

Substance Use Disorders
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In the American Psychiatric Association's (APA; 2013) most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5), Substance Abuse and Substance Dependence were eliminated as separate categories and subsumed under the single category of Substance Use Disorder (SUD). This new category requires that 2 out of 11 diagnostic criteria be met. A cursory review of the SUD criteria reveals that the first 3 criteria are similar to those of DSM-IV (APA, 1994) Substance Abuse, and the final 8 criteria are essentially the same as those of DSM-IV Substance Dependence. A criterion that has been long overdue for inclusion, craving or strong desire or urge to use a specific substance, is now included in the DSM-5 criteria set. One DSM-IV criterion, related to recurrent substance-related legal problems, is not included in the DSM-5 criteria set. The legal criterion was not included in DSM-5 because it did not increase the predictive validity of the DSM-IV diagnosis of Substance Abuse. Furthermore, because legal consequences can vary on the basis of the legal status of a particular substance in various jurisdictions, the criterion created an inherent bias.

A brief review of the history of diagnostic taxonomy reveals how the concept of Substance Use Disorder has evolved over several decades. *Dipsomania* (from the Greek *δίψα* or *dipso*, meaning thirst) was one of only seven mental disorders mentioned in the 1880 U.S. Census (Anderson, 1990). Prior to the development of any of the DSM systems, the *Statistical Manual for the Use of Institutions for the Insane* (Committee on Statistics of the American Medico-Psychological Association in collaboration with the Bureau of Statistics of the National Commission on Mental Hygiene, 1918) consisted of only 22 diagnostic categories, with an emphasis on psychoses such as Alcoholic Psychoses and Psychoses Due to Drugs and Other Exogenous Toxins. Although classified as an Alcoholic Psychosis, this manual's closest early approximation to the modern concept of alcoholism was Alcoholic Deterioration, described as follows:

A slowly developing moral, volitional, and emotional change in the chronic drinker; apparently relatively few cases are committed as the mental symptoms are not usually looked upon as sufficient to justify the diagnosis of a definitive psychosis. The chief symptoms are ill humor and irascibility or a jovial, careless, facetious mood; abusiveness to family, unreliability and tendency to prevarication; in some cases definite suspicions and jealousy; there is a general lessening of efficiency and capacity for physical and mental work; memory not seriously impaired. (Committee on Statistics of the American Medico-Psychological Association in collaboration with the Bureau of Statistics of the National Commission on Mental Hygiene, 1918, p. 20).

DSM-I (APA, 1952)

APA's first official diagnostic manual, now known as DSM-I because there have been subsequent iterations since the first one, introduced categories for Alcoholism and Drug Addiction. These two diagnostic categories were subsumed under the broader category of Sociopathic Personality Disturbance. Alcoholism was given only a brief descriptor: "Included in this category will be cases in which there is well established addiction to alcohol without recognizable underlying disorder. Simple drunkenness and acute poisoning due to alcohol are not included in this category" (APA, 1952, p. 39). Similarly, and simplistically by contemporary standards, the DSM-I was explicit with respect to etiology: "Drug addiction is usually symptomatic of a personality disorder" (APA, 1952, p. 39).

DSM-II (APA, 1968)

The development and timing of the DSM-II aligned with the publication of the World Health Organization's (WHO; 1992) *International Classification of Disease, Eighth Revision* (ICD-8), which was the first ICD to include a chapter on mental disorders. DSM-II included separate categories of Alcoholism and Drug Dependence, with each involving subtypes (e.g., episodic excessive drinking, habitual excessive drinking, and alcohol addiction). Drug dependence was defined as follows:

This category is for patients who are addicted to or dependent on drugs other than alcohol, tobacco, and ordinary caffeine-containing beverages. Dependence on medically prescribed drugs is also excluded so long as the drug is medically indicated and the intake is proportionate to the medical need. The diagnosis requires evidence of habitual use or a clear sense of need for the drug. Withdrawal symptoms are not the only evidence of dependence; while always present when opium derivatives are withdrawn, they may be entirely absent when cocaine or marijuana are withdrawn. The diagnosis may stand alone or be coupled with any other diagnosis. (APA, 1968, p. 45).

DSM-III (APA, 1980)

The development of DSM-III was aligned to correspond to the numeric coding system of ICD-9 (WHO, 1978), which introduced the major constructs of Abuse and Dependence for a variety of substances including alcohol, amphetamines, barbiturates, cannabis, cocaine, hallucinogens, opioids, and other substances. In contrast to its predecessors, DSM-III represented a paradigm shift with separate criteria sets for Abuse and Dependence for a variety of substances including alcohol. Clinicians trained since the 1980s often fail to recognize the monumental change that occurred in diagnostic taxonomy—and in the American shift away from psychoanalytic psychiatry—when Robert Spitzer introduced the use of research diagnostic criteria (RDC) in the APA's official manual (Decker, 2013). Also gone largely unnoticed for almost half a century was the subtle elimination of the term "addiction" from the APA's official diagnostic nomenclature. According to Charles O'Brien, M.D., Ph.D. (Professor of Psychiatry at the University of Pennsylvania and chair of the DSM-5 Work Group for Substance-Related

Disorders) and Nora Volkow, M.D. (Director of the National Institute on Drug Abuse [NIDA]), the APA committee responsible for revising the DSM-III in the 1980s favored the term “dependence” over “addiction” by a single vote (O’Brien & Volkow, 2006). Since that time, O’Brien and Volkow, as well as many others, have argued that the DSM conflates addiction and dependence.

As an interesting historical footnote, although the DSM-III was the APA’s first official diagnostic manual to include Cocaine Abuse, the DSM-III contained no corresponding category for Cocaine Dependence. The rationale for this obvious omission was included in the manual: “Since only transitory withdrawal symptoms occur after cessation of or reduction in prolonged use, a separate category of dependence on cocaine is not included” (APA, 1980, p. 173). Even Grinspoon and Baker’s chapter on drug dependence, contained in *Kaplan & Sadock’s Comprehensive Textbook of Psychiatry* (Freedman & Sadock, 1980) stated, “Taken no more than two or three times per week, cocaine creates no serious problems.” Retrospectively, this glaring omission from the DSM-III stands in contrast to its inclusion in its earlier predecessor, DSM-II (APA, 1968), which included a category (and corresponding ICD-9 numeric code for “Amphetamine type and other psychostimulants”) for “Drug dependence, cocaine” (p. 46). Following the outbreak of the American crack epidemic, with its attendant surge of crack cocaine use in major cities across the United States between 1984 and the early 1990s (U. S. Department of Justice, 1991, p. 59), Cocaine Dependence was included in the DSM-III-R (APA, 1987).

DSM-III-R (APA, 1987)

Beginning with the DSM-III-R, the criteria for Alcohol Dependence were based on a theoretical construct known as Alcohol Dependence Syndrome (ADS; Edwards & Gross, 1976). ADS was conceptualized as an integration of physiological and psychological processes that led to heavy drinking and that were increasingly unresponsive to adverse consequences or external circumstances. This *bi-axial concept* reflected dependence on one axis and consequences on the other axis, differentiating between the dependence process itself and the social, legal, and other consequences of heavy drinking (Edwards, 1986; Edwards & Gross, 1976). The ADS concept of dependence was generalized to other drugs (Edwards, Arif, & Hadgson, 1981) and became the basis for the DSM-III-R concept of Substance Dependence. By requiring the presence of three or more criteria within a 12 month period, DSM-III-R was more diagnostically rigorous than its predecessors.

DSM-IV (APA, 1994)

The development of DSM-IV was aligned to correspond to the numeric coding system of ICD-10 (WHO, 1992). While retaining the ICD-9’s major constructs of Abuse and Dependence, the ICD-10 (WHO, 1992 p. 74-75) introduced the construct of Harmful Use: “A pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected drugs) or mental (e.g. episodes of depressive disorder secondary to heavy consumption of alcohol).” While omitting a number of proposals (e.g., “hazardous use of psychoactive substances” that had been introduced in earlier draft

versions of ICD-10 (1992, p. 21), the final version of ICD-10 Harmful Use corresponds to the construct of Abuse. ICD-11 (WHO, in development) proposals have consistently included the two categories of Harmful Use and Dependence, and there are no viable WHO proposals recommending that these two disorders be collapsed into one.

DSM-IV and its text revision DSM-IV-TR (APA, 2000), which by intention left the diagnostic criteria sets relatively unchanged from DSM-IV, continued to reflect the Edwards and Gross (1976) bi-axial constructs of dependence and consequences that were used in DSM-III-R. However, in contrast to the nine criteria for Substance Dependence in DSM-III-R, the DSM-IV listed only seven criteria under dependence, with a former DSM-III-R criterion (i.e., “Substance often taken to relieve or avoid withdrawal symptoms”) being subsumed under the withdrawal criteria for DSM-IV Substance Dependence. In contrast to DSM-III and DSM-III-R, the DSM-IV Substance Abuse criteria set included failure to fulfill major role obligations at work, school, or home was shifted to the DSM-IV abuse criteria set.

Although an association between the axes of dependence and consequences had been assumed (Edwards & Gross, 1976), the DSM-III-R and DSM-IV diagnosis of Substance Dependence took precedence hierarchically over a diagnosis of Substance Abuse. In other words, a diagnosis of Substance Abuse could be made only when the criteria for Substance Abuse were met for a particular substance and only when the criteria for Substance Dependence had never been met for that particular substance. When criteria for both disorders were met, a diagnosis of Substance Dependence preempted a diagnosis of Substance Abuse. DSM-IV required that 1 out of 4 criteria be met for abuse, and 3 out of 7 criteria be met for dependence.

A major problem with the bi-axial distinction was revealed by studies that raised questions concerning the reliability of these constructs. For example, whereas the reliability of DSM-IV Substance Dependence was very good to excellent, the reliability of DSM-IV Substance Abuse was lower and more variable (Hasin, Goodwin, Stinson, & Grant, 2005). Another problem with the DSM-IV distinction between abuse and dependence was that of “diagnostic orphans” (Pollack & Martin, 1999), which refers to individuals who meet 2 criteria for dependence but none of the criteria for abuse. These individuals could have substance-related problems at the same level of severity as others who qualify for a DSM-IV diagnosis, but they would not have received a diagnosis of abuse or dependence because they did not reach the threshold for either diagnosis.

DSM-5 (APA, 2013)

As a result of problems associated with the reliability of the constructs of abuse and dependence, as well as increasing recognition that the DSM-IV abuse and dependence criteria form a unidimensional structure along a continuum of severity, the DSM-5 combines abuse and dependence into a single Substance Use Disorder with increasing levels of severity. Two out of 11 criteria are required to reach diagnostic threshold. In an attempt to promote the dimensional model and to eliminate subtypes, the DSM-5 emphasizes the use of three types of specifiers: course, descriptive features, and severity specifiers. For Substance Abuse Disorders, three levels of current *severity* can be specified: Mild (2 to 3 criteria), Moderate (4 to 5 criteria), and Severe

(6 or more criteria). The criteria set represents four factor groupings including impaired control (criteria 1-4), social impairment (criteria 5-7), risky use (criteria 8-9), and pharmacological symptoms (criteria 10-11). With respect to *descriptive features*, Substance Use Disorder can be specified either With or Without Physiological Dependence, based on whether tolerance or withdrawal is present. For longitudinal *course specifiers*, the more complicated remission specifiers of DSM-IV (i.e., early full remission, early partial remission, sustained full remission, sustained partial remission), have been replaced with two straightforward specifiers (i.e., In early remission, In sustained remission). There is also a course specifier that can be used for individuals contained in an environment in which access to substances is restricted (i.e., In a controlled environment).

The DSM-5 concept of Substance Use Disorder is not without controversy. There is a substantial base of research (e.g., Koob, 2003, 2013; Koob & Le Moal, 1997; Koob & Le Moal, 2001) supporting the distinction between substance abuse and addiction. Substance Abuse has been defined largely by consequences, whereas Substance Dependence is defined mainly by changes in tolerance or withdrawal. In the real world of substance disorder treatment programs, the distinction between *abuse* and *dependence* also has clinical utility. For example, consider the implications of differential treatment interventions for alcohol abuse and alcohol dependence:

“If only criteria for abuse are met, it can be assumed that the patient is not alcohol-dependent (and is, therefore, not an “alcoholic”). Such an individual is more likely to benefit from controlled drinking strategies and to be able to return to nonpathological use of alcohol than is the person who reached criteria for dependence, where abstinence would be the preferred treatment goal. (Francis, Miller, & Mack, 2005, p. 76).

By essentially collapsing two disorders into one, the difference between these two distinctions is lost. Furthermore, this change introduced by DSM-5 means that some individuals who met the less stringent criteria of DSM-IV Substance Abuse will not meet the criteria for DSM-5 Substance Use Disorder. Conversely, some who meet the criteria for DSM-5 Substance Use Disorder would not have met the more stringent criteria for DSM-IV Substance Dependence. Although the U.S. was more than two decades behind most of the rest of the world in adopting the ICD-10 for use in classification of morbidity (Mezzich, 2002), in early May 2014 the U.S. Centers for Medicare and Medicaid announced a new compliance date for adoption of the ICD-10 on October 1, 2015. It is ironic that the collapsing phenomenon evidenced by the DSM-5 construct of Substance Use Disorder in 2013 was followed two years later (2015) by a return to the ICD-10 (1992) bi-categorical constructs of Substance Abuse and Substance Dependence. As an aside, it is interesting to note that the ICD-10 even mentions the term dipsomania, which has traditionally referred to episodic drinking binges as opposed to chronic drunkenness, as an alternative description for alcohol dependence syndrome, episodic use (F10.26). Subsequently, the *ICD-10-CM Official Guidelines for Coding and Reporting FY 2017* (Centers for Medicare and Medicaid Services [CMS] and the National Center for Health Statistics [NCHS], 2016) further expanded the bi-categorical constructs into the three constructs of psychoactive substance use, abuse, and dependence.

The *International classification of diseases, 11th revision, for mortality and morbidity statistics* (ICD-11-MMS; WHO, 2016) continues to include the two categories of Harmful Use and Dependence. Because the deadline in order to be considered for the frozen version of ICD-11-MMS was December 30, 2016, and the deadline in order to be considered for the final version was March 30, 2017, it appears that the traditional internationally-recognized categories of harmful use/abuse and dependence will be enduring. For some classes of substances (e.g., alcohol), the ICD-11-MMS differentiates among hazardous use, harmful use, and dependence.

Although the concept of Substance Use Disorder purportedly illustrates a dimensional (as opposed to categorical) approach to diagnosis, which is a major organizing principle throughout the DSM-5, the Severity Scale for Substance Use Disorder includes four categories: No diagnosis (0 or 1 criterion), Mild (2-3 criteria), Moderate (4-5 criteria positive), and Severe (6 or more criteria positive). In addition, similar to the categorical models used in DSM-IV and its predecessors, the classification scheme of DSM-5 retains the familiar categories of Substance Intoxication and Substance Withdrawal. Significantly, the concept of *substance withdrawal* is the only disorder listed in DSM-IV, DSM-5, and (in greater detail) in ICD-10 and ICD-11. Unlike DSM-IV and its predecessors, in which disorders were organized by substance, DSM-5 is organized by diagnoses (e.g., use, intoxication, and withdrawal). Interestingly, although Tobacco Use Disorder and Tobacco Withdrawal categories are also included in DSM-5, there is no corresponding category for Tobacco Intoxication (also described as *nicotine intoxication*). In view of empirical evidence that high doses of nicotine can cause blurred vision, confusion, convulsions, and even death (e.g., Barlow & Durand, 2015; Barlow, Durand, & Hofman, 2018; Mack, Brady, Miller, & Francis, 2016) the omission of nicotine intoxication in DSM-5 is surprising.

Non-Substance-Addictions

The DSM-5 Substance Use Disorders Work Group proposed that this section be more broadly named Substance Use and Addictive Disorders, because the section includes both substance use disorders and non-substance addictions (i.e., *process addictions*). Unfortunately, DSM-5 fell short of the expectations of many clinicians who had awaited a nomenclature for process addictions. Gambling Disorder, renamed from DSM-IV Pathological Gambling, is the only non-substance addiction contained in the DSM-5. Gambling Disorder is the only Non-Substance-Related Disorder contained in the DSM-5, having been moved from its previous location in the Impulse-Control Disorders Not Elsewhere Classified section of DSM-IV. The newly proposed category of Internet Use Disorder was relegated to DSM-5 Section III (Recommended for Further Study), presumably due to lack of a sufficient evidence base for inclusion of the disorder. Similarly, Caffeine Use Disorder and Neurobehavioral Disorder Associated With Prenatal Alcohol Exposure are also contained in Section III (Recommended for Further Study).

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