

BEHAVIORAL ADDICTIONS IN CHILDHOOD AND ADOLESCENCE - PANDEMIC KNOCKING DOOR

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SUMMARY

Introduction: Addiction is not solely “substance dependence”. Diminished control is a core defining concept of psychoactive substance addiction. Several behaviors, besides psychoactive substance ingestion, produce short-term reward that may engender diminished control over the behavior. Growing evidence suggests that behavioral addictions resemble substance addictions in many domains, including phenomenology, tolerance, comorbidity, overlapping genetic contribution, neurobiological mechanisms, and response to treatment. This similarity has given rise to the concept of non-substance or behavioral addictions, i.e., syndromes analogous to substance addiction, but with a behavioral focus. The type of excessive behaviors identified as being addictive include gambling, use of computers, playing video games, use of the internet, exercise, and shopping. Behavioral addictions have been proposed as a new class in DSM-5, but the only category included is gambling disorder. Internet gaming disorder is included in the appendix as a condition for further study. The ICD-11 included also the definition of a new disorder, gaming disorder. To present actual knowledge about behavioral addictions in childhood and adolescence

Methods: Analysis of data in available literature in data basis and textbooks.

Results: Some behavioral addictions are becoming more common in children and adolescents. Dominant are gaming and gambling addiction that are also best researched.

Conclusions: Behavioral addiction becomes an epidemic in children and adolescents.

Key words: behavioral addictions – pandemic - children and adolescents – gambling - internet games

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INTRODUCTION

The concept of behavioral addictions is new and, in a way, a revolutionary concept in psychiatry. Workgroup for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), added the term behavioral addictions to the set of official psychiatric diagnoses. Their proposals documented a new era in the conceptualization of addictions. The workgroup argued that the phrase addictions and related disorders was a more appropriate descriptor than the old terms substance abuse and dependence. They argued that addiction was much more than physiological dependence and that not all people who were dependent on substances were addicts (i.e., cancer patients requiring opiates). They reminded clinicians that cravings and the illicit and/or ego-dystonic behaviors commonly associated with addictions are more critical to making the diagnosis than mere dependency (Rosenberg & Feder 2014). In fact, the distinction between substance abuse and dependence was ultimately eliminated in the DSM-5. The DSM-5 considers abuse and dependence to occur on a continuum called “substance use disorders”. Additionally, dependence is no longer considered a basic element in diagnosing addiction. The compulsive aspects of drug use and loss of behavioral control in DSM-5 are emphasized more than the concept of dependence (Robbins & Clark 2015). There is no habit which provides a reward that cannot become excessive, compulsive, and sometimes life-endangering. However, interestingly, not every-

body bears the risk of becoming addicted. The person becomes addicted when he or she has been deprived of control over a given substance or behavior and develops dependence (Thibaut & Hoehle 2017).

Criteria were provided for substance use disorder that focused on cravings and out-of-control behavior. More importantly, the workgroup noted that the emerging neuroscience supported a unified neurobiological theory of addictions, regardless of the specific addictive substances, substrates, or activities. Behavioral and substance addictions have many similarities in natural history, phenomenology, and adverse consequences. Both have onset in adolescence and young adulthood and higher rates in these age groups than among older adults. Both have natural histories that may exhibit chronic, relapsing patterns, but with many people recovering on their own without formal treatment (so-called “spontaneous” quitting) (Grant et al. 2010).

Behavioral addictions are often preceded by feelings of “tension or arousal before committing the act” and “pleasure, gratification or relief at the time of committing the act”. The ego-syntonic nature of these behaviors is experientially similar to the experience of substance use behaviors. This contrasts with the ego-dystonic nature of obsessive-compulsive disorder. However, both behavioral and substance addictions may become less ego-syntonic and more ego-dystonic over time, as the behavior (including substance taking) itself becomes less pleasurable and more of a habit or compulsion, or becomes motivated less by positive reinforcement and more by negative

reinforcement (e.g., relief of dysphoria or withdrawal. As in substance use disorders, financial and marital problems are common in behavioral addictions. Individuals with behavioral addictions, like those with substance addictions, will frequently commit illegal acts, such as theft, embezzlement (Grant et al. 2010).

This similarity has given rise to the concept of non-substance or behavioral addictions, i.e., syndromes analogous to substance addiction, but with a behavioral focus. It allowed inclusion of behavioral as well as chemical addictions. This line of thinking was evident with the inclusion of Gambling Disorder in the Non-Substance-Related Disorders category of Substance-Related and Addictive Disorders in the DSM-5, published in 2013 (Rosenberg & Feder 2014).

Formerly, part of 'Impulse Control Disorders', Gambling Disorder (earlier named compulsive or pathological gambling) is now associated with substance addictions and characterized as a prototypical example of a 'behavioral addiction' (Robbins & Clark 2015). The name of the disorder has been changed mainly to reduce stigma (Rosenberg & Feder 2014). It is currently the only example of behavioral addiction recognized in DSM-5. Other disorders possibly to be considered in the same light are dispersed across other sections of DSM-5, including in particular 'Disruptive, impulse control and conduct disorders', 'Obsessive-compulsive and related disorders', and 'Feeding and eating disorders'.

Internet-related behavioral addictions were also at issue in the drafting of the DSM-5. Based on the current evidence available, the DSM workgroup on this topic determined that more research was needed on Internet addiction, but included Internet Gaming Disorder in the appendix to the manual, which is focused on conditions for further study. Other behavioral addiction subcategories, including sex addiction, exercise addiction, and shopping addiction, were considered for the substance-related and addictive disorders section of the DSM-5 but were not included in this publication due to a lack of current peer-reviewed evidence to establish the diagnostic criteria to classify them as new mental disorders (Rosenberg & Feder 2014). International Classification of Diseases eleventh edition (ICD 11) classified gambling disorder and gaming disorder in the section of Disorders due to substance use or addictive behaviors.

CONSIDERATION AND DISCUSSION

Gambling Disorder

Gambling Disorder is the only non-substance use disorder included in *DSM-5* in the "Substance-related and Addictive Disorders" section of the manual. It has been the most thoroughly studied of the behavioral addictions. As such, may be considered the prototypical behavioral addiction. It provides further insight into the relationship of behavioral addictions and substance use disorders. Gambling disorder usually begins in

childhood or adolescence, with males tending to start at an earlier age, mirroring the pattern of substance use disorders. Higher rates of pathological gambling are observed in men, with a telescoping phenomenon observed in females (i.e., women have a later initial engagement in the addictive behavior, but foreshortened time period from initial engagement to addiction) (Grant et al. 2010).

From a clinical perspective, gambling disorder and substance use disorders demonstrate frequent co-occurrence in clinical and community samples, show similar developmental patterns of expression (with high rates in adolescents and young adults and lower rates in older adults), show shared genetic and environmental contributions in twin studies, and demonstrate similarities, as well as differences, at neurobiological levels. Sex-related differences with respect to telescoping also seem to link gambling disorder and substance use disorders. Similarities between gambling disorder and substance use disorders have been reported for clinical interventions. For example, Gamblers Anonymous, modeled after Alcoholics Anonymous, is available worldwide and has been linked to favorable outcomes, particularly in conjunction with professional treatment. Behavioral therapies with efficacy in treating substance use disorders have been adapted for gambling disorder and shown to be efficacious. Pharmacotherapies with approval for substance use disorders have demonstrated positive results in placebo-controlled randomized clinical trials for gambling disorder. Notably, naltrexone, an opioid-receptor antagonist with indications for alcohol- and opioid-use disorders, has demonstrated superiority over placebo in several randomized clinical trials, as has another opioid-receptor antagonist, nalmefene (Potenza 2017).

Global estimates of problem gambling are complicated. Hodgins et al. (2011) find that Gambling disorders affect 0.2-5.3% of adults worldwide, actually from 0.2% in Norway to 5.3% in Hong Kong, and 0.4% to approximately 3% in the United States. Gowing et al. (2015) estimated prevalence is at 1.5% in countries where it has been assessed.

Prevalence surveys indicate that only a small proportion of the individuals who are suffering from Gambling Disorders seek formal treatment. Despite the significant personal costs associated with Gambling Disorder. In fact, Suurvali and colleagues (2008) found that less than 6% of problem gamblers actually seek formal treatment. This new placement of Gambling Disorder in the addiction chapter may improve recognition of problems and increase requests for treatment services. Although the phenomenon of natural recovery from problem gambling occurs in an estimated 35% of individuals (Slutske 2006), most problem gamblers report are chronic course, with symptom severity fluctuating over time (Hasanović & Pajević 2018).

Internet addiction disorder

Phenomenologically, there appear to be at least three Internet addiction disorder (IAD) subtypes: excessive gaming-gambling, sexual preoccupations (cybersex), and socializing or social networking, including e-mail and messaging. Internet addicts may use the Internet for extended periods, isolating themselves from other forms of social contact, and focus almost entirely on the Internet rather than broader life events. Adolescents with problematic Internet use showed dysfunctional coping strategies with problems in school and home and showed worse interpersonal relations (Rosenberg & Feder 2014, Begović et al. 2015, Pajević & Hasanović 2018).

International prevalence rates for Internet addiction range globally from 1.5% to 8.2% (Petersen et al. 2009). Overall 4% of United States students scored in the occasionally problematic or addicted range (Christakis et al. 2011). A major survey of 11 European countries found an overall prevalence rate of 4.4%; it was higher among males than females (5.2% versus 3.8%) and differed between countries (Durkee et al. 2012).

Internet addiction has been most studied in the Far East. In Taiwan, Korea and Singapore prevalence rates range between 2.4 and 20 %. (Ong & Yi Ren 2014). In China, prevalence rates vary between 10.2% of moderate users and 0.6% of the severely addicted (Lam et al. 2009).

IAD was initially proposed for inclusion in the *DSM-5* but was not yet recognized as a disorder; however, Internet Gaming Disorder was included in the *DSM-5* appendix of disorders for further consideration and study. Gaming Disorder with specifier, predominantly online, is included in ICD 11 classified in the section of Disorders due to substance use or addictive behaviors.

Internet Gaming Disorder

Although Internet Addiction Disorder (IAD) had been a candidate for *DSM-5* inclusion, it was rejected due to a lack of scientific justification. However, online gaming addiction, as a specific type of IAD, had been better documented and thus, included in Section III (an appendix of disorders for further study) of the *DSM-5* under the name of Internet Gaming Disorder.

Since their appearance in the 1990s, online video games have become widely popular and accessible. Nowadays, they are one of the most widespread recreational activities irrespective of culture, age, and gender. Video games can be divided into two main groups - online and offline video games - a distinction that can significantly influence player behavior. 70% of gamers prefer online as opposed to offline games.

Online gamers spend more time gaming than those who play offline games, mostly because of the social nature of these games. They find online games more pleasant and satisfying than offline games and sometimes prefer playing games to real-life activities (Rosenberg & Feder 2014). These motives may also account for the findings showing that online games trigger the appearance

of problematic use more often than offline games. Recent research has shown that 79% of online gamers have a clear gaming preference which might suggest that specific games fulfill specific psychological needs (Rosenberg & Feder 2014).

It is quite difficult to estimate the prevalence of problematic online gaming due to the lack of a clear definition, the application of measures without proper psychometric characteristics, and studies using different samples and different research methodologies. Large sample studies generally report prevalence values below 10%. A study conducted in Germany on a sample of teenagers (Ruth et al. 2013) as well as a large sample of Singaporean children, reported a problematic game use under 9% (Gentile et al. 2011)

Gamers are mostly male (91%) and single (66%) the mean age was 21 years, their average weekly game time varied between less than 7 hours (10%) and more than 42 hours (also 10%) with most of the gamers playing 15-27 hours weekly (35%) (Rosenberg & Feder 2014)

Criteria for gaming disorder in the 11th edition of the *International Classification of Diseases (ICD-11)* include interference in major areas of functioning related to gaming (ie, video gaming), with persistent and recurrent gaming over a period of at least 12 months that continues despite adverse consequences and in the setting of impaired control over gaming. Specifiers (those predominantly online and those predominantly offline) have been included, as has a mutually exclusive category of hazardous gaming meant to capture individuals who engage in types and patterns of gaming that may place them at increased risk for mental or physical health problems but have yet to reach the level of gaming disorder. Despite the debates, considerable research is being conducted into Online gaming disorders, including investigation of effective treatments and neurobiological underpinnings, with both similarities and differences between Online gaming disorder, Gambling disorder, and SUDs noted (Potenza 2017). Studies are still at an early stage, often with small sample sizes and other limitations.

Sex addiction

The hypersexual disorder was considered for inclusion in *DSM-5*. After field-testing having been conducted, it was not included. *ICD-11* recognise a diagnostic entity called "compulsive sexual behavior disorder" (CSB) but not as „Disorder due to addictive behavior“ than as an "Impulse Control Disorder". Features of this disorder include a "persistent pattern of failure to control intense, repetitive sexual impulses or urges" that involves preoccupation, unsuccessful attempts to control sexual behaviors, and sexual engagement despite adverse consequences, manifested over an extended period of time (e.g., 6 months or more), and the association with significant distress or impairment in major areas of life functioning. CSB both Internet-based and non-Internet-based forms of problematic sexual behaviors warrant clinical consideration and investigation (Potenza 2017).

Studies report the prevalence of sex addiction somewhere between 3% and 16.8% and most of them estimate that 3% to 6% general adult population are addicts on sex and that is 3 to 5 times more prevalent among men (Karila et al. 2014). Rates in the literature vary depending on the characteristics such as gender, sexual orientation, age, and diagnostic criteria in studies.

Several other different types of excessive behavior have been identified as behaviors that can lead to behavioral addiction. These most commonly include food, exercise, and shopping addictions that will not be described in this review.

CONCLUSION

The field of behavioral addictions is still young, and there are many gaps remaining in what is currently known and what is in clinical practice.

Late childhood and adolescence are especially vulnerable and at-risk periods considering the onset of behavioral addiction. The prevalence of behavioral addiction in adolescence is very high and for some of them (mainly internet-related addictions) become more prominent by passing time.

In spite of increased understanding of the biological basis of these disorders during the last decades translating this data into improving prevention and treatment is slow. There is still no approved medications for the treatment of behavioral addiction.

Acknowledgements: None.

Conflict of interest: None to declare.

Contribution of individual authors:

Elvir Bećirović: conception and design of the manuscript, collecting data and literature searches, analyses and interpretation of data, manuscript preparation and writing the paper.

Izet Pajević: made substantial contributions to conception and design, participated in revising the manuscript.

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