Addiction as Syndrome

"The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them..."

—Sir William Bragg (2003)

by Siri Odegaard, B.A., Allyson Peller, M.P.H. and Howard J. Shaffer, Ph.D., C.A.S.

Currently, the dominant philosophy of addiction presumes that the psychoactive and reinforcing properties of a particular chemical (e.g., opioids) or activity (e.g., playing slot machines) are the primary factors responsible for the development and maintenance of addiction. This conventional wisdom suggests that the use of psychoactive substances or rewarding activities lead directly to abuse, dependence and inevitably addiction with all of its associated impairments. Further, this approach reflects the assumption that physical dependence, characterized by neuroadaptation (e.g., tolerance and withdrawal), is necessarily related to addiction. The purpose of this article is to describe a new model of addiction that holds the potential to better integrate the prevention, diagnosis and treatment of addictive behaviors across substance misuse (e.g., alcohol) and behavioral expressions of addiction (e.g., gambling).

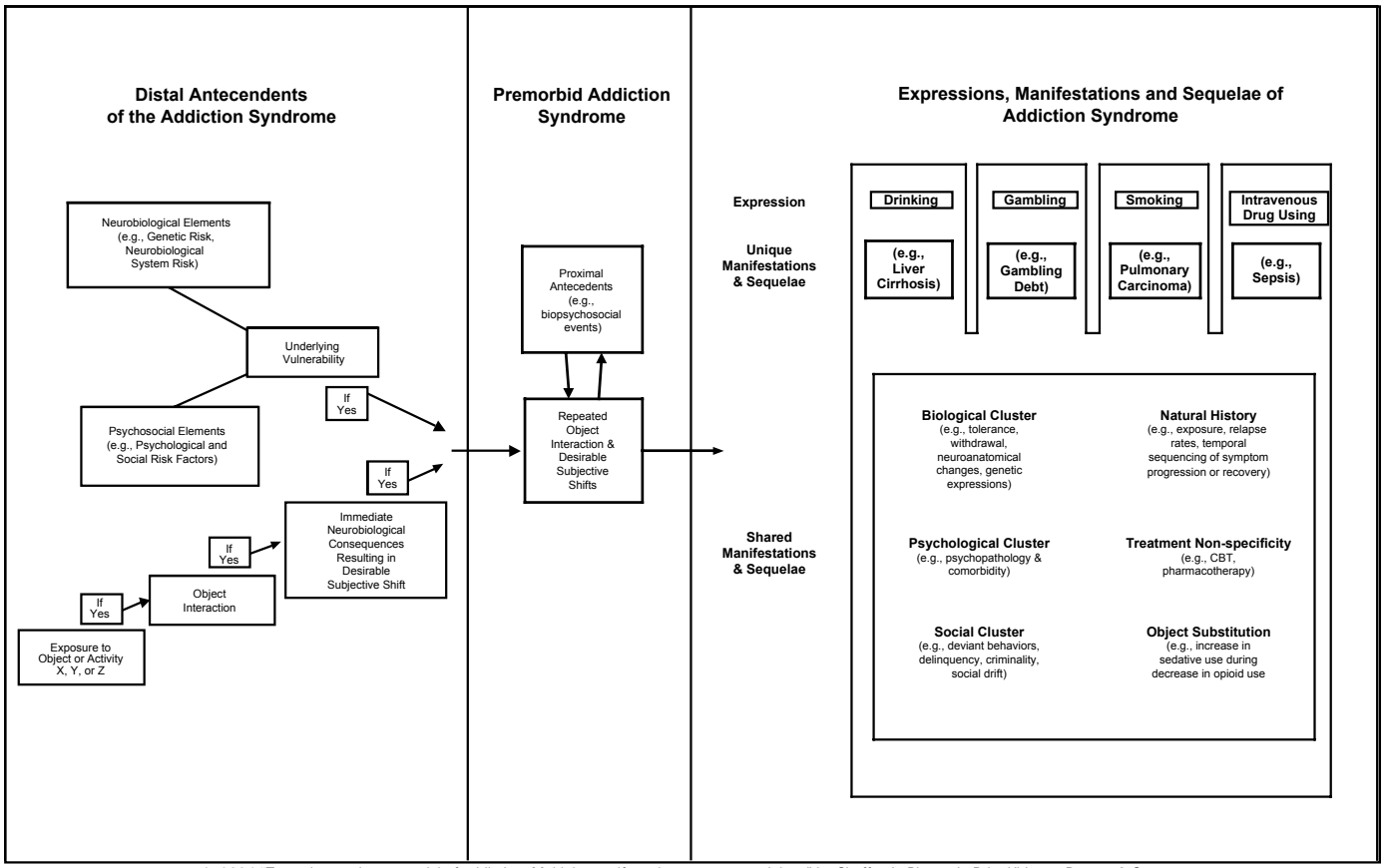
Clinicians, guided by the assumption that a particular object is responsible for a distinct addiction, have tended to focus their diagnostic and treatment efforts narrowly on specific substances or activities. However, new research reveals that there are common underlying characteristics to many different manifestations of addiction, including both substance and behavioral expressions (e.g., excessive drinking and gambling). Physical dependence and addiction are not necessarily mutually inclusive. For example, addiction can exist without physical dependence (e.g., gambling); similarly, one can become dependent on drugs and experience neuroadaptation without developing addiction, (e.g., using opioids repeatedly for post-operative pain relief). Taken together, this evidence suggests (1) specific and distinct objects of addiction (e.g., cigarettes or games of chance) are less important to the development of addiction than previously thought, and (2) that various forms of addiction arise from similar causes (Dodes, 2002).

This new perspective encourages a broader characterization of addiction that includes both substances and behaviors. A recent article by Shaffer, LaPlante, LaBrie, Kidman, Donato, and Stanton (2004) proposes a syndrome model for classifying addiction. A syndrome is "a cluster of symptoms and signs related to an abnormal underlying condition" (Shaffer et al., p. 3); with a syndrome, not all symptoms or signs need be present all the time.

The emergence of a syndrome model for addiction mirrors the identification of Acquired Immunodeficiency Syndrome (AIDS). During 1981, physicians began observing clusters of opportunistic infections and rare diseases in otherwise healthy homosexual men (National Institute of Allergy and Infectious Diseases, 2005). At the time, physicians treated these individuals for a variety of apparently distinct infections or illnesses because no one had yet identified the underlying cause. As a result, opportunistic infections continued and, due to gradually weakening immune systems, the illnesses became more life-threatening. The uncommon diseases comprising these clusters generally appear only among individuals with a compromised immune system. With more research, it soon became evident that these men suffered from similar immune system deficiencies. Similarly, though various manifestations of addiction (e.g., opioid dependence, alcohol dependence, pathological gambling) generally have been treated as independent illnesses, there seems to be a broader underlying condition that permits these various manifestations of addiction to develop. In the same way that a compromised immune system can leave a person vulnerable to developing a variety of opportunistic illnesses, there is an underlying set of circumstances that increase the likelihood that an individual will develop one or more expressions of addiction.

Based on this broader understanding of addiction, Shaffer et al.'s syndrome model encourages clinicians and scientists to examine the multiple determinants that can lead to the development of addiction. Addictive disorders, activity or substance related, generally follow a similar developmental pattern; recovery from the full range of addiction expressions also is comparable. That is, the variety of addictive behavior patterns arise from similar antecedent risk factors and transition into addiction as a result of exposure to and experience with different objects of addiction *(see Figure 1)*. Expression of the addiction syndrome depends upon the interaction of a vulnerable person with a particular object of addiction that yields a desirable and reliable shift in subjective experience. Thus, Shaffer et al. (2004) suggest that a person's risk for developing an addiction depends on a combination of three factors: personal vulnerabilities (e.g., genetics and psychological state), exposure to an object or activity (e.g., access), and one's experiences with that potential object of addiction (e.g., desirability).

Figure 1. Model of the Addiction Syndrome



Evidence for an Addiction Syndrome

Evidence supporting a syndrome model for addiction is accumulating. To date, studies have shown that both genetics and brain function contribute to a person's vulnerability to addiction, though not necessarily for a particular substance or behavior (Karkowski, Prescott, & Kendler, 2000). Researchers also have observed that the presence of particular psychiatric disorders might make a person more vulnerable to addiction; for example, people who seek treatment for substance abuse generally have a higher rate of anxiety and depressive disorders than those who do not (Silk & Shaffer, 1996). Similarly, people who struggle with major depression, generalized anxiety disorder, post-traumatic stress disorder, etc., often have a higher rate of alcohol abuse and drug use disorders than those without these problems (Merikangas et al., 1998). These examples support the idea that there are certain underlying conditions that increase vulnerability to addiction.

In addition, the fact that various expressions of addiction seem to follow similar patterns of improvement, relapse and remission supports the idea that there are multiple determinants for addiction. Similar stimuli can encourage addiction to a variety of substances or behaviors among different people. The Distal Antecedents and Premorbid components of the syndrome model *(Figure 1)* illustrate that when repeated exposure to, and interaction with, a substance or activity consistently leads to a desired and reliable neurobiological and/or social response, a person becomes at-risk for developing addiction. During the 'premorbid' phase of the syndrome model people teeter on a delicate balance: they have the potential to shift from risky behavior toward or away from addictive behavior. If a desirable subjective shift repeatedly occurs as a result of the interaction with the object of addiction, then a syndrome might begin to emerge.

Because syndromes are recursive, symptoms or expressions of a particular manifestation of the syndrome can influence current existing antecedents or develop into new antecedents for another expression of addiction. This could explain why a person struggling with one form of addiction often struggles with others as well, or why certain medications and behavioral therapies designed to address one manifestation of addiction have also been found effective in treating others. For example, naltrexone, an opioid found to be effective in treating opioid abuse and dependence has also been found to be effective in treating problem gambling. Similarly, cognitive behavioral therapy (CBT), psychodynamic therapy, and behavior therapy are often used interchangeably in treating both chemical and behavioral addictions. A syndrome model accounts for the fact that there are common risk factors for addiction in general but not for particular substances or behaviors, and why treatments designed to address a particular addiction are often effective in treating problems with seemingly unrelated substances and behaviors.

The syndrome model for addiction has the potential to usher in a new paradigm for preventing, diagnosing and treating addiction. The syndrome model encourages clinicians to take a broader view

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of addiction, one that takes into account the various relationships among the multiple influences and consequences that lead to and follow an expression of addiction. These factors can impact treatment and increase the potential for new manifestations of addiction to develop. This interconnectedness of causes and consequences is recursive or circular, precluding the treatment of a distinct manifestation of addiction as an independent problem. According to this new perspective, relapse and "addiction hopping" would no longer be viewed as a moral failure or the result of a lack of motivation to change, but rather as probable and varied expressions of the underlying syndrome.

Toward Improved Diagnosis and Treatment

The syndrome model for addiction has important implications for how clinicians diagnose the disorder. Currently, diagnosis relies primarily on the self-report of symptoms and the consequences of these experiences. As our understanding of shared influences improves, clinicians will develop a more sophisticated understanding of the specific attributes that apply similarly to chemical and behavioral addictions; these characteristics will provide the foundation upon which future diagnostic criteria will rest. Once clinicians discover which symptoms and consequences, or combination thereof, constitute the central characteristics of addiction that must be present for the syndrome to be present, it will become possible to develop more objective and efficient diagnostic tests that are independent of self-report. This development will help limit the unnecessary use of clinical resources and help match the application of treatments that are appropriate for specific stages of addiction. These advances might lead to the development of a diagnostic gold standard, based on symptoms and sequelae as well as genetics and neuroscience. A variety of questions important to the development of a diagnostic gold standard, however, remain unanswered. For example, future research needs to focus on chemical and behavioral addiction hopping, temporal patterns of psychiatric comorbidity, treatment non-specificity, secondary behaviors, object-specific natural histories, interactions among these factors, and the role of these factors in the development of the addiction syndrome.

As this new characterization of addiction stimulates diagnostic methods to evolve and improve, it similarly will encourage the advancement of treatment protocols. To treat addictions successfully, clinicians will need to re-envision their function. For example, clinicians might assume the role of a primary mental healthcare provider and take responsibility for managing the treatment of addiction. They can do this by: (1) recognizing signs and symptoms of addictive behaviors; (2) referring patients to appropriate specialists; and (3) following-up to monitor patient progress and provide necessary support. These advances, in turn, would require insurance companies to recognize multiple expressions of addictive behavior, including behavioral addictions such as disordered gambling; recognition would necessitate improvement and parity in the benefits for the full range of addiction-related services.

Conclusions

The syndrome model reveals that a broad range of antecedents can create a set of risk or protective factors for addiction that are unique to each individual. Education and prevention efforts might be most effective by addressing addiction from a variety of perspectives that target both general and specific risk factors. Expanding current public health interventions to incorporate information from evidence-based research, increase dissemination of education efforts to high-risk populations, and involve community members and leaders (i.e., judges, teachers, clergy, etc.) in the dissemination process also could help to mitigate potential risk factors.

One way of furthering these public health objectives is to provide public access to a variety of addiction-related resources. The faculty of the Division on Addictions created the BASIS (Brief Addiction Science Information Source; www.basisonline.org), which serves as an example of how information and self-help tools might be disseminated. The aim of the BASIS is to provide the general population, treatment providers, policy makers, and other interested individuals with free access to the latest scientific information and resources on various expressions of addiction, including drinking, gambling, and smoking. The BASIS also examines how various addiction expressions relate to and affect society. We hope that when more people are trained to recognize the antecedents of addiction and more treatment resources are readily available, it will be easier to prevent the development of addiction. The addiction syndrome will provide a useful theoretical model to guide future research focusing on the prevention, diagnosis and treatment of addiction.▼

Dr. Howard J. Shaffer *is an Associate Professor at Harvard Medical School and the Director of the Division on Addictions at the Cambridge Health Alliance. Dr. Shaffer is currently the editor of the Psychology Of Addictive Behaviors. His research, writing, and teaching have shaped how the healthcare field conceptualizes and treats the full range of addictive behaviors.*

Siri Odegaard and Allyson Peller *are research coordinators at the Division on Addictions at Cambridge Health Alliance, an affiliate of Harvard Medical School. Currently, Siri, Allyson, and Howard are working together on a study of psychiatric comorbidity among multiple offenders who have driven under the influence of intoxicants. Dr. Shaffer may be contacted at (617) 384-9030 or howard_Shaffer@hms.harvard.edu for additional information.*

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