

ABSTRACT

A Pathology of the Will: Developing an Interdisciplinary Understanding of Addiction

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Addiction has historically been understood as a moral failing, but over the past few centuries it has been medicalized and is now viewed as a chronic brain disease. This thesis draws from neurobiology, psychology, philosophy, and theology in order to develop a multi-faceted model of addiction which incorporates insights from each of these disciplines. Neurobiological research supports the disease model of addiction and explains the neural mechanisms underlying addiction. Alternative models from prominent psychologists demonstrate the ways in which the disease model of addiction is insufficient, and they reject the idea that medicalization necessarily leads to destigmatization of addicted persons. The philosophy of Aristotle and the theology of Augustine provide a framework for answering questions of will, freedom, and choice which arise in discussions surrounding addiction. Finally, Alcoholics Anonymous represents an attempt to combine scientific and spiritual perspectives in order to help addicted persons on their path to recovery.

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A PATHOLOGY OF THE WILL:
DEVELOPING AN INTERDISCIPLINARY UNDERSTANDING OF ADDICTION

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INTRODUCTION

This thesis encompasses several of my areas of interest. First, as a Christian pursuing a career in medicine, I am deeply interested in the intersection of faith and science. I have explored this intersection during my time at Baylor through various coursework and opportunities, and I see this thesis as a continuation of that exploration. The issue of addiction is an example of the way that faith and science, as two different means to pursue truth, can complement one another in order to provide a more complete understanding of the world. The debate between the disease model of addiction and the choice model, which is a descendant of the traditional moral model, is a microcosm of the supposed divide between faith and science. This thesis aims to show that the apparent dichotomy between the disease model of addiction and a religious understanding of addiction is a false tension, and that drawing from both of the two will result in a more holistic view of addiction.

Because addiction is such a complex issue, there are many perspectives from which it can be considered. In this thesis I primarily draw from neuroscience research and theology, although I also incorporate some insights from psychology in Chapter Three when I reference the work of Gene Heyman, Marc Lewis, and Nick Heather. There are other fields which have contributed to the field of knowledge about addiction which I only marginally discuss, if at all—sociology, public health, and philosophy, to name a few. I believe that examining the research done in these fields would further add to my understanding of addiction. However, I did not feel that there was sufficient space in this thesis to incorporate these fields of study here. Therefore, I have focused on those

perspectives—mainly neuroscience and theology—which seem to reveal most clearly the supposed tension between the disease model and moral model of addiction.

I became interested in addiction specifically after taking a course focusing on mental health advocacy in my sophomore year. One class period was devoted to a speaker involved with addiction advocacy. The main point of her presentation was that people who are addicted were entirely free of blame for their medical condition—she told the class several times that to suggest that addicted persons were in any way responsible for their addiction was not only outdated and incorrect, but also incredibly damaging to addicted persons. This presentation made me both uncomfortable and confused. While I fully agreed that I would not want to unfairly stigmatize people suffering from a disease, I remained unconvinced that addiction was *only* a disease—there must be something more to it.

One important idea that the speaker did leave me with was her distaste for the word “addict.” This word, as she explained, reduces the essence of a person who is addicted down to the issue of his addiction; the emphasis is on this person’s condition and not on his personhood. This is reminiscent of the way that activists have fought against terms such as “the disabled” in the context of disability rights. Language is, indeed, important, because it shapes the ways that we think about these issues. For this reason, I am cautious with the language that I use to describe addiction throughout this thesis. I avoid the use of the term “addict” unless quoting someone who uses this term, and instead I use phrases such as “people who are addicted” or “addicted persons.” However, in Chapter Four, I do use the word “alcoholic” in order to avoid confusion during the discussion of Alcoholics Anonymous (AA).

Some involved with addiction research prefer the label “substance use disorder” to “addiction,” but I have chosen to retain the word “addiction” because I believe it encompasses a wider scope of behaviors.¹ In this thesis, when I refer to “addiction,” I am broadly describing a condition in which a certain behavior is performed to satisfy a craving, with a loss of control over the behavior, and with continued performance of the behavior even in the face of negative consequences. This description could apply to so-called substance use disorders or to behaviors such as compulsive gambling, kleptomania, and compulsive sexual behavior.² The technical classification of these “behavioral addictions” is currently under debate, but there is agreement that the neural mechanisms underlying these behaviors are the same as those underlying substance-based addictions, and people who exhibit these behaviors report similar sensations and experiences as those with substance-based addictions.³ Therefore, in the interest of simplicity, I extend the use of the word “addiction” to include these behavioral conditions as well. There are a variety of other terms that have been used to describe the phenomena of addiction, and I attempt to explain unfamiliar language where it arises in this thesis.

Some of this unfamiliar language will occur in the first chapter, where I will discuss the way that addiction has been perceived throughout history. In this chapter, I

¹Additionally, the American Academy of Pain Medicine, the American Pain Society, and the American Society of Addiction Medicine recommend the use of the term “addiction”—see Bryon Adinoff, “Neurobiologic Processes in Drug Reward and Addiction.”

²Jon E. Grant, Marc N. Potenza, Aviv Weinstein, & David A. Gorelick, “Introduction to Behavioral Addictions.”

³Marc N. Potenza, Mehmet Sofuoglu, Kathleen M. Carroll, & Bruce J. Rounsaville, “Neuroscience of Behavioral and Pharmacological Treatments for Addictions.”

will begin with Aristotle and Seneca, who are examples of ancient thought about addiction. I will trace the way that addiction became associated with sin through the work of Christian thinkers such as John Chrysostom, Increase Mather, and George Whitfield. The writings of Benjamin Rush and Thomas Trotter will show the first hints of the medicalization of addiction. Then, a discussion of the temperance movement and Prohibition will demonstrate the shift in cultural understandings of addiction. Finally, E.M. Jellinek's development of the disease concept of addiction and this model's adoption by the scientific community will provide a context for the modern disease model of addiction.

I will examine the disease model of addiction at length in Chapter Two, drawing primarily from neuroscientific research to do so. In this chapter, I will discuss the way that studies based on the disease model identify the changes that occur in the brain when addictive substances are consumed repeatedly. This research demonstrates the central role of dopamine, the changes in brain activation that occur when behavior becomes more compulsive than impulsive, and the areas of the brain which are involved in the process of addiction. Neuroimaging allows scientists to observe the physical changes in brain structure that manifest themselves during addiction. Additionally, I will discuss the way that the disease model of addiction has resulted in the production of some pharmaceuticals which may aid people in treatment and recovery.

In Chapter Three, however, I will discuss the ways in which the disease model is insufficient. I will address the issue of stigmatization, which is a major focus of proponents of the disease model. I will show that the adoption of the disease model may actually contribute to stigma rather than reduce it, and that this model may impede

addicted persons in their recovery. I will also discuss several alternative models which are at least loosely based upon a choice model of addiction. The work of Gene Heyman advocates for a more traditional choice model which is better able to explain data surrounding recovery from addiction than the disease model. Marc Lewis argues that the disease model wrongly pathologizes addiction and that a learning model of addiction is more appropriate. Finally, Nick Heather draws from both data and philosophy in order to discuss the concept of weakness of will. Through these three alternative models, I will draw attention to the ways in which the disease model of addiction falls short, suggesting that something more than a scientific perspective of addiction is needed.

In Chapter Four, I will incorporate two primary non-scientific perspectives into my discussion of addiction. First, I will turn to Augustine in order to develop the ideas of free will, sin, and grace within a Christian theological framework. While Augustine does not address addiction specifically in the work I will be referencing, his ideas about compulsion and choice are helpful and can be applied to addiction. Second, the distinctive philosophy of Alcoholics Anonymous will provide an example of an attempt to combine elements of the disease model of addiction with elements of spirituality. AA's approach to understanding and treating addiction will show that acknowledgment of the pathological nature of addiction is not necessarily incompatible with treatment that incorporates spirituality. The work of both Augustine and AA will broaden the understanding of addiction developed by this thesis. Finally, in my conclusion, I will synthesize insights from the array of perspectives presented in order to articulate the way that I now see addiction.

CHAPTER ONE

A History of Addiction

Introduction

A complete understanding of the disease and choice models of addiction requires an appreciation of the historical foundations for these models. Most historical writing about addiction has centered around problems stemming from excessive alcohol consumption. While the historical figures considered here were concerned with alcohol, their ideas can be extended to apply to other addictive substances and behaviors as well.

An examination of the thinking of selected historical figures will show that perspectives on the nature of addiction varied. Aristotle and Seneca will provide examples of figures whose thinking about addiction is difficult to categorize as “disease model” or “choice model.” A consideration of the connection between sin and addiction will include the writings of John Chrysostom and other Christian writers such as Increase Mather and George Whitefield. The first hints of the medicalization of addiction will be noted in the work of Benjamin Rush and Thomas Trotter. An examination of the temperance movement and its consequences will reveal the shift in thinking about addiction. Finally, the development of the disease concept of addiction by E. M. Jellinek and its acceptance by the medical community will provide a history of the modern disease model of addiction.

A Note About Language

Part of the difficulty with tracing the history of addiction stems from the use of language—even with the use of the word “addiction” itself. The word’s roots can be traced back to the Latin *addicere*, which as a compound of the verb *dicere* (“to speak”) and the preposition *ad* (“to,” “towards”) meant in a literal sense “to speak to,” and, more figuratively, “to assent” or “to adjudge.”¹ Despite its classical origins, neither “addiction” nor other derivatives of *addicere* were used in the modern sense—that is, to refer to repeated, compulsive behavior or substance use despite harmful consequences—until the beginning of the nineteenth century.² Other words which have been used to describe aspects of the experience of addiction—words like intemperance, inebriety, and drunkenness—have also carried different connotations and meanings throughout history, adding to the confusion.³ The ever-shifting language surrounding addiction is itself evidence that perspectives on the nature of addiction have varied throughout history, just as they do now.

Thus, an overview of historical ideas about addiction must rely on a broader spectrum of terminology and must endeavor to clarify the way the meanings of addiction-related terms have shifted over time. Concepts such as tolerance, withdrawal, lack of

¹P. G. W. Glare, *Oxford Latin Dictionary*, 40.

²Richard J. Rosenthal and Suzanne B. Faris, *Full Article: The Etymology and Early History of ‘Addiction.’*

³Because these terms have been used with varying meanings, I will illuminate their meaning within specific statements by historical figures by referencing context whenever possible.

control, and failure to abstain can be traced in historical thought and writings, even though they may not be named by these labels. These concepts can provide insight into the way past cultures and scholars thought about what is now called addiction.

Ancient Understandings of Addiction

Aristotle's discussion of incontinence in the *Nicomachean Ethics* describes what psychologists might now call compulsive behavior. Aristotle distinguishes between the "self-indulgent man," who deliberately chooses vice, and the "incontinent man," who knows what is good but is carried away by passion.⁴ Interestingly, to develop this contrast further, he uses the analogy of disease. He compares self-indulgence to dropsy or consumption, two diseases which present with relatively constant symptoms, and incontinence to epilepsy, which is characterized by episodic disturbances. For Aristotle, self-indulgence is the more troubling of the two because it represents a conscious decision to pursue vice, while incontinence represents action stemming from a weakness of will. Aristotle sees self-indulgence as an incurable, permanent vice, while incontinence is an "intermittent badness" which is contrary to choice and is "curable."⁵ He presents a nuanced view of compulsive behavior which uses the language of vice but acknowledges the loss of choice and thus does not fit neatly into either the disease model or the moral model categories.

⁴Aristotle., W. D. Ross, and Lesley Brown. *The Nicomachean Ethics*. Book 7, Section 8.

⁵Aristotle., W. D. Ross, and Lesley Brown. *The Nicomachean Ethics*. Book 7, Section 8; see also Gregg Franzwa. "Aristotle and the Language of Addiction."

Writing about three hundred and fifty years later, the Roman philosopher Seneca distinguishes between two different kinds of drunkenness. He explains that there is a great difference between a man who is drunk, or currently intoxicated, and a drunkard, who “is accustomed to get drunk, and is a slave to the habit.”⁶ This language of slavery and habituation suggests that Seneca understands the progressive decline and loss of will that characterize addiction, which is further supported by his comment that “continued bouts of drunkenness bestialize the soul.”⁷ Whether or not he feels that moral judgment of drunkards is appropriate is less clear. He argues that a good man will avoid becoming drunk because intoxication “kindles and discloses every kind of vice, and removes the sense of shame that veils our evil undertakings.”⁸ The implication of this statement is that someone with the habit of being drunk—a “drunkard” in Seneca’s terms—is has failed to be a good man. As one of the great Stoic philosophers, Seneca affirms the ability of the soul to make rational choices and deny one’s desires.⁹ Thus, Seneca seems to believe in the ability of the will to make choices in accordance with reason, and he may think it appropriate to assign moral blame to those who have chosen incorrectly too many times and have become habitually intoxicated. This tenuous association between moral

⁶Seneca, Lucius Annaeus, and Richard Mott Gummere. *Seneca’s Letters from a Stoic.*, 244.

⁷Seneca, Lucius Annaeus, and Richard Mott Gummere, 248.

⁸Seneca, Lucius Annaeus, and Richard Mott Gummere, 246.

⁹As Baltzly writes, “[For the Stoics,] impulses or desires are movements of the soul toward something. In a rational creature, these are exercises of the rational faculty which do not arise without assent. Thus, a movement of the soul toward X is not automatically consequent upon the impression that X is desirable.” - Dirk Baltzly. "Stoicism." *The Stanford Encyclopedia of Philosophy*.

judgment and habitual drunkenness would become more explicit in the following centuries.

Christianity, Addiction, and Sin

John Chrysostom made the connection between sin and addiction in the fourth century A.D. In the first of his *Four Discourses*, he states that Christians must “take up arms against inebriety” in order to “expose the folly of a drunken and dissolute life.”¹⁰ In this dialogue, he seems to use “inebriety” and “intemperance” interchangeably to refer to “[living] daily in excess of wine.”¹¹ He urges his listeners to expose the sin of those living in intemperance not to shame them or to blame them, but to reform them, to “turn them from all dishonourable exposure, and snatch them from the grasp of the tempter.”¹² He writes further that inebriates suffer from the guilt and self-condemnation that result from their vice, explaining that they are punished “both in the life here and the life yonder.”¹³ While he does clearly identify inebriety or intemperance with sin, he emphasizes that Christians should not rush to condemn them but instead point out their sin and offer them the freedom that is found in Christ.

Over the succeeding centuries, drunkenness became further associated with sin. By the 1500s, it was common to refer to drunkenness as vice and immorality, as did

¹⁰John Chrysostom. *Four Discourses, Chiefly on the Parable of the Rich Man and Lazarus*.

¹¹Chrysostom, *Four Discourses*.

¹²Chrysostom, *Four Discourses*.

¹³Chrysostom, *Four Discourses*.

Sebastian Franck, a contemporary of Martin Luther. Franck writes that inebriety was “sin that had become a habit,”¹⁴ although alcohol in itself was not immoral, because “what God created could not be evil in itself.”¹⁵ Similar sentiments are reflected in minister Increase Mather’s 1673 sermon “Wo [*sic*] to Drunkards.” He proclaims, “Drink in itself is a good Creature of God, and to be received with thankfulness; but the abuse of drink is from Satan: The Wine is from God, but the Drunkard is from the Devil.”¹⁶ For Mather, drunkenness afflicts the soul, not just the body, and once a soul becomes “enslaved” by drunkenness, it is exceedingly difficult for them to be “delivered from their bondage.”¹⁷ However, Mather delivered this sermon because of his belief that with the Lord’s blessing, drunkards could be brought to repentance for their sin, and their souls could be saved from death.¹⁸ In his view, drunkenness is primarily a grave sin, and only secondarily a bodily affliction.

Drunkenness in both senses—as current intoxication or as habitual intoxication—was a vice attacked by many English preachers in particular.¹⁹ In his sermon “The

¹⁴Here, Franck seems to mean inebriety in the sense of repeated drunkenness, rather than a current state of intoxication, although his language is somewhat ambiguous.

¹⁵E.M. Jellinek. “Classics of the Alcohol Literature: A Document of the Reformation Period on Inebriety: Sebastian Franck’s ‘On the Horrible Vice of Drunkenness.’”

¹⁶Increase Mather, *Wo to Drunkards. Two Sermons Testifying against the Sin of Drunkenness. ... Second Edition*, 7.

¹⁷Mather, 2.

¹⁸Mather, 3.

¹⁹William White, Ernest Kurtz, and Caroline Acker, “The Combined Addiction Disease Chronologies: 5th BC – 1863.”

Heinous Sin of Drunkenness,” George Whitefield goes so far as to argue that people who are often drunk are “filthy swine” who “have no log of share in [the Holy Spirit]” because “they have chased him out of their hearts, by defiling his temple.”²⁰ He recognizes that this habitual drunkenness is extremely difficult to overcome: “Can the Ethiopian change his skin, or the leopard his spots? So hard, almost, will it be for you who have been accustomed to be intemperate, to learn to live sober.”²¹ However, this does not soften his stance on the moral judgment that he believes these people deserve. For Whitefield and others, the idea of addiction as sin meant that drunkards merited judgment and stigmatization.

An Early Disease Concept of Addiction

Many pinpoint Benjamin Rush as a pivotal figure in the development of addiction theory. A brilliant man of many talents, Rush was a politician, philosopher, professor, author, evangelist, social reformer, and the most famous physician in eighteenth-century America.²² He graduated from the College of New Jersey (now Princeton University) at the age of fourteen, underwent medical training in the colonies and in Europe, and at age twenty-four was appointed to professorship at the College of Philadelphia Medical School, the first medical school in America.²³ Known as the father of American

²⁰George Whitefield, “The Heinous Sin of Drunkenness: Sermon 52.”

²¹Whitefield, “The Heinous Sin of Drunkenness: Sermon 52.”

²²Robert L. North, “Benjamin Rush, MD: Assassin or Beloved Healer?”.

²³North, “Benjamin, Rush, MD: Assassin or Beloved Healer?”.

psychiatry, Rush conducted careful clinical research and advocated for more compassionate treatment of those who were mentally ill.²⁴ Although he may have drawn inspiration from earlier physicians and thinkers,²⁵ he played a key role in articulating an understanding of the biological nature of addiction, and his significant influence brought this understanding to the attention of others.

Rush's thoughts about addiction—specifically, about alcoholism—can be found in his work *An Inquiry into the Effects of Spirituous Liquors on the Human Body*, published in 1784. Here, Rush referred to habitual drunkenness, or intemperance, as an “odious disease” and described its typical progression, as well as other disorders caused by excessive and repetitive alcohol consumption.²⁶ Significantly, Rush identified the properties of alcohol, rather than the character of the drinker, as the cause of addictive behavior. One example of this attribution is his remark that he knew “...many men and women, of excellent characters and principles, who have been betrayed by occasional doles of gin or brandy to ease the cholick (*sic*), into a love of spirituous liquors, insomuch that they have afterwards fallen sacrifices to their fatal effects.”²⁷ He argued that the habit

²⁴Kathryn Hollen, “Rush, Benjamin (1745-1813).”

²⁵See Roy Porter, “The Drinking Man’s Disease: The ‘Pre-History’ of Alcoholism in Georgian Britain.” The general consensus of addiction historians is that Rush was the first to begin the process of medicalization, but Porter argues that there were signs of the medicalization of alcoholism earlier in Britain. See also Anthony Benezet, *The Mighty Destroyer Displayed*.

²⁶He lists disorders caused by excessive alcohol consumption as palsy, apoplexy, epilepsy, madness, sickness of the stomach, dropsy, and obstruction of the liver. See Benjamin Rush, *An Inquiry into the Effects of Spirituous Liquors on the Human Body. To Which Is Added, a Moral and Physical Thermometer*, 1-4.

²⁷Rush, 9.

of drinking led to the disappearance of the drinker's willpower, and he called repeated drunkenness a "palsy of the will" rather than a bad habit.²⁸ He also insisted that those resolved to avoid further drinking must commit to sudden and complete abstinence.²⁹ His focus on the pathological progression of alcoholism, the physiological effects of habitual drinking, the progressive loss of control of alcoholics, and the addictive nature of alcohol represent a major shift from his predecessors' emphasis on moral character and vice.

Rush did not leave the moral implications of addiction wholly behind, though. He was fervently religious, and while he wrote that excessive alcohol use was associated with disease, he warned that it would lead to both "progressive moral and physical decay"³⁰ since liquor affected the "moral faculty" of man, especially his temper.³¹ With this acknowledgement that addiction affected both physical and moral aspects of a person, he seems to have held in tension aspects of both the disease and choice models. His precedent, however, spurred on others to further distance addiction from its former moral associations.

Thomas Trotter, a physician for the British navy, expanded on Rush's ideas in his work entitled "An Essay, Medical, Philosophical, and Chemical, on Drunkenness, and Its Effects on the Human Body," published in 1804. He classified alcohol as a narcotic and placed it into the same category of drugs as cannabis and opiates, recognizing that all

²⁸Mariana Valverde, *Diseases of the Will: Alcohol and the Dilemmas of Freedom*, 2.

²⁹Valverde, 11.

³⁰Lemanski, 12.

³¹Rush, 5.

were capable of inducing intoxication, although he focused on alcohol.³² He described the phenomenon of tolerance, even using the language of addiction: “The drunken paroxysm, as far as can be observed in those who are addicted to the habit, has some variation from the history now given of the phenomena...The exhilarating (*sic*) powers of wine lose their fine zest and high relish, by being too frequently indulged. This very circumstance at once draws the line between the temperate man and the sot.”³³ This language represents a major shift in the conception of addiction.

Trotter’s belief that habitual drunkenness was a disease had several implications. First, he suggested a treatment for the disease, recommending that drunkards should speak with their physician rather than taking prescribed drugs.³⁴ Like Rush, he suggested that the treatment goal should be sudden, complete, and life-long abstinence from all alcoholic substances.³⁵ Perhaps most interestingly, he argued that the issue of drunkenness should no longer be addressed primarily by clergy: “The priesthood hath poured forth anathemas from the pulpit, and the moralist no less severe, hath declaimed against it as a vice degrading to our nature. They have meant well...but the physical influence of custom, confirmed into habit, interwoven with the actions on our sentient systems, have been entirely forgotten.”³⁶ Although Trotter articulated the disease concept

³²Griffith Edwards, “Thomas Trotter’s ‘Essay on Drunkenness’ Appraised.”

³³Trotter, Thomas. *An Essay, Medical, Philosophical, and Chemical, on Drunkenness, and Its Effects on the Human Body*, 28-29.

³⁴Edwards, “Thomas Trotter’s ‘Essay on Drunkenness’ Appraised.”

³⁵Edwards, “Thomas Trotter’s ‘Essay on Drunkenness’ Appraised.”

³⁶Trotter, 29.

of addiction more clearly than Rush, and although he further distanced addiction from sin, he did not have as wide a sphere of influence, and his essay did not receive the attention that Rush's work had decades earlier.³⁷

The Temperance Movement and its Consequences

This new vein of thought developed by Rush and Trotter set the stage for the temperance societies to rise in the nineteenth century. For the first time, Americans began to describe themselves as being addicted to alcohol, saying that they “experienced overwhelming and irresistible desires for liquor.”³⁸ The first temperance society was founded in New York in 1808 by William Clark, a physician, and other physicians such as Thomas Sewall, Reuben Mussey, and Charles Jewett also promoted social reform around the issue of alcohol.³⁹ These “temperance physicians” argued that habitual drunkenness, or intemperance, was a disease that naturally resulted from the consumption of alcoholic beverages.⁴⁰ Swedish physician Magnus Huss introduced the term ‘chronic alcoholism’ to describe this disease, and this diagnosis began appearing in the medical

³⁷Edwards, “Thomas Trotter’s ‘Essay on Drunkenness’ Appraised.”

³⁸H.G. Levine, “The Discovery of Addiction: Changing Conceptions of Habitual Drunkenness in America,” 143–4.

³⁹Michael Lemanski, *A History of Addiction and Recovery in the United States: Traditional Treatments and Effective Alternatives*, 13. See also Katherine H. Nelson, “The Temperance Physicians: Developing Concepts of Addiction,” ii.

⁴⁰Levine, 144.

literature and in the works of American physicians urging temperance.⁴¹ Thus, some reformers were motivated by their conviction that alcohol was a dangerous, disease-causing substance that must be eliminated.

However, there were many temperance reformers driven by religious beliefs as well, impassioned in the wake of the Second Great Awakening.⁴² Not all evangelical denominations were enthusiastic about the temperance cause,⁴³ but many were, following the example of iconic temperance movement religious leaders such as Lyman Beecher, Neal Dow, Frances Willard, and Ernest Cherrington.⁴⁴ For example, Beecher delivered a series of six sermons in 1825 railing against the sin of intemperance, preaching that “No sin has fewer apologies than intemperance” and that “God in his righteous displeasure is accustomed to withdraw his protection and abandon [the intemperate person] to his own way.”⁴⁵ Although these temperance clergy differed from temperance physicians in their understanding of the nature of addiction, they were united in their resolve to purge

⁴¹O. M. Lesch, J. Kefer, S. Lentner, R. Mader, B. Marx, M. Musalek, A. Nimmerrichter, H. Preinsberger, H. Puchinger, and A. Rustembegovic. “Diagnosis of Chronic Alcoholism—Classificatory Problems.”

⁴²The Second Great Awakening was a time of religious revival lasting from approximately 1790–1840.

⁴³Jessica Warner, “Temperance, Alcohol, and the American Evangelical: A Reassessment,” 1075.

⁴⁴Warner, 1075.

⁴⁵Lyman Beecher, *Six Sermons on the Nature, Occasions, Signs, Evils, and Remedy of Intemperance*.

society of the negative effects of alcoholism, urging people to commit to moderate, temperate drinking or, more often, to commit to total abstinence.⁴⁶

In 1826, Beecher became one of the co-founders of the first national temperance society—the American Temperance Society.⁴⁷ In 1829, the ATS claimed about one thousand local societies and about one hundred thousand members; by 1834, there were about five thousand local societies and over a million members.⁴⁸ There were even temperance newspapers: the first, *The Philanthropist*, was founded in 1829,⁴⁹ and more followed shortly after. The temperance movement continued throughout the rest of the nineteenth century, with major groups like the Washingtonian Society (founded in 1840) and the Woman’s Christian Temperance Union (founded in 1874) championing the cause of abstinence and social reform.⁵⁰ In addition to the formation of societies, the temperance movement resulted in the formation of private addiction institutes and inebriate homes and asylums.⁵¹

⁴⁶As Royce points out, some temperance societies “confused abstinence with temperance, creating a false dichotomy between total abstinence and drunkenness which actually negated the concept of temperance.” See James E. Royce, “Sin or Solace? Religious Views on Alcohol and Alcoholism.”

⁴⁷Milton A Maxwell, “The Washingtonian Movement.”

⁴⁸Maxwell, “The Washingtonian Movement.”

⁴⁹Lemanski, 13.

⁵⁰Ernest Hurst Cherrington, *The Evolution of Prohibition in the United States of America*, 94, 170.

⁵¹B. Weiner and W. White, “The History of Addiction/Recovery-Related Periodicals in America: Literature as Cultural/Professional Artifact,” 534.

Investigation of the disease concept of addiction combined with increased social awareness of the problems posed by alcohol also led to the distribution of addiction and recovery-related periodicals⁵² and the formation of dedicated medical journals. The most significant such journal, the *Quarterly Journal of Inebriety*, was established in 1876 by the American Association for the Study and Cure of Inebriety, a group of the first addiction medicine specialists.⁵³ The first issue was attacked by the religious press, with critics arguing that the journal's characterization of inebriety as disease represented an attempt "to excuse crime and dignify vice."⁵⁴ The disease concept of addiction, though accepted by the American Association for the Study and Cure of Inebriety, was still not accepted by the wider American medical establishment, which mostly saw alcohol abuse not as a medical illness, but as a moral problem.⁵⁵ Here were early signs of the modern conflict between disease model and choice model theorists.

Prohibition was the culmination of the social fervor surrounding alcohol in the late nineteenth and early twentieth centuries. The Anti-Saloon League, founded in 1893 by minister Howard Hyde Russell, united the evangelical church, constituents of temperance and reform societies, leading politicians of both major political parties, and powerful businessmen like Henry Ford and Pierre du Pont in one effort to bring about the

⁵²Weiner and White, 535.

⁵³Marc-Antoine Crocq, "Historical and Cultural Aspects of Man's Relationship with Addictive Drugs."

⁵⁴Weiner and White, 535. See also T. D. Crothers, "A Review of the History and Literature of Inebriety, The First Journal and Its Work to Present."

⁵⁵Lemanski, 19.

prohibition of the sale of alcohol in the United States.⁵⁶ This goal was realized in the Volstead Act, penned by Andrew J. Volstead, an “ultra-religious Republican congressman from Minnesota.”⁵⁷ The Volstead Act was ratified by the states and passed as the 18th Amendment to the United States Constitution in 1920.

The temperance movement had successfully brought about the legal prohibition of the sale, manufacture, and transport of alcohol in the United States. Ironically, this crowning achievement proved to be the undoing of the movement due to the failure of Prohibition. Many had believed that the elimination of alcohol would put an end to the violence, crimes, and other ills that plagued society; instead, criminal networks led by the likes of Al Capone appeared, leading to “an unprecedented and historic culture of violence and corruption.”⁵⁸ Now that a national prohibition had been achieved, temperance societies and inebriety asylums disappeared. This meant that habitual drunkards were able to find liquor through the black market but were unable to find help when they recognized their drinking as harmful.⁵⁹ After Prohibition was repealed in 1933, the void created by the fading of the temperance societies and asylums was filled by Alcoholics Anonymous (AA), founded in 1935.

⁵⁶Kathryn Hollen, “Prohibition.” See also Cherrington, 253.

⁵⁷Lemanski, 21.

⁵⁸Hollen, “Prohibition.”

⁵⁹Jack S. Blocker, “Did Prohibition Really Work? Alcohol Prohibition as a Public Health Innovation.”

Post-Prohibition Conceptions of Addiction

AA took conventional thought about the cause of addiction one step further. Rush and others had suggested that the cause of alcoholism was not the moral character of the drinker but the properties of alcohol itself. This had led logically to the temperance movement's fight for prohibition, since prohibitionists believed that anyone who drank alcohol could become addicted to it. AA argued that the problem did not lie with alcohol in itself, but within the human body—AA distinguished between normal drinkers, who could consume alcohol with moderation, and compulsive drinkers, who were unable to regulate their consumption.⁶⁰ AA suggested that only some people, for reasons they did not fully understand, developed addictions to alcohol. Levine has called this distinction in the location of the source of addiction—this idea that the problem lay with the physiology of certain human bodies, rather than with alcohol itself—“the most important difference between temperance thought and the ‘new disease conception.’”⁶¹ AA's distinctive approach to addiction will be examined in depth in Chapter Four.

Another consequence of Prohibition was that there was little to no research conducted on alcoholism during the twenties and thirties. E. M. Jellinek was among the group of alcoholism researchers who stepped into this void. A professor at Yale University, he founded the Yale Center of Alcohol Studies in 1935 and the Yale Plan Clinic for alcoholism treatment shortly after.⁶² He partnered with Marty Mann, the first woman to join AA, as well as the founders of AA, to advocate for humane treatment of

⁶⁰Blocker, “Did Prohibition Really Work?”

⁶¹Levine, 144.

⁶²P. Clayton Rivers and Peter E. Nathan, *Alcohol and Addictive Behavior*, 1.

alcoholics. This advocacy led to the creation of the National Committee for Education on Alcoholism (now called the National Council on Alcoholism and Drug Dependence, or NCADD).⁶³ His writings represent a major step in the medicalization of addiction.

In a 1944 article, Jellinek wrote that “A clear discussion of the problem [of alcoholism] is possible only when it is fully realized that there is a problem of alcohol as well as a problem of the alcoholic.”⁶⁴ He recognized that there was something about alcohol that made it an addictive substance, but that there was something in certain people who consumed alcohol that made them more likely to become addicted than others. Thus, he urged that studies should be done to determine the difference between moderate drinkers and chronic alcoholics.⁶⁵ He conducted countless studies himself and wrote extensively about the biology, psychology, history, and philosophy of addiction.⁶⁶ He was the first to describe the progression from moderate to pathological drinking and to conclude from this that addiction was a progressive disease.⁶⁷ Many of his articles were featured in the Quarterly Journal of Studies on Alcohol (now called the Journal of Studies on Alcohol), which was founded at Yale in 1940.⁶⁸ His major work was his 1960

⁶³Kathryn Hollen, “Jellinek, Elvin Morton (1890-1963).”

⁶⁴E. M. Jellinek, “The Alcohol Problem: Formulations and Attitudes,” 14.

⁶⁵Jellinek, “The Alcohol Problem: Formulations and Attitudes,” 15.

⁶⁶E. M. Jellinek, “Publications on Alcohol and Alcoholism by E. M. Jellinek 1939-1967.”

⁶⁷Juan Marconi, “Introduction - Etiological and Clinical Aspects.”

⁶⁸Lemanski, 84.

book *The Disease Concept of Alcoholism*, which introduced the phrase “the disease concept of alcoholism” into medical literature.⁶⁹

In this book, Jellinek expands on the idea that the problem of alcoholism stems from multiple factors, writing that it involved biological vulnerability, but must also be considered in cultural and socioeconomic contexts.⁷⁰ He also notes the difficulty in defining and describing alcoholism, defining it himself broadly as “...any use of alcoholic beverages that causes any damage to the individual or society or both.”⁷¹ However, he immediately criticizes his own definition as being too broad to be useful.⁷² In order to bring some clarification to his broad definition, he famously delineates several “species” of alcoholism: alpha alcoholism, beta alcoholism, gamma alcoholism, delta alcoholism, and epsilon alcoholism. His “gamma alcoholism” describes what we would consider alcohol addiction today: “*Gamma alcoholism* means that species of alcoholism in which (1) acquired increased tissue tolerance to alcohol, (2) adaptive cell metabolism, (3) withdrawal symptoms and ‘craving,’ i.e., physical dependence, and (4) loss of control are involved...[T]here is a definite progression from psychological to physical dependence and marked behavior changes.”⁷³ Jellinek’s work contributed much to the shift in the medical establishment’s perception of addiction over the succeeding decades.

⁶⁹Hollen, “Jellinek, Elvin Morton (1890-1963).”

⁷⁰John F. Kelly, “E. M. Jellinek’s Disease Concept of Alcoholism.”

⁷¹E. M. Jellinek, *The Disease Concept of Alcoholism*, 35.

⁷²Jellinek, *The Disease Concept of Alcoholism*, 35.

⁷³Jellinek, *The Disease Concept of Alcoholism*, 37.

This shift was already well underway, however, before the release of *The Disease Concept of Alcoholism*. In 1954, physician Ruth Fox founded the American Society of Addiction Medicine, which promoted the disease concept of addiction, AA and twelve-step treatment, and the designation of addiction medicine as a medical specialty.⁷⁴ The American Medical Association (AMA) designated alcoholism as a disease in 1956,⁷⁵ and the American Hospital Association (AHA) followed suit in 1957.⁷⁶

The federal government embraced the disease concept of addiction in 1970, when the Hughes Act authorized the creation of a federal program to investigate and prevent alcohol abuse and alcoholism.⁷⁷ This Act established the National Institute on Alcohol Abuse and Alcoholism (NIAAA). NIAAA states that “in its more-than-40-year history, NIAAA has led the effort to reframe alcohol abuse as a medical—rather than a moral—issue, and to study issues relating to alcohol and health systematically, through evidence-based findings.”⁷⁸ Its sister program, the National Institute on Drug Abuse (NIDA), was established for research, treatment, and prevention of the abuse of addictive drugs in 1974.⁷⁹ Also in 1974, alcoholism and drug addiction were classified in their own

⁷⁴Lemanski, 91.

⁷⁵Tanya Albert Henry, “Court Listened to AMA on Defining Alcoholism as a Disease, Not a Crime.”

⁷⁶Lemanski, 92.

⁷⁷“Alcohol Alert Number 79.”

⁷⁸“History of NIAAA | National Institute on Alcohol Abuse and Alcoholism (NIAAA).”

⁷⁹National Institutes of Health (NIH). “National Institute on Drug Abuse (NIDA).”

independent “Substance Use Disorder” category for the first time in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM).⁸⁰ The prevailing model of addiction was now indisputably the disease model.

More recent research on addiction has focused on the neurobiology of addiction, and the current predominant model of addiction remains the disease model—specifically, the chronic brain disease model. There is not unanimous agreement among researchers, however, and some significant figures have expressed their dissatisfaction with this model.⁸¹ The current state of the disease model will be discussed at length in the next chapter.

⁸⁰Sean M. Robinson and Bryon Adinoff, “The Classification of Substance Use Disorders: Historical, Contextual, and Conceptual Considerations.” Alcoholism and drug addiction had previously been categorized under “Sociopathic Personality Disturbance” (in DSM I, 1952) and under “Personality Disorder” (in DSM II, 1968).

⁸¹Roger E. Meyer, “The Disease Called Addiction: Emerging Evidence in a 200-Year Debate.”

CHAPTER TWO

The Disease Model

Introduction

The medicalization of addiction resulted in the formulation of the disease model of addiction, which this chapter shall consider in detail. First, an overview of the brain disease model of addiction and its consequences will be outlined. An examination of the neural pathways involved in addiction will demonstrate the way that the disease model has explained the neurobiological mechanisms of addiction. Further evidence in favor of this model will be considered, such as neural imaging of the brains of addicted persons and the efficacy of pharmaceutical treatment. A discussion of the implications of this model will stress the way that this model avoids stigmatization of those struggling with addiction.

NIDA, Nora Volkow, and the Disease Model

The disease model of addiction broadly outlines addiction as “following a disease-like course, with behaviors that have taken control of the person.”¹ The modern, most recent iteration of the disease model specifically names addiction as a chronic brain disease. The National Institute of Drug Abuse (NIDA), a major proponent of the brain disease model, defines addiction according to this model as “a chronic, relapsing brain

¹Jostein Rise & Torleif Halkjelsvik, “Conceptualizations of Addiction and Moral Responsibility.”

disease that is characterized by compulsive drug seeking and use, despite harmful consequences.”² It further explains, “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 the harmful behaviors seen in people who abuse drugs.”³ The observable changes in brain structure and compulsive behavior despite negative consequences are key components of the brain disease model.

Dr. Nora Volkow, director of NIDA, is one of the most vocal advocates of this model. Trained as a psychiatrist, Volkow has published around eight hundred peer-reviewed articles, written more than a hundred book chapters and manuscripts, and edited four books about neuroimaging and mental disorders.⁴ Much of her work has focused on using brain imaging as a way to investigate the properties of drugs of abuse. In particular, many of her studies have examined the way that structural changes in the dopamine system affect areas of the brain associated with motivation and self-regulation. NIDA’s biography of Volkow states that her work “has been instrumental in demonstrating that drug addiction is a disease of the human brain.”⁵

Volkow has written extensively to advocate for the widespread adoption of the brain disease model of addiction. The definition and classification of addiction has far-reaching consequences for the treatment and perception of addicted persons. She states

²National Institute on Drug Abuse, “Drugs, Brains, and Behavior: The Science of Addiction.”

³National Institute on Drug Abuse, “Drugs, Brains, and Behavior: The Science of Addiction.”

⁴National Institute on Drug Abuse, “Biography of Dr. Nora Volkow.”

⁵National Institute on Drug Abuse, “Biography of Dr. Nora Volkow.”

that by describing addiction as a brain disease which causes compulsive behavior, “we will be able to decrease the stigma, not just in families and workplaces but also in the healthcare system, among providers and insurers.”⁶ She goes on to explain that once society acknowledges the pathology underlying addiction, “...people with the disease will not have to go through obstacles to obtain evidence-based [pharmaceutical] treatments...but will simply, nonjudgmentally, receive the help they need...They won’t have to feel that shame, or feel inferior, because people understand that they are suffering from a disease that should be treated like any other.”⁷ This desire to reduce stigmatization seems to be the primary motivation for Volkow and other addiction researchers,⁸ and the impact of the brain disease model on the stigmatization of addicted persons will be addressed later in this chapter.

Brain Regions Involved in Addiction

There are several different structures in the brain which are involved with addiction. These structures can be divided into two general categories: the mesolimbic pathway and associated structures, which together act as a “reward circuit,” and regions within the prefrontal cortex which control self-comprehension and self-regulation.⁹ One

⁶Nora Volkow, “Addiction Is a Disease of Free Will.”

⁷Nora Volkow, “Addiction Is a Disease of Free Will.”

⁸Marc Lewis, *Biology of Desire*, 8. See also Alan I. Leshner, “Addiction Is a Brain Disease”; Nora D. Volkow & Ting-Kai Li, “Drug Addiction: The Neurobiology of Behaviour Gone Awry”; Owen Flanagan, “The Shame of Addiction”; and Daniel Z. Buchman & Peter Reiner, “Stigma and Addiction: Being and Becoming.”

⁹Lewis, *Biology of Desire*, 45.

of the major strengths of the brain disease model is its explanation of the way that these structures interact and change over the course of addiction.

The reward circuitry of the brain includes the ventral tegmental area (VTA), nucleus accumbens, and ventral pallidum, which are connected by the medial forebrain bundle.¹⁰ Dopaminergic cell bodies in the VTA project into the nucleus accumbens and other structures.¹¹ When the dopaminergic neurons in the VTA are stimulated, dopamine is released in the nucleus accumbens.¹² This is the basic reaction that occurs when an addictive substance is consumed. Although dopamine's effect on the nucleus accumbens is central to addiction, dopamine from the VTA also affects other forebrain areas, including the prefrontal cortex and amygdala, which further shapes addictive behaviors.¹³

While other neurotransmitters are involved with addiction, dopamine plays the major role in reward. Every addictive substance increases dopamine levels by stimulating the dopaminergic neurons in the VTA.¹⁴ Decades of research have illuminated dopamine's role as the link between the VTA and the nucleus accumbens and the way that addictive substances exploit this link. Animal studies have shown that injecting small

¹⁰Eliot L. Gardner, "Addiction and Brain Reward and Antireward Pathways."

¹¹Bryon Adinoff, "Neurobiologic Processes in Drug Reward and Addiction."

¹²Nora D. Volkow, Michael Michaelides, & Ruben Baler, "The Neuroscience of Drug Reward and Addiction."

¹³B. J. Everitt *et al.*, "Associative Processes in Addiction and Reward: The Role of Amygdala-Ventral Striatal Subsystems."

¹⁴Nora D. Volkow, Michael Michaelides, & Ruben Baler, "The Neuroscience of Drug Reward and Addiction."

amounts of dopamine agonists¹⁵ intracerebrally in this region results in the animals self-administering those dopamine agonists, whereas animals will work to avoid the administration of dopamine antagonists.¹⁶ Other studies measuring synaptic neurochemistry have demonstrated that test animals who volitionally self-administer addictive drugs exhibit excess dopamine in the nucleus accumbens.¹⁷ Further, they show that dopamine levels vary with self-administration of the addictive substance and that the level of dopamine in the nucleus accumbens predicts the next time test animals self-administer the substance.¹⁸

In response to increased amounts of dopamine, the firing rate of neurons in the nucleus accumbens increases, resulting in craving and desire.¹⁹ Berridge and Robinson have famously distinguished *wanting* from *liking*, and the nucleus accumbens is devoted to *wanting*.²⁰ The distinction between wanting and liking is important for addiction

¹⁵Dopamine agonists are substances which mimic the activity of dopamine by binding and activating dopamine receptors. Dopamine antagonists have the opposite effect and prevent the activity of dopamine by blocking dopamine receptors.

¹⁶Gardner, "Addiction and Brain Reward and Antireward Pathways."

¹⁷See R. A. Wise, P. Leone, R. Rivest, & K. Leeb, "Elevations of Nucleus Accumbens Dopamine and DOPAC Levels during Intravenous Heroin Self-Administration"; R. A. Wise, P. Newton, K. Leeb, B. Burnette, D. Pocock, & J. B. Justice, "Fluctuations in Nucleus Accumbens Dopamine Concentration during Intravenous Cocaine Self-Administration in Rats"; and Roy A. Wise, "In Vivo Estimates of Extracellular Dopamine and Dopamine Metabolite Levels during Intravenous Cocaine or Heroin Self-Administration."

¹⁸Wise, Leone, Rivest, & Leeb; Wise, Newton, Leeb, Burnette, Pocock, & Justice; and Wise.

¹⁹Lewis, *Biology of Desire*, 57.

²⁰Kent C. Berridge & Terry E Robinson, "What Is the Role of Dopamine in Reward: Hedonic Impact, Reward Learning, or Incentive Salience?". See also Ingmar H.

because in advanced stages of addiction, a person may crave (or *want*) a substance which that person no longer enjoys (or *likes*) consuming. This is because neurons in the nucleus accumbens translate sensory information into hedonic reward, but they also are involved with expectancy of reward,²¹ which is key in generating the sensation of wanting. The nucleus accumbens also moderates reward prediction,²² reward-delay discounting,²³ errors in reward prediction,²⁴ and motivation for substance-seeking behavior,²⁵ and it contributes to “the synaptic neuroplasticity that underlies the acquisition of addictive behavior patterns.”²⁶ Thus, the nucleus accumbens is a particularly important part of the mesolimbic reward system.

Other structures associated with the mesolimbic reward system are involved in addiction as well. The amygdala is responsible for consolidating emotional associations, triggering conditioned emotions to stimuli, and focusing attention on the source of these

A. Franken, “Drug Craving and Addiction: Integrating Psychological and Neuropsychopharmacological Approaches.”

²¹John T. Gale, Donald C. Shields, Yumiko Ishizawa, & Emad N. Eskandar, “Reward and Reinforcement Activity in the Nucleus Accumbens during Learning.”

²²Shunsuke Kobayashi & Wolfram Schultz, “Influence of Reward Delays on Responses of Dopamine Neurons.”

²³Kobayashi & Schultz, “Influence of Reward Delays on Responses of Dopamine Neurons.”

²⁴Todd A. Hare, John O’Doherty, Colin F. Camerer, Wolfram Schultz, & Antonio Rangel, “Dissociating the Role of the Orbitofrontal Cortex and the Striatum in the Computation of Goal Values and Prediction Errors.”

²⁵L. L. Peoples, A. J. Uzwiak, F. Gee, A. T. Fabbriatore, K. J. Muccino, B. D. Mohta, & M. O. West, “Phasic Accumbal Firing May Contribute to the Regulation of Drug Taking during Intravenous Cocaine Self-Administration Sessions.”

²⁶Gardner, “Addiction and Brain Reward and Antireward Pathways.”

emotions.²⁷ The orbitofrontal cortex (OFC) examines signals from the amygdala and nucleus accumbens to interpret motivating situations, generates outcome expectancies, and helps organize an appropriate course of action.²⁸ The dorsal striatum, also activated by dopamine, is an important piece of stimulus-response learning, triggering actions that are habitual; its activation represents a shift from impulsive to compulsive behavior, as shall be further discussed later.²⁹ These three regions are responsible for further shaping the way addiction develops.

Neural Mechanisms of Addiction

The interactions underlying addiction are complex, but an understanding of the above structures is sufficient to provide a simplified picture of the progression researchers have documented. During the initial stages of usage of an addictive substance, behavior is reward-driven, focused on achieving the subjective “high” produced by the substance, and caused by the activation of the reward circuitry (VTA and nucleus accumbens).³⁰ At first, dopamine is released in direct response to substance use, but with repeated exposure to that substance, dopamine is released in response to cues

²⁷Adinoff, “Neurobiologic Processes in Drug Reward and Addiction.”

²⁸Adinoff, “Neurobiologic Processes in Drug Reward and Addiction” and R. Elliott, R. J. Dolan, & C. D. Frith, “Dissociable Functions in the Medial and Lateral Orbitofrontal Cortex: Evidence from Human Neuroimaging Studies.”

²⁹Lewis, *Biology of Desire*, 45.

³⁰Gardner, “Addiction and Brain Reward and Antireward Pathways.”

that suggest the reward is imminent—in anticipation of substance use.³¹ Anticipatory dopamine release generates the sensations of wanting and craving which are characteristic of addiction. This shift in the timing of dopamine release represents reward-related learning, or the shaping of future behavior to respond to cues associated with the addictive substance.³² Because addictive substances produce greater quantities of dopamine than natural stimuli, this reward-related learning related to an addictive substance occurs much more rapidly than normal learning about natural rewards.³³

Dopamine is sent to the amygdala and OFC as well as the nucleus accumbens, involving them as well.³⁴ When a cue associated with the addictive substance is encountered, dopamine release results in craving, and the OFC is presented with information in order to coordinate a response to this motivational situation. The amygdala recalls the emotional response to the addictive substance upon prior uses, further adding to the allure of the substance. The OFC, faced with intense wanting generated by the nucleus accumbens and the promise of positive emotion from the amygdala, is tasked with generating an appropriate response. As the addictive substance is encountered more frequently, this triumvirate—the amygdala, OFC, and nucleus accumbens—work

³¹Nora D. Volkow, George F. Koob, & A. Thomas McLellan. “Neurobiologic Advances from the Brain Disease Model of Addiction.” See also Wolfram Schultz, “Getting Formal with Dopamine and Reward.”

³²Steven E. Hyman, “Addiction: A Disease of Learning and Memory.”

³³Hyman, “Addiction: A Disease of Learning and Memory.”

³⁴Adinoff, “Neurobiologic Processes in Drug Reward and Addiction.”

together and begin to exhibit “delay discounting.”³⁵ Lewis explains that “delay discounting” describes “the tendency...to value immediate rewards over long-term benefits.”³⁶ When this occurs, immediate rewards are judged to be more valuable than those which are delayed. This further increases the shaping of behavior towards the consumption of the addictive substance—the immediate, gratifying reward.

As consumption of the addictive substance continues, behavior becomes driven more by habit than by reward.³⁷ This is the crucial transition point that arguably marks the beginning of truly addictive behavior; it reflects the shift of control over behavior from the ventral striatum (the underside of the striatum) to a more dorsal area (the top of the striatum).³⁸ Over a period of consumption of the addictive substance, dopamine sent to the nucleus accumbens is sent to regions of the ventral striatum which are further and further north.³⁹ Eventually, dopamine is sent far enough north that it reaches the dorsal striatum, triggering its activation.⁴⁰ As previously mentioned, the dorsal striatum works to

³⁵John C. Churchwell, Andrea M. Morris, Nila M. Heurtelou, & Raymond P. Kesner, “Interactions Between the Prefrontal Cortex and Amygdala During Delay Discounting and Reversal.”

³⁶Lewis, *Biology of Desire*, 83.

³⁷Barry J. Everitt & Trevor W. Robbins, “From the Ventral to the Dorsal Striatum: Devolving Views of Their Roles in Drug Addiction.”

³⁸Gardner, “Addiction and Brain Reward and Antireward Pathways.”

³⁹Barry J. Everitt & Trevor W. Robbins, “Neural Systems of Reinforcement for Drug Addiction: From Actions to Habits to Compulsion.”

⁴⁰Barry J. Everitt, David Belin, Daina Economidou, Yann Pelloux, Jeffrey W. Dalley, & Trevor W. Robbins, “Neural Mechanisms Underlying the Vulnerability to Develop Compulsive Drug-Seeking Habits and Addiction.”

encode habits and routines,⁴¹ and so its activation results in the shift from impulsive behavior to compulsive behavior—substance-seeking is now driven by habit more than reward.

Another development that occurs over a period of time is the erosion of the link between the striatum and the prefrontal cortex (PFC). The dorsolateral PFC is particularly important for planning, reasoning, and exhibiting self-control, and it normally functions to keep habits in check.⁴² With repeated substance use, it becomes more difficult for the dorsolateral PFC and other regions in the PFC to engage with the striatum when exposed to an addictive substance—synapses have been pruned from these regions, interrupting the connection between these two areas.⁴³ Thus, the more times the addictive substance is encountered, the more difficult it is to override the now habitual behavior that is triggered in response to it.

Brain Imaging and Addiction

Various imaging technologies have been used to examine the brains of persons who are addicted. Magnetic resonance imaging (MRI) and positron emission tomography

⁴¹Volkow, Koob, & McLellan, “Neurobiologic Advances from the Brain Disease Model of Addiction.”

⁴²Giuseppe Blasi et al., “Brain Regions Underlying Response Inhibition and Interference Monitoring and Suppression” and Molly J. Crockett, Barbara R. Braams, Luke Clark, Philippe N. Tobler, Trevor W. Robbins, & Tobias Kalenscher, “Restricting Temptations: Neural Mechanisms of Precommitment.”

⁴³The mechanism by which the connection between the PFC and striatum is eroded is not well understood. See Dorothy J. Yamamoto, Choong-Wan Woo, Tor D. Wager, Michael F. Regner, & Jody Tanabe, “Influence of Dorsolateral Prefrontal Cortex and Ventral Striatum on Risk Avoidance in Addiction: A Mediation Analysis.”

(PET) allow researchers to investigate mechanisms of action of addictive substances within the brain and to record the long-term effects of addiction on the brain.⁴⁴ Functional magnetic resonance imaging (fMRI) is another powerful tool that detects and measures fluctuations in regional brain activity.⁴⁵ Studies using PET and fMRI have focused on the identification of brain regions involved with addiction and the connection of neural activity in these areas to behavior.⁴⁶

Many PET studies have examined the role that dopamine plays in addiction. Studies that compare dopamine function in addicted and non-addicted subjects have found significant disruptions in dopamine function in the brains of addicted persons.⁴⁷ People experiencing withdrawal exhibit major reductions in the number of dopamine D2 receptors and in dopamine release, which explains the decreased sensitivity to natural rewards that comes with addiction.⁴⁸ The reduction in D2 receptors is associated with a decrease of activity in other brain areas, including the OFC.⁴⁹ As mentioned earlier,

⁴⁴Nora D. Volkow, Joanna S. Fowler, & Gene-Jack Wang, “The Addicted Human Brain Viewed in the Light of Imaging Studies: Brain Circuits and Treatment Strategies.”

⁴⁵Elliot A Stein, “fMRI: A New Tool for the In Vivo Localization of Drug Actions in the Brain.”

⁴⁶Volkow, Fowler, & Wang, “The Addicted Human Brain Viewed in the Light of Imaging Studies: Brain Circuits and Treatment Strategies.”

⁴⁷N. D. Volkow, N. D., J. S. Fowler, G.-J. Wang, & J. M. Swanson, “Dopamine in Drug Abuse and Addiction: Results from Imaging Studies and Treatment Implications.”

⁴⁸Nora D. Volkow, Joanna S. Fowler, Gene-Jack Wang, & Rita Z. Goldstein, “Role of Dopamine, the Frontal Cortex, and Memory Circuits in Drug Addiction: Insight from Imaging Studies.”

⁴⁹Volkow, Fowler, Wang, & Goldstein, “Role of Dopamine, the Frontal Cortex, and Memory Circuits in Drug Addiction.”

altered activity in the OFC leads to increased delay-discounting. This is one example of a neurobiological difference in the brains of addicted persons as compared to non-addicted persons that is directly linked to behavior in motivational situations. Research suggests that repeated use of addictive substances results in the restructuring of other brain regions—including the nucleus accumbens and pre-frontal cortex—which persists for months after use has ceased.⁵⁰

Imaging has revealed that there are also differences in the way that subjects' brains respond to addictive substances and substance-related stimuli. Compared to non-addicted persons, the brains of addicted persons exhibit hyperactivity within the limbic system in proportion to their subjective sense of craving for the substance.⁵¹ fMRI studies have also shown different patterns of activation in these areas during intoxication. Researchers have found that imaging shows disrupted activation in other areas of the brain as well, such as those involved with inhibitory control and memory.⁵²

Neuroimaging studies have shown that the brains of people who are addicted respond in similar and predictable ways, that these responses differ from those of non-addicted persons, and that people's brains undergo predictable physiological changes over the course of addiction. These common changes in the structure and function of the brain seem to be strong evidence in favor of the brain disease model of addiction. Lewis

⁵⁰Terry E. Robinson & Bryan Kolb, "Structural Plasticity Associated with Exposure to Drugs of Abuse."

⁵¹Volkow, Fowler, & Wang, "The Addicted Human Brain Viewed in the Light of Imaging Studies: Brain Circuits and Treatment Strategies."

⁵²Nora D. Volkow, Joanna S. Fowler, & Gene-Jack Wang, "The Addicted Human Brain: Insights from Imaging Studies."

explains, “If a condition changes the shape or function of our organs, and if that change is difficult or impossible to reverse, we label that condition a disease.”⁵³

Additionally, neuroimaging in combination with genetic analysis has helped researchers determine factors that make people genetically vulnerable to developing addiction. One example of a genetic vulnerability revealed by neuroimaging is a lack of D2 receptors. As mentioned above, addicted persons undergo a decrease in the number of their dopamine D2 receptors as their addiction progresses. However, there are some people that are born with fewer of these D2 receptors than most other people, which places them at a higher risk of developing addiction.⁵⁴ Numerous large twin studies and association studies have identified similar genetic abnormalities which predispose people to developing addiction.⁵⁵

Pharmaceutical Treatment for Addiction

Addiction is treated in a variety of ways, each with varying success. Interventions can be broken into two major categories based on the element they target: “top-down” interventions aim to change behaviors, while “bottom-up” interventions generally use

⁵³Lewis, *Biology of Desire*, 7.

⁵⁴M. Price, “Genes Matter in Addiction.”

⁵⁵Laura Jean Bierut, “Genetic Vulnerability and Susceptibility to Substance Dependence” and Mengzhen Liu, Yu Jiang, Robbee Wedow, Yue Li, David M. Brazel, Fang Chen, Gargi Datta, et al., “Association Studies of up to 1.2 Million Individuals Yield New Insights into the Genetic Etiology of Tobacco and Alcohol Use.”

pharmaceutical treatment to influence specific areas of the brain.⁵⁶ Disease model advocates often compare addiction to other chronic diseases, suggesting that it should be treated similarly, with a focus on both biology and behavior. For example, one NIDA publication states, “Drug addiction shares many features with other chronic illnesses, including [heritability], an onset and course that is influenced by environmental conditions and behavior, and the ability to respond to appropriate treatment...Addiction is a chronic disease similar to other chronic diseases such as type II diabetes, cancer, and cardiovascular disease.”⁵⁷ Conceiving of addiction as a disease results in addiction treatment resembling the treatment of other chronic diseases, and the efficacy of such treatment—and especially of pharmaceutical treatment—is presented as evidence of the truth of the disease model.

There are currently medications approved by the Food and Drug Administration (FDA) for the treatment of substance use disorders involving opioids, alcohol, and tobacco.⁵⁸ Perhaps the most well-known of these medications is methadone, which is used to treat extended opiate dependence.⁵⁹ NIDA’s position is that pharmaceuticals such

⁵⁶Marc N. Potenza, Mehmet Sofuoglu, Kathleen M. Carroll, & Bruce J. Rounsaville, “Neuroscience of Behavioral and Pharmacological Treatments for Addictions.”

⁵⁷National Institute on Drug Abuse. “Drug Abuse and Addiction: One of America’s Most Challenging Public Health Problems.” See Volkow & Ting-Kai Li, “The Neuroscience of Addiction,” for a discussion of heritability and the genetic component of addiction.

⁵⁸Nora D. Volkow, & Maureen Boyle, “Neuroscience of Addiction: Relevance to Prevention and Treatment.”

⁵⁹Institute of Medicine, “The Effectiveness of Treatment,” in *Treating Drug Problems: A Study of the Evolution, Effectiveness, and Financing of Public and Private Drug Treatment Systems*.

as methadone should be the first line of treatment for opiate addiction.⁶⁰ Other medications used to treat addiction include buprenorphine, naltrexone, acamprosate, nicotine replacement treatments, bupropion, and varenicline.⁶¹ They are used at different stages in treatment in order to reduce withdrawal symptoms, help patients remain in treatment, or prevent relapse.⁶²

Treatment with these medications is not universally successful, but studies do show that they are moderately effective. Methadone has been shown to retain patients in treatment and to decrease heroin use;⁶³ while less effective, buprenorphine also helps with the treatment of heroin dependence;⁶⁴ naltrexone reduces opioid use and reduces relapse among recovering alcoholics;⁶⁵ acamprosate increases abstinence rates in patients recovering from alcoholism;⁶⁶ and nicotine replacement treatments, bupropion, and

⁶⁰National Institute on Drug Abuse, “Drugs, Brains, and Behavior: The Science of Addiction.”

⁶¹Potenza, Sofuoglu, Carroll, & Rounsaville, “Neuroscience of Behavioral and Pharmacological Treatments for Addictions.”

⁶²National Institute on Drug Abuse, “Drugs, Brains, and Behavior: The Science of Addiction.”

⁶³Richard P. Mattick, Courtney Breen, Jo Kimber, & Marina Davoli, “Methadone Maintenance Therapy versus No Opioid Replacement Therapy for Opioid Dependence.”

⁶⁴R. P. Mattick, R. P., J. Kimber, C. Breen, & M. Davoli, “Buprenorphine Maintenance versus Placebo or Methadone Maintenance for Opioid Dependence.”

⁶⁵Bjorn Axel Johansson, Mats Berglund, & Anna Lindgren, “Efficacy of Maintenance Treatment with Naltrexone for Opioid Dependence: A Meta-Analytical Review” and Manit Srisurapanont & Ngamwong Jarusuraisin, “Naltrexone for the Treatment of Alcoholism: A Meta-Analysis of Randomized Controlled Trials.”

⁶⁶Mattick, Richard P., Courtney Breen, Jo Kimber, and Marina Davoli. “Methadone Maintenance Therapy versus No Opioid Replacement Therapy for Opioid Dependence.”

varenicline increase the odds of patients quitting smoking.⁶⁷ The fact that addiction can be treated with pharmaceutical interventions, just as conditions like cardiovascular disease or type II diabetes can, supports the idea that addiction is a disease.

Stigmatization and the Disease Model

Proponents of the brain disease model of addiction argue that the widespread adoption of this model will reduce the stigma surrounding those who are addicted, which poses a significant problem. Addiction is a highly stigmatized condition—studies have found it to be more stigmatized than leprosy, HIV positive status, homelessness, neglect of children, and even a criminal record for burglary.⁶⁸ The social stigma around addiction can discourage those who are addicted from seeking treatment, negatively affect their social network, and reduce their self-efficacy.⁶⁹ Attitudes about addiction among health care providers are particularly consequential—research has shown that when providers hold moralistic beliefs about addiction or stigmatize patients who are addicted, the care they provide their patients is negatively impacted.⁷⁰ Additionally, when patients

⁶⁷Michael C. Fiore, “Clinical Practice Guidelines for Smoking Cessation”; Mark J. Eisenberg et al., “Pharmacotherapies for Smoking Cessation: A Meta-Analysis of Randomized Controlled Trials”; and Kate Cahill, Lindsay F. Stead, & Tim Lancaster, “Nicotine Receptor Partial Agonists for Smoking Cessation.”

⁶⁸Hanna Pickard, “Responsibility without Blame for Addiction.”

⁶⁹Nicole L. Henderson & William W. Dressler, “Medical Disease or Moral Defect? Stigma Attribution and Cultural Models of Addiction Causality in a University Population.”

⁷⁰Lily E. Frank & Saskia K. Nagel, “Addiction and Moralization: The Role of the Underlying Model of Addiction.”

recognize this attitude, they become less willing to speak openly about their condition and may discontinue seeking care completely.⁷¹

Researchers have documented links between people's conceptions of addiction and the attribution of stigma towards those who are addicted. One study found that college students' conceptions of addiction could be divided into two major groups which roughly corresponded to a "medical model" and a "moral model."⁷² Students who used moralistic terms to describe addiction were more likely to stigmatize people who were addicted than students who used medical terminology. Additionally, those who attended church more often were more likely to attribute stigma towards those who were addicted. Another study found that defining addiction as a disease or disorder caused subjects to attribute less moral responsibility towards those who were addicted, while describing addiction in terms of self-control caused subjects to attribute high moral responsibility to them.⁷³ Perhaps most importantly, research has shown that language treating addiction as disease or moral failure significantly impacts the attitudes of health care providers towards their patients.⁷⁴

Thus, advocates of the disease model of addiction contend that shifting the public perception of addiction from moral problem to medical problem will eliminate some of

⁷¹Frank & Nagel, "Addiction and Moralization."

⁷²Henderson & Dressler. "Medical Disease or Moral Defect? Stigma Attribution and Cultural Models of Addiction Causality in a University Population."

⁷³Rise & Halkjelsvik, "Conceptualizations of Addiction and Moral Responsibility."

⁷⁴John F. Kelly & Cassandra M. Westerhoff, "Does It Matter How We Refer to Individuals with Substance-Related Conditions? A Randomized Study of Two Commonly Used Terms."

the barriers facing people who are addicted.⁷⁵ They believe that the language we use to speak about addiction has a major impact on the way that persons who are addicted are treated: “Modeling the language in terms of brain disease makes room for individuals living with an addiction to receive the same level of compassion and access to healthcare services as individuals living with other medical diseases.”⁷⁶ This impact would extend beyond mere improvement in social perception and result in tangible change, allowing greater access to care. As Volkow explains, “If we embrace the concept of addiction as a chronic disease...we will be able to decrease the stigma, not just in families and workplaces but also in the healthcare system, among providers and insurers.”⁷⁷ As a result, those who are addicted “will simply, nonjudgmentally, receive the help they need, like a child with diabetes or a person with heart disease or cancer.”⁷⁸

Conclusion

The disease model of addiction has many strengths. The conception of addiction as a neurobiological disease has allowed for considerable progress in the identification of the neural mechanisms underlying addiction. Imaging technology has provided evidence of the way that the brains of those who are addicted physically change over the course of their addiction. Robust research has documented many of the pathways involved with

⁷⁵Alan I. Leshner, “Addiction Is a Brain Disease, and It Matters.”

⁷⁶Daniel Z. Buchman, Judy Illes, & Peter B. Reiner, “The Paradox of Addiction Neuroscience.”

⁷⁷Volkow, “Addiction Is a Disease of Free Will.”

⁷⁸Volkow, “Addiction is a Disease of Free Will.”

addiction and has located targets for pharmaceutical interventions, many of which have proven effective for the treatment of those who are addicted. The adoption of the disease model by the majority of the scientific and medical communities and the federal government has contributed to the elimination of some of the stigma surrounding addiction.

However, the disease model remains imperfect. While it does remain the prevailing model, many reputable researchers argue that it is unsatisfactory. They point to data surrounding addiction treatment and recovery for which the disease model cannot account; they argue that promotion of this model impedes recovery; they question the model's most basic assumptions. Opponents of the disease model typically espouse some form of the choice model—the less-popular rival to the disease model. Evidence calling the disease model into question and supporting the choice model will be the focus of the following chapter.

CHAPTER THREE

Alternative Models

Introduction

While the disease model of addiction has strengths, it has encountered criticism from many sources, which will be considered in this chapter. Opponents argue that the disease model does not reduce the stigma surrounding addiction, but merely stigmatizes those with addiction in a different way. They also point to studies which suggest that when those who are addicted adopt a disease model of addiction, they experience reduced self-efficacy, which may impede their recovery.

Some of the major alternative conceptions of addiction will be presented, along with their proponents' major objections to the disease model. The work of Gene Heyman represents a more traditional choice-model approach. Marc Lewis' conception of addiction as accelerated habituation and development serves as an example of a more nuanced choice model. Finally, the model of addiction articulated by Nick Heather will illustrate the way that philosophy and theology can provide a different perspective on addiction.

The Debate About Stigma

As mentioned in the previous chapter, advocates of the disease model of addiction frequently appeal to the reduction of the stigma around addiction as a reason for its adoption. They argue that the widespread embrace of this model would result in a shift in

the public perception of those who are addicted, reducing the negative effects on social relationships and even on the medical treatment that addicted persons endure as a result of stigma.¹ Disease model proponents seem to adopt a utilitarian mindset when they argue in this manner—they urge the adoption of the model not because it represents a true picture of the nature of addiction,² but because they believe adoption will result in beneficial consequences for those who are addicted. They assume that an explanation of addiction in biological terms rather than moralistic terms will result in less moral judgment being attributed to those who are addicted, and that less moral judgment represents a decrease in stigma. An examination of the effects of belief in the disease model on people’s perception of addiction, however, shows that this assumption is not necessarily true.

Research calls into question the idea that the disease model of addiction reduces stigma surrounding addiction. For example, one Australian study investigated the relationship between beliefs about addiction etiology and support for various treatment modalities for addiction. This study found that “...beliefs that addiction is a ‘disease’ or a ‘brain disease’ were not associated with an overall reduction in beliefs about stigma, coercion or punishment. Beliefs in different causes of addiction were not consistent

¹As discussed in the preceding chapter, “...stigma designates a deeply discrediting attribute that can significantly influence the public’s reactions to individuals with an addiction and may adversely impact the availability and accessibility of treatment programs.” Eric Racine, Emily Bell, Natalie Zizzo, & Courtney Green, “Public Discourse on the Biology of Alcohol Addiction: Implications for Stigma, Self-Control, Essentialism, and Coercive Policies in Pregnancy.”

²To be sure, many disease model proponents do sincerely believe in the validity of their model, but in this instance, their motivation is based on its utility rather than validity.

predictors of beliefs about stigma, coercion or punishment.”³ Another study examined the effect of different models of addiction on individuals with addiction themselves. The authors of this study concluded that “...no evidence was found to support the common assertion that the disease model reduces feelings of stigma and shame.”⁴ On the contrary, when addicted persons were encouraged to internalize the disease model, their feelings of stigma and shame increased relative to the control group.⁵

Researchers who have assessed the evidence surrounding stigma and addiction have concluded that the disease model’s purported ability to lessen stigma is unfounded. Trujols writes, “...the claim that framing addiction as a brain disease will lead to stigma reduction seems to be an unrealistically rosy picture or at least an unsubstantiated desideratum of [the brain disease model’s] advocates.”⁶ A review of the literature by the Committee on the Science of Changing Behavioral Health Social Norms, formed by members of the National Academy of Sciences, Engineering and Medicine, concluded, “There is a lack of empirical evidence supporting the stigma-reducing benefits of a neurobiological conceptualization of psychiatric illness... Overall, promulgation of the

³Carla Meurk, Adrian Carter, Brad Partridge, Jayne Lucke, & Wayne Hall, “How Is Acceptance of the Brain Disease Model of Addiction Related to Australians’ Attitudes towards Addicted Individuals and Treatments for Addiction?”

⁴Thomas K. Wiens & Lawrence J. Walker, “The Chronic Disease Concept of Addiction: Helpful or Harmful?”

⁵Wiens & Walker, “The Chronic Disease Concept of Addiction.”

⁶Joan Trujols, “The Brain Disease Model of Addiction: Challenging or Reinforcing Stigma?”

brain disease model of addiction does not appear to have reduced public stigma about substance use disorders.”⁷

Perhaps it should not be surprising that biological conceptions of addiction fail to reduce stigma—after all, this principle has been shown to be true of mental illness in general. One major study examined shifts in public perception of mental illness over a ten-year period. During this time, the percentage of the public attributing mental illness to neurobiological causes increased significantly, but this was not accompanied by a corresponding reduction in stigma: “...in both years and across all conditions, holding a neurobiological conception of mental illness either was unrelated to stigma or increased the odds of a stigmatizing reaction.”⁸ Another researcher who analyzed the same data commented, “Because of the multifaceted nature of stigma, the growing popularity of a biomedical model will not, on its own, bring a more tolerant approach.”⁹ A systematic review of studies on beliefs and attitudes among the general population about mental illness supported this idea, concluding that “Increasing public literacy about the biological correlates of mental disorders seems no remedy against stigmatization and

⁷Committee on the Science of Changing Behavioral Health Social Norms (National Academies of Sciences, Engineering, and Medicine). *Understanding Stigma of Mental and Substance Use Disorders. Ending Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change.*

⁸Bernice A. Pescosolido, Jack K. Martin, J. Scott Long, Tait R. Medina, Jo C. Phelan, & Bruce G. Link, “‘A Disease like Any Other’? A Decade of Change in Public Reactions to Schizophrenia, Depression, and Alcohol Dependence.”

⁹Jason Schnittker, “An Uncertain Revolution: Why the Rise of a Genetic Model of Mental Illness Has Not Increased Tolerance.”

discrimination of persons with mental illness.”¹⁰ Because substantial evidence has shown that the adoption of a neurobiological model of mental illness in general has not resulted in a decrease in stigma, it is doubtful that further adoption of the disease model of addiction will counter this trend and lessen the stigma surrounding addiction.

In fact, the disease model may actually contribute to *increasing* the stigma around addiction. In one series of studies, mental health clinicians read descriptions of patients’ symptoms which utilized either biological or psychosocial language to frame those symptoms.¹¹ When clinicians read biological explanations of the patients’ symptoms, they reported feeling significantly less empathy for the patients as compared to when they read the psychological explanations. The previously mentioned study by the National Academies of Sciences, Engineering and Medicine found evidence showing that attributing behavior to a genetic or neurobiological cause “...can increase perceptions of the difference of people with the disorder, and of the persistence, seriousness, and possible transmissibility of mental illness.”¹² Biological explanations of addiction can reinforce *psychological essentialism*, the idea that mental illnesses have “unique, immutable essences—located in the brain or DNA—that produce the symptoms and

¹⁰G. Schomerus, C. Schwahn, A. Holzinger, P. W. Corrigan, H. J. Grabe, M. G. Carta, & M. C. Angermeyer, “Evolution of Public Attitudes about Mental Illness: A Systematic Review and Meta-Analysis.”

¹¹Matthew S. Lebowitz & Woo-kyoung Ahn, “Effects of Biological Explanations for Mental Disorders on Clinicians’ Empathy.”

¹²Committee on the Science of Changing Behavioral Health Social Norms (National Academies of Sciences, Engineering, and Medicine), *Understanding Stigma of Mental and Substance Use Disorders*.

behavior of patients.”¹³ Psychological essentialism can lead to the belief that those with mental illness are categorically different from those without mental illness—that people with mental illness are inherently “other.”

A disease model of mental illness can also create the perception of people with mental illness as being dangerous. If the behavior of people with mental illness is determined by biological abnormalities—whether neural or genetic—which are outside of their control, they may be perceived as unpredictable and frightening, and as a result, they may be judged to pose a threat to others.¹⁴ Thus, widespread adoption of the brain disease model of addiction may actually worsen the stigma that people who are addicted face.

Another negative effect of the disease model is that it can reduce addicted individuals’ self-efficacy. One study involving persons with alcohol addiction documented this tendency: “Participants who internalized the disease model of addiction tended to have weaker perceptions of drinking self-efficacy...This study provides empirical support to the notion that framing addiction within a biological

¹³Lebowitz & Ahn, “Effects of Biological Explanations for Mental Disorders on Clinicians’ Empathy.” See also Nick Haslam, “Genetic Essentialism, Neuroessentialism, and Stigma: Commentary on Dar-Nimrod and Heine” and Ilan Dar-Nimrod & Steven J. Heine, “Genetic Essentialism: On the Deceptive Determinism of DNA.”

¹⁴Erlend P. Kvaale, Nick Haslam, & William H. Gottdiener, “The ‘Side Effects’ of Medicalization: A Meta-Analytic Review of How Biogenetic Explanations Affect Stigma”; Sandra Dietrich, Herbert Matschinger, & Matthias C. Angermeyer, “The Relationship between Biogenetic Causal Explanations and Social Distance toward People with Mental Disorders: Results from a Population Survey in Germany”; and Sven Speerforck, Georg Schomerus, Susanne Pruess, & Matthias C. Angermeyer, “Different Biogenetic Causal Explanations and Attitudes towards Persons with Major Depression, Schizophrenia and Alcohol Dependence: Is the Concept of a Chemical Imbalance Beneficial?”

conceptualization...weakens perceptions of agency in relation to drinking.”¹⁵ In another study which examined the effects of describing addiction in neuroscientific language, researchers found that framing addiction as a neurobiological disease did not encourage addicted persons to seek treatment “...and could actually lead to fatalistic beliefs that undercut the motivation to follow treatment or beliefs in the control for the treatment of their condition.”¹⁶ The review conducted by the National Academies of Sciences, Engineering, and Medicine concurred with this assessment, noting that the promulgation of the disease model could “decrease [addicted persons’] perceptions of self-efficacy and ability to cope.”¹⁷ Thus, the disease model of addiction may have negative effects on addicted persons’ treatment and recovery.

Addiction as Choice: Gene Heyman

Other criticisms of the disease model of addiction focus not on its effects, but on its ability to explain existing data surrounding addiction treatment and recovery. Gene Heyman, a Harvard-educated experimental psychologist, argues against the idea of addiction as disease based on such data. He represents a group of researchers who cite data from national studies and results of clinical trials in order to contend that addictive behavior is not compulsive.

¹⁵Wiens & Walker, “The Chronic Disease Concept of Addiction.”

¹⁶Eric Racine, Sebastian Sattler, & Alice Escande, “Free Will and the Brain Disease Model of Addiction: The Not So Seductive Allure of Neuroscience and Its Modest Impact on the Attribution of Free Will to People with an Addiction.”

¹⁷Committee on the Science of Changing Behavioral Health Social Norms (National Academies of Sciences, Engineering, and Medicine), *Understanding Stigma of Mental and Substance Use Disorders*.

For Heyman, a key distinction is between voluntary and involuntary (or compulsive) behavior. He defines voluntary activities as being “controlled primarily by their consequences,” while involuntary activities are “largely under the control of eliciting stimuli.”¹⁸ If a person acts in a certain way because of the perceived consequences of that action, that person has weighed potential outcomes and has chosen his course of action accordingly. This is distinguished from involuntary acts, which are necessary responses to stimuli. Heyman applies this reasoning to addiction, explaining that if addicted persons are voluntary substance users, one should expect that they will eventually quit when the consequences of substance use outweigh the benefits, and that they should be able to quit without professional assistance.¹⁹ On the other hand, if addicted persons are involuntary substance users, one should expect that they would require outside intervention for recovery, and that they would require “continuous professional care until a cure is found.”²⁰

To test these predictions, Heyman turns to data from major national epidemiological studies, each with thousands of subjects—the National Epidemiologic Survey on Alcohol and Related Conditions, the National Comorbidity Survey, and the National Comorbidity Replication.²¹ Data from all of these studies show that most

¹⁸Gene M. Heyman, “Do Addicts Have Free Will? An Empirical Approach to a Vexing Question.”

¹⁹Heyman, “Do Addicts Have Free Will?”

²⁰Heyman, “Do Addicts Have Free Will?”

²¹Kevin Conway et al., “Lifetime Comorbidity of DSM-IV Mood and Anxiety Disorders and Specific Drug Use Disorders: Results From the National Epidemiologic Survey on Alcohol and Related Conditions”; Frederick S. Stinson et al., “Comorbidity between DSM-IV Alcohol and Specific Drug Use Disorders in the United States: Results

addicted persons are in recovery, and that for most people, substance dependence subsides by the time they reach their late thirties; these data suggest that the majority of those who meet the APA criteria for addiction will recover.²² However, it is widely agreed among addiction researchers that most of those who do meet the APA criteria for addiction do not utilize clinical services.²³ Thus, the data suggests that many of those who are addicted eventually quit without professional assistance—just what Heyman predicted when he assumed that addictive behavior was voluntary. He argues that the data bear out his contention since they show that “...addiction typically ends after a few years, usually without the benefit of interventions, and that the correlates of remission include many of the factors that influence everyday choices, such as economic pressures, family pressures, the desire to be a better person, and the desire to lead a more meaningful life.”²⁴

Other choice model theorists note that addiction often involves planning, since obtaining an addictive substance may require a series of actions. They argue that this

from the National Epidemiologic Survey on Alcohol and Related Conditions”; Lynn A. Warner et al., “Prevalence and Correlates of Drug Use and Dependence in the United States: Results From the National Comorbidity Survey”; and Ronald C. Kessler et al., “Prevalence, Severity, and Comorbidity of 12-Month DSM-IV Disorders in the National Comorbidity Survey Replication.”

²²Heyman, “Do Addicts Have Free Will?”

²³Stinson, Grant, Dawson, Ruan, Huang, & Saha, “Comorbidity between DSM-IV Alcohol and Specific Drug Use Disorders in the United States.”

²⁴Gene M. Heyman & Verna Mims, “What Addicts Can Teach Us about Addiction: A Natural History Approach.”

series of actions cannot all be compelled.²⁵ Philosopher and neuroethicist Neil Levy writes, "...consuming a drug requires an elaborate series of action to procure the drug; it is implausible to think that this whole series of actions is compelled."²⁶ Steven Hyman, former director of the United States National Institute of Mental Health (NIMH), notes that many choice theorists observe that "...drug seeking and drug taking involve a series of voluntary acts that often require planning and flexible responses to changing conditions—not simply impulsive or robotic acts."²⁷

Heyman and others also point to data from clinical trials examining the efficacy of contingency management (CM) programs. These programs offer addicted subjects positive reinforcement for abstinence from addictive substances: "The application of CM in drug abuse treatment is based on providing tangible and immediate reinforcement that can effectively compete with drug reinforcement to promote abstinence and alternative nondrug-related behaviors."²⁸ This type of intervention has been widely successful as compared to other treatments for addiction.²⁹ Two researchers comment, "...scores of

²⁵Lily E. Frank & Saskia K. Nagel, "Addiction and Moralization: The Role of the Underlying Model of Addiction."

²⁶Neil Levy, *Addiction and Self-Control: Perspectives from Philosophy, Psychology, and Neuroscience*, 2.

²⁷Steven E. Hyman, "The Neurobiology of Addiction: Implications for Voluntary Control of Behavior."

²⁸Maxine Stitzer & Nancy Petry, "Contingency Management for Treatment of Substance Abuse."

²⁹Michael Prendergast, Deborah Podus, John Finney, Lisa Greenwell, & John Roll, "Contingency Management for Treatment of Substance Use Disorders: A Meta-Analysis" and Stitzer & Petry, "Contingency Management for Treatment of Substance Abuse."

clinical trials show that addicts who know they will receive a reward...are nearly two or three times as likely to submit drug-free urine samples as addicts not offered rewards.”³⁰ The success of CM programs, which successfully motivate addicted subjects to change their behavior, threatens the brain disease model of addiction and its insistence that addictive behavior is compulsive. As one researcher writes, “The ability of many addicts...to be responsive to contingencies generally is an inconvenient fact for those who wish to conceptualize addiction as purely a brain disease. People do not stop being diabetics, for example, simply by deciding that their pancreas should produce more natural insulin.”³¹ Even diabetes, a chronic disease with behavioral components, is markedly different from addiction in this manner.

One challenge for Heyman is the fact that not all people who are addicted quit—if, as he believes, all can freely choose to do so, this fact seems inconvenient. Heyman explains this phenomenon in terms of a cost-benefit analysis, noting that for addicted persons, the costs are distant and undetermined. He writes, “...addicts face a dilemma: immediately available, visceral positive experiences versus penalties that may never occur and are difficult to imagine. For many addicts, the experienced benefits of quitting may not obviously outweigh the experienced benefits of continuing drug use.”³² Thus, what might seem like an obvious choice may not present itself as such to an addicted person weighing the costs and benefits of continuing drug use.

³⁰Sally Satel & Scott O. Lilienfeld, “Addiction and the Brain-Disease Fallacy.”

³¹Stephen J. Morse, “Addiction, Genetics, and Criminal Responsibility.”

³²Heyman, “Do Addicts Have Free Will?”

Heyman and other choice theorists are careful to acknowledge that a choice model of addiction does not necessarily mean that stigmatization and punishment are the correct response to addiction. As some researchers have pointed out, shame is not clinically useful, and it will do more harm than good when directed at those dealing with addiction.³³ Instead, choice theorists often promote interventions which will bolster addicted persons' motivation and ability to choose non-substance alternatives—interventions such as the CM programs mentioned earlier.³⁴ This type of intervention would help tilt the balance of the cost-benefit analysis confronting those who are struggling with addiction, motivating them to abstain from substance use in order to gain other benefits.

Addiction as Learning and Development: Marc Lewis

Marc Lewis represents another major challenge to the disease model of addiction. A cognitive neuroscientist and developmental psychologist who overcame addiction himself, his primary objection to the disease model is his argument that addiction is not pathological. He argues that the changes that occur in the brains of addicted persons do not indicate the presence of a disease. Lewis remarks that typically, “If a condition changes the shape or function of our organs, and if that change is difficult or impossible to reverse, we label that condition a disease.”³⁵ This logic leads disease model advocates to categorize addiction as disease based on its characteristic pattern of neurobiological

³³Hanna Pickard, “Responsibility without Blame for Addiction.”

³⁴Heyman, “Do Addicts Have Free Will?”

³⁵Marc Lewis, *Biology of Desire: Why Addiction Is Not a Disease*, 7.

changes, as discussed in the previous chapter. However, as Lewis explains, change in the brain is expected, not abnormal, and the changes associated with addiction can be reversed.

Change is fundamental to the brain. This is the phenomenon known as neuroplasticity—the ability of the brain’s neurons to reorganize themselves in response to stimuli. This reorganization occurs constantly but is particularly pronounced during learning.³⁶ As Lewis points out, “Brains have to change for learning to take place. Without physical changes in brain matter, learning is impossible.”³⁷ This change occurs at multiple levels—from gene expression to cell density to neuronal arrangement and even to the size and shape of the cortex.³⁸

In order to argue that the addiction-related neurobiological states are pathological, then, disease model proponents must do more than simply point to evidence that addiction changes the brain. Lewis writes, “...neuroscientists who study addiction...put people through a number of brain scans, and when they notice changes after someone has taken a lot of cocaine or drunk a lot of booze, they say, 'Look! The brain has changed!' If neuroplasticity is the rule, not the exception, then they're actually not saying much at all.”³⁹ Disease model advocates must prove that this change is pathological—that it is

³⁶Patrice Voss, Maryse E. Thomas, J. Miguel Cisneros-Franco, & Étienne de Villers-Sidani, “Dynamic Brains and the Changing Rules of Neuroplasticity: Implications for Learning and Recovery.”

³⁷Lewis, *Biology of Desire*, 25.

³⁸Lewis, *Biology of Desire*, 25.

³⁹Lewis, *Biology of Desire*, 32.

different from the change that the brain undergoes during normal learning and development.

This argument, however, proves to be difficult because the brain changes associated with addiction resemble the changes that occur with normal learning. The neurobiological alterations that appear with substance addictions are the same as those that appear with behavioral addictive disorders (gambling, pornography addiction, eating disorders, etc.), and they are the same as those that appear in the course of normal life—when people “...become absorbed in a sport, join a political movement, or become obsessed with their sweetheart or their kids.”⁴⁰ Lewis explains that the brain of someone becoming addicted to a substance exhibits the same psychological and neural phenomena as the brain of someone falling in love.⁴¹ Yet, we would hardly pathologize such a common experience as infatuation.

So what is addiction, if not a disease? Lewis describes addiction in terms of learning and habituation: “It’s a habit that grows and self-perpetuates relatively quickly, when we repeatedly pursue the same highly attractive goal. Or, in a phrase, *motivated repetition that gives rise to deep learning*.”⁴² At a neurobiological level, addiction looks and develops like other habitual behaviors; it just represents a particularly difficult habit to extinguish. This occurs because the learning process associated with addiction, although normal, is accelerated—the brain’s ability to adapt and respond to environmental cues is working just as it was designed, and it is responding quickly to

⁴⁰Lewis, *Biology of Desire*, 26.

⁴¹Lewis, *Biology of Desire*, 167.

⁴²Lewis, *Biology of Desire*, 173.

particularly powerful cues.⁴³ However, just as addiction can be learned, it can also be *unlearned*; the changed neurobiology of addiction can be reshaped in just the way that brains change when we break any other habit. This means that the brain changes associated with addiction normally vanish when addicted persons enter recovery.⁴⁴

Lewis and choice theorists such as Heyman are united in their opposition to the disease model, but they differ in their conceptions of what addiction is. Much of this difference arises from a disagreement about the nature of choice. As described earlier, Heyman and other choice theorists view addicted persons' decision-making as resembling a cost-benefit analysis. They imagine that those who are addicted rationally weigh the consequences of using or not using a substance, though their perceptions of the possible consequences may be warped.

Lewis disagrees, arguing that the idea that addiction is either disease or deliberate choice is a false dichotomy. He rejects "...the assumption that choice is a deliberate, rational function we can apply at will" and suggests instead that it is "nearly always irrational" because "...it is executed by the same brain that gives rise to hope, need, fear and uncertainty, a brain that's highly sensitive to learned associations and contextual cues, a brain that forges new connections based on the activation of existing connections and the strong emotions they render."⁴⁵ He suggests that choice arises more from motivation than from abstract reasoning.⁴⁶ For Lewis, choice is influenced by factors

⁴³Lewis, *Biology of Desire*, 37.

⁴⁴Lewis, *Biology of Desire*, 168.

⁴⁵Lewis, *Biology of Desire*, 22.

⁴⁶Lewis, *Biology of Desire*, 138.

such as fluctuating external circumstances, internal emotional states, and habit, meaning that it is not wholly voluntary.⁴⁷ He also contends that choice is not something that occurs at one distinct point in time; rather, it is “...an evolving skill, fueled by desire.”⁴⁸

Lewis criticizes the disease model as impairing the ability of addicted persons to make choices. He writes, “...many addicts simply don’t see themselves as ill, and being coerced into an admission that they have a disease can undermine other—sometimes highly valuable—elements of their self-image and self-esteem.”⁴⁹ In other words, people who are addicted may experience decreased self-efficacy as a result of conceiving of themselves as passive victims of a disease.⁵⁰ Lewis points to a rigorous study of alcoholics in recovery which found that “...the extent to which clients endorsed disease model beliefs before entering treatment” was strongly predictive of relapse.⁵¹ He also references historical evidence against the disease model—studies of veterans returning home after the Vietnam War. Such studies have found that about 75% of these veterans who were addicted to heroin recovered from their addictions shortly after their return.⁵²

⁴⁷Marc Lewis, “Choice Isn’t Simple. Reply to Pickard.”

⁴⁸Lewis, *Biology of Desire*, 138.

⁴⁹Lewis, *Biology of Desire*, 9.

⁵⁰Lewis, *Biology of Desire*, 211.

⁵¹William R. Miller, Verner S. Westerberg, Richard J. Harris, & J. Scott Tonigan, “What Predicts Relapse? Prospective Testing of Antecedent Models.”

⁵²Lewis, *Biology of Desire*, 21. See Lee N. Robins, “Vietnam Veterans’ Rapid Recovery from Heroin Addiction: A Fluke or Normal Expectation?”; L. N. Robins, J. E. Helzer, & D. H. Davis, “Narcotic Use in Southeast Asia and Afterward. An Interview Study of 898 Vietnam Returnees”; and Wayne Hall & Megan Weier, “Lee Robins’ Studies of Heroin Use among US Vietnam Veterans.”

Thus, the disease model of addiction seems inadequate to explain the nature of addiction, fails to account for instances of recovery, and may even prove harmful to addicted persons by weakening their ability to make choices on the path towards recovery.

The way that addiction is viewed shapes the way that it is treated, and so Lewis' model of addiction suggests alternative methods of treatment from the mainstream disease model. Treatment approaches based off of the disease model are often ineffective; these approaches usually reduce addicted persons to patients who are not active participants in their care, but rather passively follow the directions of medical professionals.⁵³ The primary method of treatment based off the disease model is pharmaceuticals, which can suppress cravings and help reduce the symptoms of withdrawal, but do nothing to "...ignite the desire to change or light up new pathways for life beyond addiction."⁵⁴

If treatment informed by the disease model is focused on repairing a broken brain, treatment based on Lewis' model is focused on prompting the brain to develop and grow beyond addiction.⁵⁵ The goal is not recovery—a return to some kind of baseline, “normal” state that existed prior to addiction—but further development. Through Lewis' interviews with people who are addicted, he has learned that many of them prefer to “...see themselves as having *developed* through addiction and become stronger as a result” instead of thinking of themselves as having recovered from a disease.⁵⁶

⁵³Lewis *Biology of Desire*, 210—11.

⁵⁴Lewis, *Biology of Desire*, 211.

⁵⁵Marc Lewis, “Addiction and the Brain: Development, Not Disease.”

⁵⁶Lewis, *Biology of Desire*, 10.

Lewis also argues that his developmental model of addiction allows for the recognition that structural, social, and familial factors contribute to the development of addiction, and that this model allows for prevention and treatment efforts to focus on these non-biological components.⁵⁷ He suggests that different kinds of treatment modalities may prove effective, but that the most important thing is that treatment is available to addicted persons when they become sufficiently motivated to seek help for their addiction.⁵⁸ This self-motivation will allow them to strengthen their ability to make choices and pursue development beyond addiction.

Addiction as a Kind of Akrasia: Nick Heather

Nick Heather, a clinical psychologist and addiction researcher, combines the scientific work of figures like Heyman and Lewis with philosophical ideas about addiction. Heather echoes criticisms of the disease model made by Heyman and Lewis, and he agrees with many of their arguments surrounding addiction, but the model he articulates is more philosophical in nature than either of theirs.⁵⁹ He draws primarily from Aristotle's idea of *akrasia*, which is often translated as "incontinence" or "weakness of

⁵⁷Marc Lewis, "Brain Change in Addiction as Learning, Not Disease."

⁵⁸Lewis, *Biology of Desire*, 212.

⁵⁹Nick Heather, "Q: Is Addiction a Brain Disease or a Moral Failing? A: Neither."

will.”⁶⁰ The basic idea of akrasia, as Heather uses it, is “acting against one’s better judgment.”⁶¹

Heather argues that four basic criteria of akrasia (as outlined by philosopher Alfred Mele⁶²) can be applied to addiction: the behavior is free, intentional, contrary to the agent’s better judgment, and recognized as contrary to better judgment before the action is taken.⁶³ He recognizes that the first criterion—that the action is freely chosen—is the most difficult, but he points to the wealth of evidence showing that addictive behavior responds to contingencies,⁶⁴ which he takes to mean that the behavior is voluntary. He writes, “...although addicts respond to incentives and are free to choose to use or not to use at any one time, autonomy is impaired when their pattern of choices is considered over time.”⁶⁵ Thus, he believes that addiction stems from weakness of will, or “above average difficulty in behavioral self-regulation.”⁶⁶

Heather is careful to note that connecting addiction with weakness of will does not mean that we should stigmatize people who are addicted. Instead, he urges us to recognize the fact that we are *all* weak-willed. He explains, “...addicts struggle with

⁶⁰Richard Kraut, “Aristotle’s Ethics.”

⁶¹Nick Heather, “Addiction as a Form of Akrasia.”

⁶²Alfred Mele, “Weakness of Will and Akrasia.”

⁶³Heather, “Addiction as a Form of Akrasia.”

⁶⁴See the discussion of contingency management (CM) interventions, p. 55.

⁶⁵Heather, “Q: Is Addiction a Brain Disease or a Moral Failing? A: Neither.” See also Neil Levy, “Autonomy and Addiction.”

⁶⁶Heather, “Q: Is Addiction a Brain Disease or a Moral Failing? A: Neither.”

extreme variants of a difficulty in controlling behavior that affects all members of the human race past infancy on a daily basis and has been recognized at least since the story of Adam and Eve as a fundamental aspect of the human predicament.”⁶⁷ He references a large study which has found that people fight against a desire for about one quarter of the time they are awake, and that they give in to their desires about half of the time.⁶⁸

Similarly, in a survey conducted by the American Psychological Association, people named “lack of willpower” as the most important factor keeping them from reaching their health-related goals.⁶⁹ For Heather, addiction seems to be an extreme version of a struggle that is common to all human beings, and emphasizing the ubiquity of that struggle could help lessen any stigma which might arise when addiction is framed as weakness of will. *All* humans exhibit weakness of will, and anyone could be addicted—as John Bradford famously commented, “There but for the grace of God go I.”⁷⁰

This seems to accord with an Augustinian perspective on addiction articulated by physician and theologian Hans Madueme.⁷¹ Madueme agrees with Heyman, Lewis, and Heather in that addiction is neither disease nor simple sin, but he states that in many

⁶⁷Heather, “Q: Is Addiction a Brain Disease or a Moral Failing? A: Neither.”

⁶⁸Wilhelm Hofmann, Roy F. Baumeister, Georg Förster, & Kathleen D. Vohs, “Everyday Temptations: An Experience Sampling Study of Desire, Conflict, and Self-Control.”

⁶⁹American Psychological Association, “Americans Report Willpower and Stress as Key Obstacles to Meeting Health-Related Resolutions.”

⁷⁰Leslie Stephen, *Dictionary of National Biography*, 158.

⁷¹Hans Madueme, “Addiction and Sin: Recovery and Redemption.”

instances, sin and addiction are “coextensive.”⁷² He references Augustine’s discussion of our universal tendency to love the wrong things, or to love the right things in the wrong way, until we become enslaved by those things.⁷³ Madueme writes, “The irony is that Christians, in the spirit of Augustine, believe both in moral responsibility *and* in our (ultimate) moral inability. In a metaphorical idiom, we are all addicts. The experience of addiction is thus not far from any one of us. There’s no room for judgmentalism. In short, we all need redemption.”⁷⁴ This theological perspective on addiction emphasizes the commonality of the addictive experience to all human beings, just as Heather’s philosophical perspective does.

Heather and Madueme’s approaches to addiction associate addictive behavior with human weakness and failure—they connect addiction with *akrasia* and sin. At first glance, these perspectives may seem to be stigmatizing because of their implication that addiction is a moral failing for which we should hold addicted persons responsible. It may initially seem that these conceptions of addiction vilify people struggling with addiction. But perhaps they do just the opposite—they affirm that people who are addicted are, in fact, just like everyone else; they humanize them and allow others to relate to and understand them.

In contrast, the biological perspective of addiction rooted in the disease model can distance those who are addicted. The disease model suggests that addicted persons are fundamentally different from other people in some way, either in their genes, brain

⁷²Madueme, “Addiction and Sin.”

⁷³Saint Augustine, *Confessions*.

⁷⁴Madueme, “Addiction and Sin.”

structures, or both. As we have seen, there is significant evidence that suggests that the disease model does increase stigma surrounding addiction. Purely neurobiological accounts of addiction reinforce the idea that addicted persons are “other,” and they may prevent people from being able to sympathize with their fellow human beings as fully as they ought.

Conclusion

Although the disease model remains the predominant model of addiction, especially within the scientific community, several major alternative approaches have been proposed. These approaches differ in their unique conceptions of addiction, but they remain united by their conviction that the disease model is insufficient to explain certain aspects of addictive behavior. The adoption of one model of addiction over another has significant implications for the way that addicted persons are perceived and the type of treatment that they will receive.

Alcoholics Anonymous (AA) is of particular interest because of its incorporation of aspects of several different models of addiction into its philosophy of treatment. In the next chapter, AA’s attempt to combine elements of various addiction models will be considered. This example will provide insight as to what extent the different models of addiction can be integrated.

CHAPTER FOUR

Spirituality and Addiction

Introduction

The preceding chapters have addressed the disease model of addiction at length, outlining the ways in which this model is helpful to an understanding of addiction, but also the ways in which it is insufficient. It seems that something more is needed to provide a more complete picture of the nature of addiction. As mentioned in the previous chapters, some—like Heather and Madueme—have turned again to philosophy and theology in order to gain insight into addiction. Although so-called “moral models” of addiction were quickly discarded upon the introduction of the disease model, perhaps religious perspectives should not be cast away entirely—perhaps they have something valuable to offer.

In this chapter, the writings of Augustine will provide a Christian framework on the nature of the human will, which can be applied to the issue of addiction. His work *On the Freedom of the Will (De Libero Arbitrio)* will provide a theological understanding of sin and the freedom of the will. While he does not discuss addiction specifically in this work, his articulation of the role of free will may be helpful in answering questions of choice, compulsion, and responsibility in addiction.

After reflecting on both neurobiological and theological perspectives on addiction, this chapter will consider to what extent these perspectives are compatible. The philosophy of Alcoholics Anonymous (AA) represents an attempt to reconcile these two

perspectives and to develop a treatment for addiction informed by both of them. AA will be examined in order to determine whether it combines elements of the disease model and a spiritual perspective successfully. Finally, this chapter will conclude with a reflection on what can be learned from the various perspectives on addiction that have been presented.

Augustine and Free Will

Augustine has been called the Christian philosopher "...who exerted the deepest and most lasting influence."¹ His writings on sin, grace, and freedom have particularly impacted Western culture, and the effects of his thinking can still be seen in the Western Christian tradition.² As someone who thought and wrote extensively on the will, freedom, and sin, he is a natural choice for discussion of these topics.

Augustine addresses these issues directly in his work *On the Freedom of the Will*. Written soon after his conversion, *On the Freedom of the Will* is a response to the Manichees, and it is composed as a dialogue between Augustine and his friend Evodius.³ Over the course of three books, the two interlocutors develop a definition of sin, give a proof for the existence of God, and determine that God, although the creator of human wills which have sinned, is not the author of sin.

¹Christian Tornau, "Saint Augustine."

²Tornau, "Saint Augustine."

³Roland J. Teske, "On the Free Choice of the Will, On Grace and Free Choice, and Other Writings."

From the very beginning of *On the Freedom of the Will*, Augustine asserts that freedom is a necessary condition for moral responsibility. In his first exchange with Evodius, Augustine comments that "...evildoings are redressed by God's justice. It would not be just to redress them unless they came about through the will."⁴ Later he expands on this idea, explaining, "For what does not come about through the will would neither be sinning nor acting rightly. Consequently, penalty and reward would be unjust if human beings did not have free will."⁵ In other words, an action over which a human being has no control and which a person does not will to do can be neither righteous nor sinful, and therefore deserves neither reward nor punishment. Neither does this action merit blame: "...no blame can be attached where nature and necessity predominate."⁶

Augustine then outlines the nature of the will before the Fall and the introduction of original sin. He argues that in the state in which Adam and Eve were originally created, the will is completely free to choose between good and evil: "Nothing makes the mind of a devotee of desire but its own will and free choice."⁷ Further, in this Edenic state, there is no struggle to will the right things; all one has to do to desire the good is to will oneself to do so: "For what is so much in the power of the will as the will itself?"⁸ He comments, "...[a person who pursues goods which are easily lost] lacks a good will,

⁴Augustine, *On the Free Choice of the Will, On Grace and Free Choice, and Other Writings*, 1.1.1.3.

⁵Augustine, 2.1.3.7.

⁶Augustine, 3.1.1.2.

⁷Augustine, 1.11.21.76.

⁸Augustine, 1.12.26.86.

which is not to be compared with [easily lost goods]—and, even though [a good will] is so great a good, it is only necessary to will in order to have [a good will].”⁹ Augustine believes that a good will is a greater good than these easily lost goods because having a good will is within a person’s control. Lesser goods are lesser by definition because they are changeable, easily lost, and cannot be relied upon to provide lasting satisfaction. A good will, on the other hand, is entirely within a person’s control, making it a good that can continually be enjoyed if a person so desires.

Thus, for Augustine, in the Edenic state of man, willing the right things is as simple as deciding to will them. Man has the ability to utilize his God-given intelligence to compare the worth of a good will with the worth of lesser, changeable goods. He is then free to apply his judgment to choose to will rightly.

However, in this state, man is also free to use his will wrongly. For Augustine, this means aiming the will at lesser goods instead of the ultimate good (God): “...evil is turning the will away from the unchangeable good and towards changeable goods. Yet, since this ‘turning away’ and ‘towards’ is not compelled but voluntary, the deserved and just penalty of unhappiness follows upon it.”¹⁰ If humans seek to find ultimate satisfaction in any finite, changeable, created goods instead of the ultimate good—the infinite, unchangeable Creator Himself—they will inevitably experience disappointment when those goods fail to last.

For example, food is one of these lesser goods. It is necessary for humans to pursue food in their lives in order to sustain themselves to continue the work that God has

⁹Augustine, 1.12.26.87.

¹⁰Augustine, 2.19.53.199. See also 1.16.34.115 and 3.1.2.10.

for them. It is also good for humans to enjoy and delight in food as a good gift from God. However, food can only temporarily satisfy a person; after eating, he will soon need food again, and his circumstances could easily prevent him from obtaining food. Thus, food is a lesser good because it cannot provide humans with lasting satisfaction. If a person fails to recognize that food is not the ultimate good and primarily seeks happiness through his experiences with food, he will necessarily fail to find true, lasting happiness because of the finite, changeable nature of food.

Augustine believes that the disappointment this person experiences is a natural and deserved consequence of disordered loves. In this example, it is good for the person to love food, since it is a good creation of God. However, this love should be rightly ordered—it should not outweigh a person’s love for greater goods, and especially not the greatest good, God Himself. When a person’s love for a lesser good exceeds his love for a greater good, his loves are disordered, which leads to unhappiness.

Another consequence of disordered loves is that the pursuit of lesser goods impairs a person’s ability to pursue greater goods. When a person wills to pursue lesser goods, they gradually become “chained to fleshly labor” and struggle to aim their will towards the ultimate good.¹¹ Augustine warns, “When a shadow is loved, it makes the mind’s eye weaker and less fit to reach the sight of [God]. Consequently, a man is plunged further into darkness when he eagerly pursues anything that catches him the more readily in his weakened condition.”¹² A person who directs his will inappropriately towards lesser goods experiences greater and greater difficulty reorienting his will

¹¹Augustine, 2.16.43.170.

¹²Augustine, 2.16.43.170.

towards higher goods. Augustine describes a person who follows this path as becoming “a slave to lust”¹³ since this person is now “controlled by things that he ought to control.”¹⁴ The word that he uses for ‘lust’ (*concupiscentia*) denotes “a strong, if not irresistible, craving or compulsion.”¹⁵ So for Augustine, even in man’s pre-Fall state, man’s will is free of any external constraint, but if a man chooses to direct his will towards the wrong goods, his will eventually becomes less and less free.

Augustine draws a sharp distinction between the state of the will before the Fall and its current state, after the Fall. He cautions, “When we speak of free will to act rightly, obviously we are speaking of it as human beings were originally made.”¹⁶ He recognizes that due to the effects of the Fall, it is now possible to will to act rightly but to be incapable of doing so. He points to Paul’s writings: “For I do not do the good that I will; but the evil I hate, that I do” (Rom. 7:19); “To will the good is present with me, but how to accomplish it I find not” (Rom. 7:18); and “The flesh lusts against the spirit, and the spirit against the flesh; they are contrary to one another, so that you do not do the things you will” (Gal. 5:17).¹⁷ Because of Adam and Eve’s sin, human wills are no longer as free as they once were.

Augustine explains that now, man’s ability to will and pursue good things is hampered by two obstacles, which he calls *ignorance* and *trouble*. He writes, “...as

¹³Augustine, 3.1.2.8.

¹⁴Augustine, 1.15.33.113.

¹⁵Peter King, “Introduction,” xxiii.

¹⁶Augustine, 3.18.52.179.

¹⁷Augustine, 3.18.51.173.

matters stand now, human beings are not good, and they do not have it in their power to be good—either because they do not see how they should be [ignorance], or because they see it but they are not able to be such as they see that they should be [trouble].”¹⁸ This is the penalty upon all of humankind for Adam and Eve’s poor use of their free will: “But to approve falsehoods as truths so that one errs against one’s will, and to not be able to hold oneself back from lustful actions due to the relentless and tortuous affliction of carnal bondage, is not human nature as originally established, but the penalty after being damned.”¹⁹ Man’s fallen state is characterized by a fallen intelligence, which results in his struggle with ignorance, and a fallen will, which results in his struggle with trouble. This means that from birth, man fails to see how he should direct his will (ignorance), and he is unable to carry out his will to do good and resist evil (trouble).

However, for Augustine, even though man’s will is impeded, man is still responsible to orient his will towards God. Man must recognize that his will is constrained and act to redirect it. Augustine argues, “The soul is not held guilty because it is naturally ignorant and naturally incapable, but rather because it did not make an effort to know, and because it did not work enough to acquire the ability to act rightly.”²⁰ Thus, man is not morally responsible for the ignorance and trouble which plague his will, which are a result of Adam and Eve’s sin; however, man is responsible for failing to progress past these impediments in order to use his will rightly. He explains, “Thus even now, if ignorance of the truth and trouble in doing right is natural to human beings, from which

¹⁸Augustine, 2.18.51.174.

¹⁹Augustine, 3.18.52.179.

²⁰Augustine, 3.22.64.217.

they begin to rise towards the happiness of wisdom and peace, no one rightly condemns this happiness for its natural beginning. But if someone is unwilling to make progress, or is willing to backslide from his progress, he will rightly and deservedly pay the penalties.”²¹

Grace is necessary for man to overcome ignorance and trouble. Augustine writes, “...the soul has the ability, with the help of its Creator, to cultivate itself, and by religious efforts it can acquire and possess all the virtues through which it may be freed from the torments of trouble and the blindness of ignorance.”²² While man by nature struggles with ignorance and trouble, God has also given him the “...judgment by which every soul grants that it should investigate what to its disadvantage it does not know, exert itself with perseverance in burdensome duties to overcome trouble in acting rightly, and entreat its Creator for the support that He help in its struggle.”²³ Thus, achieving freedom from ignorance and trouble requires man to realize that he needs God’s help and then to receive it. God’s grace is crucial in man’s struggle with ignorance and trouble: “...on account of that very trouble the soul is given a warning to call upon Him who helps in its perfection, the one Whom it perceives is the author of its inception.”²⁴

In summary, Augustine believes that originally man’s will was completely free to choose good or evil. Now, after the Fall, man’s will is by nature constrained by ignorance and trouble, the penalty for Adam and Eve’s sin, so that he must turn to God for help in

²¹Augustine, 3.22.64.220.

²²Augustine, 3.20.56.191.

²³Augustine, 3.20.57.195.

²⁴Augustine, 3.22.65.223.

acquiring the ability to will rightly. Augustine concludes, "...unless the will itself is set free by God's grace from the servitude in which it was made the slave of sin, and is helped to overcome its vices, mortals cannot live rightly and religiously...no one is set free from this evil [ignorance and trouble] except by God's grace."²⁵ The grace that God extends to man allows him to combat ignorance and trouble and to strengthen his will so that he makes progress in willing rightly.

An Introduction to Alcoholics Anonymous

Alcoholics Anonymous (AA) is the oldest, largest, and most famous twelve-step program. AA's General Service Office estimates that in 2020, there were more than two million AA members and about 130,000 active AA groups worldwide.²⁶ Its success has led to the formation of numerous other twelve-step groups which target other abused substances (such as Narcotics Anonymous and Cocaine Anonymous) and behavioral issues (such as groups which focus on overeating or gambling).²⁷ Because all these groups rely on the same foundational philosophy, AA (as the largest and oldest group) will be used in this chapter as the prototypical example of the thinking that underlies twelve-step programs.

AA incorporates both elements of spirituality and a disease concept of alcoholism into its approach to treatment. Much of its philosophy is rooted in the ideas of an early

²⁵Augustine, "Reconsiderations," 132.

²⁶Alcoholics Anonymous General Service Office, "Estimated Worldwide A.A. Individual and Group Membership."

²⁷Joseph G. Pickard, Alexander Laudet, & Ivana D. Grahovac, "The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs," 122.

1900s religious movement called the Oxford Group. This movement "...reported being able to abstain from excessive consumption of alcohol by using some of the group's spiritual principles...through the practice of making personal assessments, admitting their wrongs, making restitution for harms done, praying and meditating, and carrying the message of their movement to others who might benefit."²⁸ William Wilson and Robert Smith, the two founders of AA, were both members of the Oxford Group, and they combined the group's emphasis on religious self-improvement with the disease concept of alcoholism, which was beginning to appear at the time.²⁹ William D. Silkworth, a physician at the Townes Hospital in New York, was instrumental in convincing them of the disease nature of alcoholism, describing it as "an illness consisting of an allergy of the body and compulsion of the mind."³⁰ These two influences were combined from the very beginning of AA, when it was founded in 1935 in Akron, Ohio.³¹

At its most basic level, AA aims to help its members enter recovery by abstaining from alcohol, and then to aid them in lifetime abstinence from alcohol through supportive relationships. The preamble of AA states, "Our primary purpose is to stay sober and help other alcoholics to achieve sobriety."³² The foundation of the twelve steps of AA consists

²⁸Pickard, Laudet, & Grahovac, "The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs," 120.

²⁹Pickard, Laudet, & Grahovac, "The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs," 120.

³⁰Pickard, Laudet, & Grahovac, "The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs," 120.

³¹Pickard, Laudet, & Grahovac, "The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs," 121.

³²Alcoholics Anonymous General Service Office, "A.A. Preamble."

of three principles: “(1) the nature of the problem consisting of an illness rather than moral weakness or lack of willpower; (2) the importance of a spiritual experience; and (3) the program of action adapted from the Oxford group as it is applied specifically to alcohol problems.”³³ The twelve steps are a set of strategies that aim to guide an individual to recovery by encouraging him to acknowledge his own powerlessness, to rely on an external power greater than himself, to reflect on his own shortcomings, to mend broken relationships with others, and to help other alcoholics.³⁴

Alcoholics Anonymous and the Disease Model of Addiction

Writings produced by AA reveal the deep influence that the disease model of alcoholism has on their view of addiction. In the *Big Book*, the basic text of AA, the authors write, “An illness of this sort—and we have come to believe [alcoholism] an illness—involves those about us in a way no other human sickness can.”³⁵ While alcoholism’s effects on a person’s relationships are distinguished from those of other sicknesses, it is unequivocally described as an illness. People addicted to alcohol are described as becoming “very ill from drinking” and as enduring “a hopeless condition of mind and body.”³⁶ In Chapter Seven, entitled “Working with Others,” which outlines the way that new members are to be recruited, AA members are encouraged to describe

³³Pickard, Laudet, & Grahovac, “The Philosophy and Practice of Alcoholics Anonymous and Related 12-Step Programs,” 120—21.

³⁴Alcoholics Anonymous General Service Office, “The Twelve Steps of Alcoholics Anonymous.”

³⁵Alcoholics Anonymous, *The Big Book*, 18.

³⁶Alcoholics Anonymous, *The Big Book*, 18.

alcoholism “as an illness, a fatal malady” which affects “body and mind.”³⁷ Additionally, alcoholics are portrayed as patients who should not be blamed for their illness. Chapter Eight, “To Wives,” is addressed to the spouses of alcoholics, and it instructs, “Try not to condemn your alcoholic husband no matter what he says or does. He is just another very sick, unreasonable person. Treat him, when you can, as though he had pneumonia. When he angers you, remember that he is very ill.”³⁸ Like the disease model of addiction, AA seems to hold that blame is not the appropriate way to approach those dealing with addiction.

AA writings also show that AA accepts the idea of compulsion, or the loss of free will, which is considered by the disease model to be a key component of addiction. The authors of the *Big Book* write, “...once [the alcoholic] takes any alcohol whatever into his system, something happens, both in the bodily and mental sense, which makes it virtually impossible for him to stop.”³⁹ That is, once an alcoholic takes a first drink, he is unable to prevent himself from continuing to drink. The consequence of this loss of will is explained in this quote:

...most alcoholics, for reasons yet obscure, have lost the power of choice in drink. Our so-called willpower becomes practically nonexistent. We are unable, at certain times, to bring into our consciousness with sufficient force the memory of the suffering and humiliation of even a week or a month ago. We are without defense against the first drink.⁴⁰

³⁷Alcoholics Anonymous, *The Big Book*, 93.

³⁸Alcoholics Anonymous, *The Big Book*, 108.

³⁹Alcoholics Anonymous, *The Big Book*, 22—23.

⁴⁰Alcoholics Anonymous, *The Big Book*, 24.

The alcoholic's condition is described as "hopeless" because "...the queer mental condition surrounding that first drink prevents normal functioning of the will power."⁴¹

The writings of AA are unequivocal about their firm belief that alcoholics have no control over their drinking.

Another element of the disease model appearing in the beliefs of AA is the idea that there is an intrinsic, fundamental difference between alcoholics and other people. Alcoholics are described as being "bodily and mentally different" from others.⁴² The authors, who as AA members are recovering alcoholics themselves, write, "...we had to fully concede to our innermost selves that we were alcoholics. This is the first step in recovery. The delusion that we are like other people, or presently may be, has to be smashed."⁴³ They seem to believe that this inherent difference cannot be eliminated: "Neither does there appear to be any kind of treatment which will make alcoholics of our kind like other men."⁴⁴

The belief that alcoholics are fundamentally different from other people is associated with the belief that alcoholism is a lifelong illness which can never be fully cured. The AA literature emphasizes the lasting nature of the condition countless times with statements such as "We alcoholics are men and women who have lost the ability to control our drinking. We know that no real alcoholic *ever* recovers control...alcoholics of

⁴¹Alcoholics Anonymous, *The Big Book*, 92.

⁴²Alcoholics Anonymous, *The Big Book*, 30.

⁴³Alcoholics Anonymous, *The Big Book*, 30.

⁴⁴Alcoholics Anonymous, *The Big Book*, 31.

our type are in the grip of a progressive illness.”⁴⁵ This idea reflects agreement with the disease model of addiction, which portrays addiction as a chronic illness requiring management rather than a cure. A common phrase in the writings of AA is the saying “Once an alcoholic, always an alcoholic.”⁴⁶ This idea underlies AA’s encouragement to its members to remain active within AA over the course of their lifetimes, long after they have achieved abstinence from alcohol.

Alcoholics Anonymous and Spirituality

Although much of AA’s philosophy of alcoholism reflects aspects of the disease model of addiction, AA does not regard alcoholism to be a solely biological problem which can be solved with a biological answer. This distinguishes it from the disease model of addiction, which, as discussed in a previous chapter, points to pharmaceuticals as the primary solution. Many of the excerpts from AA’s writings quoted above describe alcoholism as affecting “body and mind,” suggesting that for AA, “mind” encompasses more than the physical, embodied brain; rather, it describes something more like the will. The authors of the *Big Book* also acknowledge that a consideration of addiction must include more than just a medical perspective: “Of necessity there will have to be a discussion [in the *Big Book*] of matters medical, psychiatric, social, and religious.”⁴⁷ AA’s embrace of non-scientific perspectives is particularly evident in its approach to treatment.

⁴⁵Alcoholics Anonymous, *The Big Book*, 30.

⁴⁶Alcoholics Anonymous, *The Big Book*, 33.

⁴⁷Alcoholics Anonymous, *The Big Book*, 19.

Perhaps AA's most famous claim is that the disease of alcoholism can only be effectively treated by spiritual means. The problem of the alcoholic is so severe, AA believes, that the alcoholic is completely unable to overcome it either by his own efforts or with the help of medical treatment: "We have tried every imaginable remedy. In some instances there has been a brief recovery, followed always by a still worse relapse. Physicians who are familiar with alcoholism agree there is no such thing as making a normal drinker out of an alcoholic."⁴⁸ In other words, "...there is no return by human aid," and so the alcoholic must "accept spiritual help"⁴⁹ in order to overcome "an illness which only a spiritual experience will conquer."⁵⁰

The alcoholic's loss of control is so great that he must look outside of himself for a solution, as demonstrated by this quote from *The Big Book*:

We [alcoholics] could wish to be moral, we could wish to be philosophically comforted, in fact, we could will these things with all our might, but the needed power wasn't there. Our human resources, as marshalled by the will, were not sufficient; they failed utterly. Lack of power, that was our dilemma. We had to find a power by which we could live, and it had to be *a Power greater than ourselves*.⁵¹

This solution to the problem of alcoholism is described in the first three steps of AA's famous twelve steps: first, the alcoholic recognizes that he is powerless over alcohol;

⁴⁸Alcoholics Anonymous, *The Big Book*, 31.

⁴⁹Alcoholics Anonymous, *The Big Book*, 25.

⁵⁰Alcoholics Anonymous, *The Big Book*, 44.

⁵¹Alcoholics Anonymous, *The Big Book*, 44—45. This Power is often called God, but not the God of any specific religion. AA emphasizes that it is not aligned with any particular religion, but that its approach does require a belief in some kind of spirituality, and it encourages its members to connect with God *as they understand Him*. See Chapter Four: "We Agnostics" in *The Big Book* for further discussion of this idea.

then, he admits that a Power greater than himself can restore him; and as a result, he decides to turn his will and life over to this Higher Power.⁵²

Much of the philosophy of AA contains traces of the Augustinian thinking about will and freedom discussed earlier in this chapter. In AA, the alcoholic's journey to recovery begins with the recognition that in his current state, he is powerless to control his condition. For Augustine, man's journey towards freedom of the will begins with the realization that in man's natural, sinful state, plagued by ignorance and trouble, he is incapable of choosing the good. In both cases, the answer to a person's inability to will rightly is a spiritual power greater than himself.

As discussed earlier in this chapter, Augustine emphasizes the importance of a person reorienting himself towards God. Once God is seen as the highest good, one is able to love lesser, changeable goods properly, and one orders his loves accordingly. AA's urgings for alcoholics to turn to a Higher Power reflects a similar belief that surrender to this Higher Power will result in a re-ordering of an alcoholic's life, as described here:

Every one of [the alcoholics whose personal stories are in *The Big Book*] has gained access to, and believes in, a Power greater than himself. This Power in each case accomplished the miraculous, the humanly possible...[T]here has been a revolutionary change in their way of living and thinking...[I]n the face of the total failure of their human resources, they found that a new power, peace, happiness, and sense of direction flowed into them.⁵³

⁵²Alcoholics Anonymous General Service Office, "The Twelve Steps of Alcoholics Anonymous." Step 1: "We admitted that we were powerless over alcohol—that our lives had become unmanageable." Step 2: "Came to believe that a Power greater than ourselves could restore us to sanity." Step 3: "Made a decision to turn our will and our lives over to the care of God *as we understood Him*."

⁵³Alcoholics Anonymous, *The Big Book*, 50.

For AA, the embrace of this Higher Power will result in freedom from alcoholism, but it also will affect the alcoholic's entire life, giving him a new sense of purpose and direction.

Once the alcoholic has turned to God/the Higher Power, he experiences greater freedom of his will, but he must continue to seek spiritual strengthening daily. The authors of *The Big Book* write, "We are not cured of alcoholism. What we really have is a daily reprieve contingent on the maintenance of our spiritual condition. Every day is a day when we must carry the vision of God's will into all of our activities... We can exercise our will power along this line all we wish. It is the proper use of the will."⁵⁴ In other words, when the alcoholic's will is aligned with God, it is free, since this is how the will was meant to be used. This thinking echoes Augustine, who writes, "Our freedom is this: to submit to this truth, which is our God Who set us free from death—that is, from the state of sin."⁵⁵ Alcoholics, like sinners, must embrace God's grace daily in order to continue to live in their newfound freedom.

The journey to recovery is one that alcoholics travel their whole lives, according to AA. The authors of AA recognize that they are not perfect in their recovery and that they continue to need grace. They write, "No one among us has been able to maintain anything like perfect adherence to these principles. We are not saints. The point is, that we are willing to grow along spiritual lines. The principles we have set down are guides to progress. We claim spiritual progress rather than spiritual perfection."⁵⁶ This sounds

⁵⁴Alcoholics Anonymous, *The Big Book*, 85.

⁵⁵Augustine, 2.13.37.143.

⁵⁶Alcoholics Anonymous, *The Big Book*, 60.

like Augustine's acknowledgement that as fallen people, humans will continue to be plagued by ignorance and trouble, and so the path towards willing rightly is a progressive one, not an immediate one.

Another significant feature of AA's thought on addiction is their belief that alcoholism is an extreme manifestation of a common problem. Although they do call alcoholism a disease, they also describe alcoholism as being rooted in spiritual issues. AA holds that the root of the troubles of all people, including alcoholics, is self-centeredness.⁵⁷ AA writings state that "...the alcoholic is an extreme example of self-will run riot" and that the alcoholic must "have God's help" in order to reduce his "self-centeredness."⁵⁸ The authors of the *Big Book* write, "...our problems were of our own making. Bottles were only a symbol."⁵⁹ This understanding is reflected in the twelve steps as well. Step four requires alcoholics to make a "moral inventory" of themselves, and steps five through seven instruct alcoholics to confess their "defects of character" to God, themselves, and others, and then to ask God to remove these shortcomings.⁶⁰

Ultimately, AA believes that alcoholism is a physical disease that is caused by a deeper, spiritual issue which affects all of a person's life. This is why AA approaches what they view as a medical condition with a spiritual solution: "...for we have been not

⁵⁷Alcoholics Anonymous, *The Big Book*, 62.

⁵⁸Alcoholics Anonymous, *The Big Book*, 62.

⁵⁹Alcoholics Anonymous, *The Big Book*, 103.

⁶⁰Alcoholics Anonymous General Service Office, "The Twelve Steps of Alcoholics Anonymous." Step 4: "Made a searching and fearless moral inventory of ourselves." Step 5: "Admitted to God, to ourselves, and to another human being the exact nature of our wrongs." Step 6: "Were entirely ready to have God remove all these defects of character." Step 7: "Humbly asked Him to remove our shortcomings."

only mentally and physically ill, we have been spiritually sick. When the spiritual malady is overcome, we straighten out mentally and physically.”⁶¹ Although AA’s view of alcoholism is “othering” in some ways (since they believe that alcoholics are fundamentally different than other people), this aspect of its philosophy emphasizes alcoholics’ “sameness” with the rest of humanity. AA holds that alcoholism is an extreme complication that can arise out of self-centeredness, which is a spiritual sickness with which all people struggle. This idea emphasizes alcoholics’ common humanity with other persons.

Though AA philosophy teaches that alcoholism is ultimately rooted in spiritual flaws, AA does not view moral judgment as the right response to alcoholics. For AA, the solution to addiction is grace and fellowship, not judgment. *The Big Book* provides the following instructions about how to approach an alcoholic: “Never talk down to an alcoholic from any moral or spiritual hilltop; simply lay out the kit of spiritual tools for his inspection...Offer him friendship and fellowship. Tell him that if he wants to get well you will do anything to help.”⁶² Thus, although AA sees a person’s moral character as playing a role in his development of alcoholism, AA does not react with accusations or blame. AA’s philosophy incorporates elements of a moral or spiritual view of addiction without suggesting that condemnation is the appropriate response to alcoholism.

AA’s emphasis on fellowship also shows the importance that AA places on social relationships during recovery. The heart of AA’s treatment is the supportive community that the alcoholic finds by attending AA meetings. This represents a rejection of the

⁶¹Alcoholics Anonymous, *The Big Book*, 64.

⁶²Alcoholics Anonymous, *The Big Book*, 95.

individualism inherent in the disease model of addiction, which ultimately suggests that because addiction is a problem with an individual's brain and/or genes, individual patients can be treated in isolation. Although AA recognizes the physiological component of addiction, it makes clear that an alcoholic should pursue recovery in the context of community.

Conclusion

The theology of Augustine provides an alternative perspective on the issues of freedom and compulsion to the one articulated by the disease model of addiction. *On the Freedom of the Will* shows that a Christian perspective on humans' ability to make choices allows for the idea that a person's will can be constrained. In Augustine's view, this constraint is in the form of ignorance and trouble. Augustine also provides a theological explanation of the way that a person's will can be turned away from good things over time—an explanation that accords with the account given by neurobiology, as shall be seen in the final conclusion to this thesis.

The model of addiction promoted by AA represents another helpful contribution to the discussion of addiction. Much of AA's philosophy seems to accord with Augustine's work on freedom and grace. The writings of AA show that an understanding of addiction as disease and treatment which involves a person's spirituality are not necessarily incompatible. Significantly, both Augustine and AA address questions of freedom and compulsion with answers rooted in spirituality, and both suggest that the solution to a loss of freedom of the will is grace. These perspectives demonstrate the value of a consideration of spirituality in questions surrounding addiction. In the final

conclusion to this thesis, an understanding of addiction informed by neurobiology, psychology, and the thinking of Augustine and AA will be articulated.

CONCLUSION

In this thesis, I have drawn from diverse perspectives in order to understand addiction more fully. In Chapter One, which traced the history of addiction, I saw that some religious views of addiction (such as Whitefield's) contributed to the stigma and blame surrounding addiction. As the idea of addiction as a disease began to be popularized by figures such as Rush, this stigma lessened. Jellinek in particular contributed to the shift from a moral view of addiction to a scientific view of addiction by promoting his disease concept of alcoholism. One of Jellinek's more valuable insights about addiction is that there is something biological that predisposes persons to developing addiction, but there is also something within addictive substances that leads to addiction as well—addiction is caused by the interaction of people and substances. With the acceptance of the disease concept of addiction by the general public, the mainstream scientific community, and the federal government, the pendulum between moral and scientific views has swung such that the modern view of addiction is firmly scientific. It is common for people to assume that any religious or moral perspectives on addiction necessarily result in blame and judgment of people who are addicted and that these perspectives are not useful now that science is advanced enough to explain the phenomenon of addiction.

Chapter Two outlined the disease model of addiction and explained the strengths that this model has in furthering my understanding of addiction. Research based on the disease model has helped me picture what is happening in the brain when addictive

substances are desired and consumed. Neurobiological studies have illuminated the role of dopamine, the shift from impulsive (reward-driven) behavior to compulsive (habit-driven) behavior, and the erosion of the brain's ability to override habitual behavior. Imaging data has allowed scientists to document the physical changes in the structure of the brain that occur during the course of addiction (such as the reduction of dopamine D2 receptors). The disease model of addiction is also responsible for the production of some pharmaceuticals which can be used to aid people in recovery by reducing withdrawal symptoms. In short, the disease model does a good job of explaining the biological underpinnings of addiction and of advancing treatments which address those biological mechanisms.

Chapter Three discussed the ways in which the disease model falls short. An important point here is that the disease model of addiction is not the answer to stigmatization that its proponents believe it to be. The disease model can actually stigmatize people who are addicted *more* than moral models because it causes people to view addicted persons as "other." Because the disease model argues that addicted people are biologically different from non-addicted people, and because it assumes that people are reducible to their biology, the model suggests that addicted people are fundamentally different from others. As the studies included in this chapter showed, adoption of a disease model of addiction can negatively impact attitudes of the general public and even of health care professionals towards people who are addicted. This model can also decrease self-efficacy among addicted persons themselves, which can impede their recovery.

Chapter Three also presented several choice-model alternatives to the disease model of addiction. Gene Heyman's more traditional choice model points out that the disease model alone is unable to explain why so many addicted persons are able to recover without medical treatment. Marc Lewis critiques the disease model as wrongly pathologizing addiction, which he views as an accelerated form of normal learning. Another significant contribution from Lewis is his argument that choice is not all-or-nothing, either completely free or completely compelled; he suggests that the will's ability to make choices can be constrained without being totally obliterated. Finally, Heather combines data with philosophy to posit that addiction is rooted in weakness of will and is an extreme version of a struggle which is common to all human beings. Madueme draws from Augustine to articulate a similar view. While these models of addiction differ, they all support the idea that the disease model is insufficient to provide a full account of addiction—something else is needed.

Christian theology and the philosophy of AA were the two non-scientific perspectives examined in Chapter Four. The writings of Augustine helped me more fully understand the idea of free will and the way that a person's will can be constrained. Augustine also emphasized the importance of grace as the solution to a constrained will. AA provided me with an example of an attempt to synthesize the disease model of addiction with elements of spirituality. AA's distinctive approach to addiction showed that conceiving of addiction as a disease does not necessitate accepting only a pharmaceutical solution to addiction. AA also emphasized the importance of supportive relationships in recovery from addiction. Both Augustine and AA broadened my

understanding of addiction by drawing my attention to the non-biological aspects of the human person.

Drawing from all the perspectives that have been discussed, I am able to understand addiction as a complex condition which involves both the body and the soul. The disease model of addiction helps explain the involvement of the body, or the biological component of a person; moral and philosophical perspectives help explain the role of the soul and the will. Addiction is neither simply a disease nor simply a sin; however, elements of both may be involved.

It seems that sin—in the Augustinian sense—can lead to the development of addiction. As discussed in Chapter Four, Augustine describes sin as a turning away of the will from God and towards lesser, changeable goods. All people do this as fallen human beings—people seek satisfaction or comfort or relief from suffering in things rather than God. When a person turns first to earthly things rather than heavenly things in search of lasting contentment—to use Augustinian language, when a person’s loves are disordered—this is sin. A Christian perspective informed by Augustine teaches that continuing to live with one’s loves disordered in this way will result in the further misdirection of the will.

This gradual misdirection of the will is the progression that occurs sometimes in addiction. Some people initially use addictive substances in pursuit of a pleasurable high or as an escape from the stresses of life. As a person continues to use an addictive substance, he may begin to view that substance as the primary answer to the distress he is experiencing—he may begin to seek lasting relief from a good which is not able to

provide it. In other words, his loves become disordered, and as a result, his will becomes further shaped towards these addictive substances.

In Chapter Two, I talked about the way that neurobiological research supports this progression, describing the way that the brain changes as behavior becomes more compulsive. When a person initially uses an addictive substance, the reward circuitry of the brain—the VTA and nucleus accumbens—is active, and dopamine is released. Upon repeated exposure to the substance, dopamine release begins to occur even before the substance is consumed, in anticipation of the substance. Additionally, dopamine that is initially sent to the ventral striatum, which controls impulsive behavior, is eventually sent to the dorsal striatum, which controls compulsive behavior. This transition helps explain the gradual shift from reward-driven behavior—actions seeking a certain emotional state or experience—to habit-driven behavior—actions which a person does not actively will to take.

Again, all people sinfully seek satisfaction in things other than God, but not all become addicted. This is a similar understanding to that which is articulated by AA—the idea that addiction can stem from sin with which all people struggle, but only some sinners develop addiction. I think Marc Lewis’s perspective is relevant here as well. As I discussed in Chapter Three, Lewis believes that addiction is an accelerated form of normal learning; it is an extreme, destructive version of an occurrence common to all people. The changes that occur in the brain of a person developing an addiction to heroin are the same changes that occur in the brain of a person becoming obsessed with a political movement—only drastically accelerated, and with more tangible consequences. Lewis’s learning model of addiction confirms what these other perspectives suggest—

that all people are capable of developing addiction, though some may be more vulnerable to its development. All these accounts of addiction describe addiction as arising from a shared human experience, and I think that emphasizing the universality of that experience allows me to further sympathize with people who do go on to develop addiction.

Although all people have the potential to become addicted, not all do. This points to the importance of a person's circumstances in the development of addiction. While no one can definitively explain why some people experience addiction and others do not, I think that biological vulnerability and exposure to substances that are particularly addictive play a large role.

I explained why I believe that in some instances, addiction may be rooted in sin. However, this is not necessarily true in all cases of addiction. After all, it is possible for addiction to develop even when people are taking prescribed medications as directed by their physician. Thus, the fact that people are addicted does not mean that they merit judgment for their condition—there are many different circumstances which could explain why and how their addiction developed. Understanding this further discourages stigmatization and blame of addicted persons.

The issue of compulsion has been difficult for me to understand. It is hard to determine what constitutes compulsion and whether addicted persons truly have no control over their behavior. Lewis' rejection of the idea of an absolute freedom (or lack thereof) of the will is helpful here. He suggests that a person's ability to make choices can be constrained without being utterly free or utterly unfree. This accords with Augustine's view that human wills are not entirely free after the Fall but are plagued by ignorance and trouble. At the very least, it seems clear that it is incredibly difficult for

people who are addicted to refrain from consuming addictive substances. This makes it challenging to condemn addicted persons for continuing to consume addictive substances.

It seems to me that if there is any aspect of the experience of addiction which involves moral responsibility, it is the attempt at recovery. Augustine's writings are helpful to me in my understanding of this. Augustine believes that because of the Fall, man's will is constrained from birth by ignorance and trouble. However, he holds man responsible to seek out truth and grace in order to overcome these barriers and to direct his will rightly. Applying this line of thinking to addiction, I can see a parallel. An addicted person's will is bent in a damaging direction, and he struggles to reorient it due to the biological changes that have taken place in his brain. However, he is free to seek help from others in order to aid him in redirecting his will—his addiction does not prevent him from seeking treatment. It seems reasonable to hold an addicted person responsible for seeking help in order to recover from addiction insofar as he can. While he may have setbacks and failures, the focus should be on progress, not perfection, much as in the spiritual journey described by AA.

After reflecting on the neurobiology and theology surrounding addiction, it seems that all these perspectives are necessary in order to develop a nuanced understanding of addiction. Examining addiction through only one of these lenses will allow for some insight but cannot provide a full picture. Human beings are composed of bodies and souls, and they have both brains and wills, and any approach which reduces humans down to only one of these aspects will necessarily be unable to describe the human condition fully. Bodies affect souls, and souls affect bodies; both are involved in the

choices that humans make. Thus, both must be considered in order to understand addiction.

Both elements—neurobiology and theology—point toward human beings' need for grace. Both a disease concept of addiction and a spiritual approach, such as the one advanced by AA, encourage addicted persons to acknowledge their loss of control over their condition and their inability to recover by their own means. This recalls Augustine's urgings that man should realize his failure to overcome ignorance and trouble by his own power.

Since addiction is such a multi-faceted condition, treatment can come in many forms. Medical treatment, such as the pharmaceuticals inspired by the disease model of addiction, addresses the biological changes which shape the choices that addicted persons make. Other forms of treatment (motivational interviewing, contingency management programs, etc.) may also prove helpful in strengthening the will, and they should be used if so. As noted by AA, relationships with God and others are an important part of recovery as well. I think that different forms of addiction treatment will most likely be most effective for different people, but for all people, supportive relationships from those around them are incredibly important.

When I first began writing my thesis, I was searching for an answer to the question of addiction and moral responsibility. I initially wanted to understand whether I should think of addiction as a disease or as a moral failure in order to determine how much judgment I should assign to people who experienced addiction. I was asking, "How much should I blame people who are addicted for their condition?" Over the course of

my readings and research for this thesis, I have come to see that I have been asking the wrong question entirely.

I think that the more important question to ask is “How can I best support people who are addicted?” The issue of addiction and moral responsibility belongs in the context of criminal justice; it is not an issue that I need to address in order to see addicted patients in the clinic, or even just to interact with the people in my life that are dealing with addiction. Rather, I should remember that I, too, struggle to act in the ways that I know are right; I, too, fail to direct my will towards the greatest good; I, too, am a person in need of grace and redemption. With this understanding, I can reach out to addicted persons in fellowship and love and encourage them on their path to recovery.

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