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ADDICTIVE DISORDERS IN DSM-5 (JE GRANT, SECTION EDITOR)

DSM-5 and the Decision Not to Include Sex, Shopping or Stealing as Addictions

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Abstract For the first time substance use will not be required for the diagnosis of addiction in diagnostic classification manuals, such as *DSM* and *ICD*. The *DSM-5* has included gambling disorder, along with substance use disorders, as forms of addictions in a new chapter named "Substance-related and addictive disorders", thus reflecting evidence that gambling behaviors activate reward systems similarly to drugs of abuse. However, there is still debate on whether other less recognized forms of impulsive behaviors, such as compulsive buying (oniomania), compulsive sex, and kleptomania can be conceptualized as addictions. In this review, we critically evaluate the literature on these behaviors with a focus on socio-demographic and clinical characteristics, underlying neurobiology and treatment response, and their potential overlap with substance use disorders. We were unable to find a substantial number of studies supporting a relationship of the aforementioned reward-based conditions to substance use disorders, thus supporting the contention not to include compulsive buying, compulsive sex, and kleptomania in *DSM-5* as behavioral addictions.

Keywords Compulsive buying · Compulsive shopping · Compulsive sex · Hypersexual disorder · Kleptomania · Shoplifting · Behavioral addictions · DSM-5

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Introduction

For many years, former *DSM* versions employed the term addiction in relation to alcohol and substance use, while the pursuit of non-substance reward (e.g., excessive gambling, food and sex) was described as symptomatic of impulse control disorders or personality disorders. In *DSM-5*, for the first time since the diagnostic manuals were developed, the diagnosis of addiction will no longer be limited to substance use [1]. For instance, pathological gambling, now termed gambling disorder, has been described as a behavioral addiction under the chapter named "Substance-related and addictive disorders", reflecting evidence that gambling behaviors activate reward systems, similarly to drugs of abuse [2, 3]. In fact, there has been growing evidence that other behaviors with positive reinforcing effects may become addictive for predisposed individuals. However, the mechanisms underlying other behavioral addictions are poorly understood, in part because of the lack of animal models and brain imaging research [4••].

Although a number of reward-based conditions (such as excessive eating, sex and love, buying, exercising, gaming, tanning, tatooing, shoplifting etc.), present some phenomenological overlap with behavioral addictions, the evidence suggesting that these behaviors may develop into addictions is mostly descriptive, rather than biological or evidence-based [5]. However, the evidence suggesting that some of them (such as gambling), share features with substance use disorder is compelling. Both diagnostic groups tend to have an early age of onset and high prevalence in adolescents and young adults. The co-occurrence of behavioral addiction with substance use disorders suggests that they share dysfunction in overlapping neurocircuitry pathways involving the frontal cortex and the striatum [4••]. Also, the patterns of comorbidities in both conditions are similar, involving depressive disorders, bipolar disorders, and ADHD.

In terms of natural history, initial behavioral addictions' and substance use disorders' ego-syntonic features gradually become more habitual, automatic, compulsive and ego-dystonic. Attempts to discontinue problematic behaviors in both conditions are associated with increased levels of dysphoria. There have also been some reports of patients who switch from substance use disorders to behavioral addictions and vice-versa [6]. In addition, both may be viewed as pathological variants of normative behavior; it is sometimes difficult to set the threshold for clinical significance, which may be considered arbitrary. Finally, they often respond to the same pharmacological and psychosocial treatments, such as the 12-step based approach, cognitive behavior therapy, mu-opioids receptor antagonists, and medications that alter glutamatergic activity [7••].

While the evidence supporting the inclusion of gambling disorder as a behavioral addiction in *DSM-5* was considered sufficient, there is still debate on whether other, less recognized forms of abnormal behaviors, such as compulsive buying, compulsive sex or hypersexual disorder, and kleptomania, can be conceptualized as addictions. In this review, we critically evaluate the literature on these behaviors with a focus on socio-demographic features, clinical characteristics, treatment response and their potential overlap with substance used disorders.

Compulsive Buying

Emil Kraepelin first described compulsive buying as an impulsive insanity almost a hundred years ago [8]. Studies have shown that this condition is more prevalent in women and has its onset in the late teens and early adulthood. People suffering from compulsive buying experience repetitive, irresistible, and overpowering urges to purchase goods. In general, the goods are inexpensive and useless [9]. The diagnosis requires evidence of severe distress or interference in social, financial and occupational areas. An important difference between compulsive buyers, normal consumers, and hoarders with excessive acquisition is that the focus and excitement is not on the item bought, but on the buying process itself [10].

In compulsive buying, the overpowering urge to buy, the repetitive loss of control over spending, and the negative emotional state that emerges when not buying resemble craving, drug seeking behavior, and withdrawal symptoms in substance use disorders. Accordingly, some patients report a feeling similar to the "high" resulting from drug intoxication while performing the buying act. As in substance use disorders, positive reinforcement plays a role at the beginning of compulsive buying, while negative reinforcement is involved in the long-term maintenance of the behavior [10]. Psychiatric comorbidities in both include mood disorders, eating disorders, and other impulse control disorders. Some studies suggest that nearly 60 % of compulsive buying patients meet criteria for at least one personality disorder [11].

We found only one fMRI study showing a higher activity in the ventral striatum and a lower activation of the insula while compulsive buying patients performed purchasing related decisions [12•]. Although a role has been suggested for opiate, serotonergic, and dopaminergic systems dysfunctions in this condition, the precise alterations in these neurotransmitters are still unclear [6]. For instance, the evidence supporting the utility of serotonin reuptake inhibitors in compulsive buying is mixed, i.e., while citalopram has shown some benefit [13], escitalopram [14] and fluvoxamine did not [15, 16]. One additional concern is that the number of different buying behaviors required to qualify compulsive buying as potentially addictive, is unclear [17]. Thus, we concur with the *DSM-5* developers in that there is not enough data to classify compulsive buying as an addiction.

Hypersexual Disorder

In the 19th century, individuals who lost control over sexual behaviors were diagnosed with moral insanity, satyriasis, or nymphomania [18]. The prevalence of hypersexual disorder is estimated to be between 3 and 6 % [19]. The condition is far more common among men, begins in adolescence and early adulthood, and has a chronic course [19]. It can be hard to draw limits between hypersexual disorder and normal sexual behavior, which depends on partner's behavior, societal and moral values, and ethics and religious beliefs [20]. However, hypersexual disorder has been reported to be associated with unwanted outcomes, such as unplanned pregnancy, marital separation and divorce, and sexually transmitted diseases, including HIV infection [21, 22].

Although not formally recognized in *DSM-5* as a discrete psychiatric disorder, hypersexual disorder shares some features with substance use disorders. These include an early onset with a chronic-relapsing course that comprises pursuit of short-term reward (i.e., orgasm in hypersexual disorder or a "high" in substance use disorders), despite potential long-term negative consequences (e.g., physical or emotional harm to self or others), and frustrated attempts to inhibit or control the behavior [21]. Some have argued that, like addiction, hypersexual disorder patients may develop tolerance to increasing levels of sexual stimulation, and even withdrawal-like syndromes in the absence of sexual activities, although there are no high quality data available to prove or disprove this observation. Thus, if hypersexual disorder exists as a discrete psychiatric disorder that is independent from other existing nosological entities, phenomenological data

suggests that it could be classified as a behavioral addiction [21].

However, there is also some evident phenomenological overlap between hypersexual disorder and other groups of psychiatric disorders. For instance, it could be also classified as a non-paraphilic sexual desire disorder, as an obsessive-compulsive related disorder, or as a disruptive, impulse control, or conduct-related disorder [21]. The identification of neurobiological links between hypersexual disorder and the conditions listed under these headings could help to establish its place in the current nosological scenario. However, there seems to be no obvious answer to this question, as there is a dearth of biological studies on the topic. For instance, we are aware of only one imaging study in hypersexual disorder. In a diffusion tensor imaging (DTI), Miner et al., found affected subjects to have significantly higher superior frontal region mean diffusivity than controls, which correlated with the severity of symptoms [23••].

The lack of neurobiological studies in other areas is also noteworthy. While the same DTI study reported above found hypersexual disorder patients to show higher impulsivity scores when compared to controls in a go-non-go task [23••], another study reported cognitive rigidity, poor judgment, and deficits in emotional regulation in affected subjects [24]. There is also some evidence suggesting that hypersexual disorder may involve dysfunction in dopaminergic pathways, as hypersexuality and other uncontrolled behaviors (e.g., compulsive buying), are reported to be occasional side effects of dopamine agonists in Parkinson's disease patients [25]. Involvement of the frontal lobes, increased impulsivity, poor emotional regulation, and a relationship with disturbed dopaminergic neurotransmission suggest hypersexual disorder to be associated with behavioral addiction. However, given the scarcity of biological studies in the field, we feel that the *DSM-5* decision not to include it as a behavioral addiction was justifiable and prudent one.

Kleptomania

In 1938, Esquirol, a French psychiatrist, coined the term kleptomania as a way to describe an irresistible impulse to steal worthless objects. Although the terms shoplifting and kleptomania have been used interchangeably, the goal for the latter is generally symptom relief without financial purposes [26]. While the prevalence of kleptomania in the general population is somewhere between 0.3 and 0.6 % [2], shoplifting is far more common, affecting up to 11.3 % of the population in their lifetime [27]. Although most stolen objects are worthless and inexpensive, shoplifters are responsible for almost US $11.7 billion in retail losses per year in the USA [28]. Kleptomania affects more women than men and begins in adolescence and early adulthood [29].

Typically, once a kleptomania patient steals an item, the stolen items are hoarded, thrown away, or secretly returned. Most patients keep the condition secret until consequences become severe. In fact, patients usually present for treatment by legal mandate due to repeated shoplifting [30]. Kleptomania is associated with high rates of suicide attempts [31]. Some cases are triggered by medications (e.g., serotonin reuptake inhibitors) [32], and may emerge during specific medical conditions, such as Neuro-Behçet's disease [33]. Studies have found high lifetime rates of comorbid mood (59 to 100 %), anxiety (60 to 80 %), impulse control (20 to 46 %), and substance use disorders (23 to 50 %) [34].

Currently, kleptomania is under the chapter "Disruptive, Impulse-Control, and Conduct Disorders" in the *DSM-5* [2]. However, as the compulsive component becomes more evident, researchers have suggested that it should be best characterized either as an obsessive-compulsive related disorder, or as a behavioral addiction. While the first view is based on the presence of repetitive thoughts, irresistible urges and uncontrolled behaviors related to stealing, and on the high rate (63 %) of hoarding found among patients with kleptomania [7••]; the disorder also resembles substance use disorders on phenomenological and, at least preliminarily, on the biological level.

Like many other impulse control disorders, kleptomania is characterized by a chronic relapse pattern, with pursuit of short term reward, the sense of a "high" while committing the act, successive attempts to control or stop the behavior, and feeling of shame and guilt after the behavior. From the neurobiological standpoint, studies showing poor white matter integrity in ventral-medial-frontal regions [35•], positive response to opioid antagonists [36••], and lack of response to serotonin reuptake inhibitors [37], all suggest that kleptomania may be classified as a behavioral addiction. However, to date, neurobiological studies are too few to provide a definitive answer with regard to the nosological status of this condition.

Conclusion

Although there is a consensus on the identification of gambling disorder as a behavioral addiction, there is no agreement on whether other excessive behaviors with mixed impulsive and compulsive features (such as compulsive buying, hypersexual disorder, and kleptomania), are related to substance use disorder and should therefore be considered as behavioral addiction. In addition to neuroimaging, which has begun to unveil similarities and differences among individual behavioral addictions, and between behavioral addictions and SUD, further molecular, cognitive, and computational research will be valuable in delineating the boundaries and location of behavioral addictions in dimensions of psychopathology [4••].

Compliance with Ethics Guidelines

Conflict of Interest Marcelo Piquet-Pessôa, Gabriela M. Ferreira, Isabela A. Melca, and Leonardo F. Fontenelle, declare no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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