Diseases*.

This definition of Addiction is provided by the American Society of Addiction Medicine (ASAM; 2019, p. 2):

“Addiction is a treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual’s life experiences. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequences.

Prevention efforts and treatment approaches for addiction are generally as successful as those for other chronic diseases” (ASAM, 2019, p. 2).

### Defining Characteristics of a Disease

Perhaps the easiest way to define an entity such as a disease is to use the Duck Test.<sup>1</sup> A criterion-referenced way of defining a disease is to determine whether the entity meets all of the criteria that define a disease. A *disease* has several defining characteristics: etiology, phenomenology, dysfunction, course, treatment, prognosis, and outcome. Comparisons are often made with other chronic diseases—asthma, Type 2 diabetes, and hypertension—in which heritability, etiology, personal choice, pathophysiology, and treatment response (adherence and relapse) play major roles in course and prognosis. A review of the literature is revealing: “Genetic heritability, personal choice, and environmental factors are comparably involved in the etiology and course of all of these disorders. Drug dependence produces significant and lasting changes in brain chemistry and function” (McLellan et al., 2000, p. 1695).

The defining characteristics of any disease are described below:

**Etiology** refers to origin or causal factors, which includes *internal factors* (e.g., genetic, epigenetic, prenatal, developmental, synaptic, neuroplastic) and *external factors* (e.g., prenatal environmental, familial, social, cultural, behavioral).

**Phenomenology** includes *symptoms* (i.e., distress experienced and reported by a patient) and *signs* (i.e., observations or inferences made by the clinician or others).

**Dysfunction** (impairment in functioning) includes *severity* specifiers (i.e., subclinical, mild, moderate, severe, profound, and terminal).

**Course** over a period of time includes descriptors such as *longitudinal course* specifiers (e.g., progressive, episodic, variable, chronic). For those who are abstinent, there are also remission specifiers such as “early” ( $\geq 3$  months but  $<12$  months) and “sustained” ( $\geq 12$  months) without symptoms (except craving).

**Treatment** can include various approaches ranging from *abstinence-based* treatment for addiction and alcoholism to *controlled use* or moderation management for problematic use that does not involve tolerance or withdrawal. Component treatment includes biological, behavioral, cognitive, psychological, psychosocial, pharmacological, and environmental variables.

**Prognosis** of a disease can include various *outcomes* (e.g., excellent, good, fair, guarded, poor).

Age of onset of drinking is a significant factor in terms of the development of addiction, because the risk of addiction when exposed to addictive substances is greatest for a developing brain (i.e., in which full myelination of the pre-frontal lobes has not been completed). Teens who start drinking by age 13 have a 43% chance of becoming alcoholics, whereas those who start drinking at age 21 have only a 10% chance (Genetic Science Learning Center, 2013).

### Biaxial Model of Addiction

Based in part on Griffith Edwards’ biaxial model of addiction (Edwards & Gross, 1976), I (WFD) have developed and used a biaxial model of intervention. This individualized approach, with problem severity being one of the most important variables, has been described as a clinically and ethically informed approach (L. Sobell, personal communication, May 10, 2019).

In my Addictions Class Diagram, depicted in Figure 1 (Doverspike, 2011, p. 97), I expanded and modified Griffith Edwards' model to illustrate (1) a horizontal or longitudinal axis of *dependence* (i.e., tolerance changes and/or predictable withdrawal symptoms upon cessation of use) that may progress over time, and (2) a vertical axis of *problems* (i.e., maladaptive consequences). When neither of these axes or dimensions reaches clinical significance, then there is no diagnosis. When both dimensions increase to a clinically significant level, then there is addiction.

The biaxial model depicted in Figure 1 reflects four possible outcomes of alcohol or other substance use:

**Use** occurs when there are no maladaptive consequences/problems and no dependence, tolerance, or withdrawal symptoms.

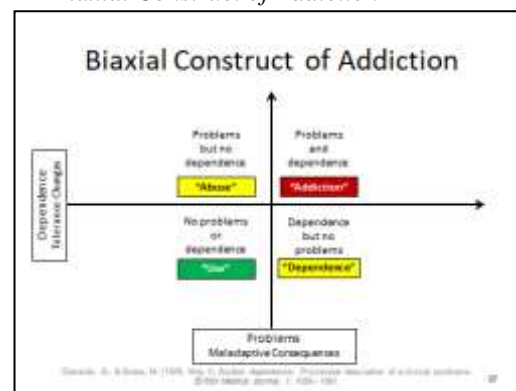
**Abuse** occurs when there are maladaptive consequences/problems but no dependence, tolerance, or withdrawal symptoms.

**Dependence** occurs when there are no maladaptive consequences/problems but when there are dependence, tolerance, or withdrawal symptoms.

**Addiction** occurs when there are maladaptive consequences/problems and when there are dependence, tolerance, or withdrawal symptoms.

Depending on internal and external etiological factors, continued use, abuse, and dependence can eventually—but not necessarily—lead to addiction. It is this condition—addiction or alcoholism—that meets all of the hallmark criteria of a disease. Alcohol use, abuse, and dependence can exist without progression, although any of these conditions can eventually lead to an outcome of alcoholism.

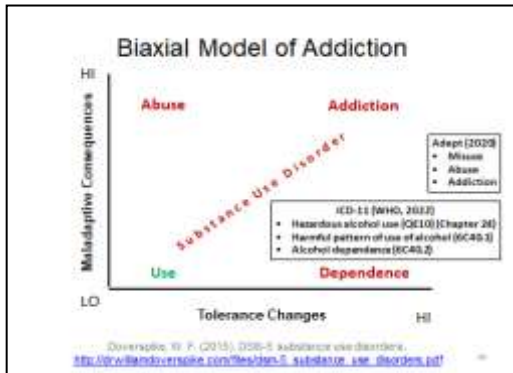
Figure 1  
*Biaxial Construct of Addiction*



Adapted from Doverspike (2011, Slide 97)

Regarding the distinction between addiction and dependence, Charles O'Brien, M.D., of the University of Pennsylvania and Nora Volkow, M.D., Director of the National Institute on Drug Abuse (NIDA), have stated that the American Psychiatric Association (APA) committee responsible for revising the *DSM-III* in the 1980s favored the term "dependence" over "addiction" by a single vote. Since that time, O'Brien, Volkow, and other psychiatrists have argued that the *DSM* conflates addiction and dependence (O'Brien & Volkow, 2006). The current *DSM-5-TR* (APA, 2022) continues to conflate these two constructs. In contrast, the World Health Organization's (2022) *International Classification of Diseases, 11th Revision* (ICD-11) maintains the important distinctions among hazardous use, harmful use, and dependence. Figure 2 (Doverspike, 2011, p. 98) illustrates some of these distinctions (e.g., with alcohol).

Figure 2  
*Conflation of Abuse, Dependence, and Addiction*



Adapted from Doverspike (2011, Slide 98)

### Notes

1. The Turing Duck Test is an assay developed by Alan Turing (1912–1954), the English mathematician who is widely considered to be the father of theoretical computer science. Turing’s procedure was to determine whether a subject was a man or a robot. He devised dozens of experiments to determine whether people were, in fact, human beings. While the Turing Duck Test was rarely employed, it gave rise to the often misattributed hypothesis: “If it walks like a duck, and it quacks like a duck, it’s a duck.”

## References

- American Society of Addiction Medicine. (2019, September 15). *Definition of addiction*. Rockville, MD: Author. [https://www.asam.org/docs/default-source/quality-science/asam's-2019-definition-of-addiction-\(1\).pdf?sfvrsn=b8b64fc2\\_2](https://www.asam.org/docs/default-source/quality-science/asam's-2019-definition-of-addiction-(1).pdf?sfvrsn=b8b64fc2_2)
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>
- Box, G. E. P. (1976, December). Science and statistics. *Journal of the American Statistical Association*, 71(356), 791–799.  
George Edward Pelham Box (1919-2013) earned a doctorate in Mathematics at the University of London in 1953. He was a Fellow of the Royal Society (FRS) and a British statistician who worked in the areas of quality control, time-series analysis, design of experiments, and Bayesian inference. He has been called one of the great statistical minds of the 20th century.
- Disease. (n.d.) In *Merriam-Webster's dictionary*. <https://www.merriam-webster.com/dictionary/disease>
- Doverspike, W. F. (2011). *Addictions: Diagnosis and treatment* [PowerPoint slides]. Atlanta, GA: Richmond Graduate University.  
This slide deck is one of several presentations that I have used in my private seminars and when teaching the Substance Use Disorders section in graduate courses of Psychopathology (2005–2021) and Addictions Counseling (2011–2021) at Richmond Graduate University in Atlanta, Georgia.
- Doverspike, W. F. (2016, June 27). How to understand addictions: Addiction fact sheet. <http://drwilliamdoverspike.com/>
- Edwards, G. (1986). The Alcohol Dependence Syndrome: A concept as stimulus to enquiry. *British Journal of Addiction*, 81, 171–183.
- Edwards, G., Arif, A., & Hadgson, R. (1981). Nomenclature and classification of drug- and alcohol-related problems: A WHO memorandum. *Bulletin of the World Health Organization*, 59, 225–242.
- Edwards, G., & Gross, M. (1976). Alcohol dependence: Provisional description of a clinical syndrome. *British Medical Journal*, 1, 1058–1061.
- Genetic Science Learning Center. (2013, August 30) The adolescent brain. Learn.Genetics. University of Utah. Retrieved June 19, 2024, from <https://learn.genetics.utah.edu/content/addiction/adolescent/>

- Koob, G. F. (2003). Alcoholism: Allostasis and beyond. *Alcoholism: Clinical and Experimental Research*, 27, 232–243.
- Koob, G. F. (2013, August 1). Addiction is a reward deficit and stress surfeit disorder. *Frontiers in Psychiatry: Addictive Disorders and Behavioral Dyscontrol*, 4, 72.
- Koob, G. F., & Le Moal, M. (2001). Drug addiction, dysregulation of reward, and allostasis. *Neuropsychopharmacology*, 24, 97–129.
- Koob, G. F., & Le Moal, M. (2008, October). Neurobiological mechanisms for opponent motivational processes in addiction. *Philosophical Transactions of the Royal Society B*, 363, 3113–3123.
- McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. *Journal of the American Medical Association*, 284(13), 1689–1695.  
<https://doi.org/10.1001/jama.284.13.1689>
- O'Brien, C. P., & Volkow, N., & Li, T-K (2006, May 1). What's in a word? Addiction versus dependence in DSM-V. *American Journal of Psychiatry*, 163(5), 764–765.  
<https://doi.org/10.1176/ajp.2006.163.5.764>

## Correct Citation for Reference Entry

The reference entry correct citation styles for this document are illustrated below. Students should defer to the style preferences of their individual course instructors to determine whether the course instructor has preferences that are more specific than those shown below:

### American Psychological Association

Doverspike, W. F. (2024). How to understand the disease of addiction. <http://drwilliamdoverspike.com/>

### Chicago Manual of Style / Kate Turabian

Doverspike, William, "How to Understand the Disease of Addiction," August 15, 2024. <http://drwilliamdoverspike.com/>

Note: According to the Chicago Manual of Style, blog posts are typically not included in bibliographies, but can be cited in the running text and/or notes. However, if a blog is cited frequently, you may include it in the bibliography.

### Modern Language Association

Doverspike, William, "How to Understand the Disease of Addiction," August 15, 2024. <http://drwilliamdoverspike.com/>

Note: MLA guidelines assume that readers can track down most online sources by entering the author, title, or other identifying information in a search engine or a database. Consequently, MLA does not require a URL in citations for online sources such as websites. However, some instructors still ask for it, so check with your instructor to determine his or her preference.

## Documentation

This document is cross-referenced to a portable document file (PDF) published from this Word document file: How to Understand the Disease of Addiction.doc

Server path:

[http://drwilliamdoverspike.com/files/how\\_to\\_understand\\_the\\_disease\\_of\\_addiction.pdf](http://drwilliamdoverspike.com/files/how_to_understand_the_disease_of_addiction.pdf)

Server file name:

[how\\_to\\_understand\\_the-disease\\_of\\_addiction.pdf](http://drwilliamdoverspike.com/files/how_to_understand_the-disease_of_addiction.pdf)

Website tab: Practice [Popular Articles]

Link name: How to Understand Addictive Disease

Workshop Presentation Deck:

N/A

Webinar Presentation Deck:

N/A

Workshop Handouts:

N/A

Published August 15, 2024 | Updated August 15, 2024

**Copyright © 2024 by William F. Doverspike, Ph.D.**  
**Content and references last reviewed 2024**

The correct citation for this article is Doverspike, W. F. (2024). *How to understand the disease of addiction*. <http://drwilliamdoverspike.com/>