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Internet gaming disorder: A sign of the times, or time for our attention?



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HIGHLIGHTS

- Significance of Internet Gaming Disorder (IGD) is described.
- Evidence indicates IGD is not just symptom of pre-existing conditions.
- Problem is increasing in severity as games become more enticing.
- Treatments of IGD are still in early stages.
- Changing to Public Health perspective/preventing excessive use is essential.

1. Introduction

A college freshman, previously a straight-A high school student actively involved in extracurricular programs, is suddenly significantly underperforming, failing academically and isolating, rarely leaving the dorm. Clinical explanations for the change in behavior may include homesickness, a relationship loss, depression, or substance abuse.

Most would likely overlook digital gaming as a culprit. Yet, prospective longitudinal research has found that gaming can lead to life difficulties, with cause for concern (Gentile et al., 2011). In the case of this freshman, if some type of intervention or change does not occur, this student could soon fail out of college, struggle to obtain a basic job, and experience significant difficulties making friends. Living on campus, with unrestricted media access, students risk spending significant time gaming to the detriment of their academics, social connectedness, and personal health. Online gaming also drains productivity in the workforce with companies responding by actively blocking gaming sites.

2. The problem at hand

Digital games can be defined as any type of game played electronically. In the US, 91% of children ages 2–17 play digital games, including 99% of teenage boys and 94% of teenage girls (Granic, Lobel, & Rutger, 2014). Among adults, 50% of men and 48% of women play digital games, with men twice as likely as women to self-identify as “gamers” (15% vs. 6%) (Duggan & Maeve, 2015). The differences by age likely largely reflect cohort/generational-effects rather than maturation, though time will tell.

For the majority of users, gaming may be harmless, and for some,

may even yield benefits (discussed below); however, in certain gamers, negative effects can approximate that of a gambling disorder. The Diagnostic Statistical Manual, Fifth Edition (DSM-5) of the American Psychiatric Association (APA) lists Internet Gaming Disorder (IGD) under “conditions for further study.” IGD is defined as experiencing at least five of the following nine criteria over a 12-month period: gaming preoccupation; withdrawal; tolerance; loss of interest in other activities; minimizing use; loss of relationship, educational, or career opportunities; gaming to escape or relieve anxiety, guilt or other negative mood states; failure to control; and continued gaming despite psychosocial problems (American Psychiatric Association, 2013). With great interest, IGD criteria are being critically reviewed and debated (Griffiths et al., 2016), and are under consideration for inclusion in the International Classification of Diseases (Aarseth et al., 2017). Efforts also are underway to develop psychometrically robust assessments of IGD to build a stronger consensus in the field of gaming studies (Király, Nagygyorgy, Koronczai, Griffiths, & Demetrovics, 2015a; Pontes, Király, Demetrovics, & Griffiths, 2014).

Current prevalence estimates of IGD vary widely (2–15%) and differ depending on game of choice, country, and method of survey sampling (Gentile, Coyne, & Bricolo, 2013). Prevalence may be underestimated due to low response (surveys take time away from gaming) and underreporting (a criterion of IGD is hiding one's extent of internet gaming). Yet, even by conservative estimates, with 318 million people in the US playing digital games, at least 5 million (probably many more) meet criteria for IGD, experiencing personal, social, and academic difficulties.

IGD dates back to the oldest of arcade games; however, the problem has increased exponentially due to technological advances with more sophisticated, immersive and rewarding game structures and use on

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handheld devices. Today's games utilize best principles of psychological theory and marketing to attract and keep audiences playing. With the advent of “free-to-play” games and “in-game purchases”, users may also end up spending excessive amounts of money (Dreier et al., 2017). Further, with the surge of virtual reality games available at low prices, users are escaping into virtual worlds more effectively than ever. The digital gaming industry's annual revenues exceed \$22 billion (Duggan & Maeve, 2015).

Some may be dubious that digital games can cause dysfunction, viewing the true culprit as preexisting conditions such as depression or anxiety. However, recent imaging research (Weinstein, Linvy, & Weizman, 2017) indicates that individuals with IGD have cognitive structural changes and altered functional mechanisms of reward and craving that are similar to the changes seen with substance use disorders. Additionally, a longitudinal study (Gentile et al., 2011) found that children asymptomatic at baseline developed depression and anxiety over time when experiencing IGD criteria. Taken together, the evidence suggests IGD is more than a coping mechanism for depressed or anxious individuals.

Digital gaming also may promote negative behaviors such as smoking and aggression. Tobacco is incorporated into many digital games played by youth; in some a selectable character feature, in others, present without choice. Research has found that exposure to tobacco in movies increases youth smoking, and similar effects are presumed via the more extended and highly-interactive exposures of digital gaming. Consumer groups have urged the gaming industry to add product descriptors identifying tobacco-related content. Further, the majority of research on violent digital gameplay indicates causal risks for aggressive thoughts, feelings, and behaviors with no sex differences in susceptibility (Anderson et al., 2010).

Digital gaming also offers potential cognitive, motivational, emotional, social, and educational benefits, even among high volume users (Granic et al., 2014). A recent study found that playing Tetris decreased cravings for drugs, food, and activities, including gaming (Skorka-Brown, Andrade, Whalley, & May, 2015). Increasingly, K-12 schools are building in digital game-based learning. Needed is research to inform best practices for the healthy, beneficial use of digital games.

3. Steps to reduce and curtail the problem of IGD

Given the large market for digital gaming and the likelihood for ever increasing sophistication and attraction, public health approaches are needed to prevent IGD. Education ought to alert adult users, parents, and young people of the need to monitor and moderate gameplay and game content, and be attentive to the development of problem symptoms. Many casinos provide information and resources for Gambling Disorder, and digital gaming companies could provide similar education and resources on IGD for their consumers. Industry product warning labels also could be incorporated either voluntarily or via effective product regulation. For example, some digital games, such as immersive Role-Playing Games (RPG's), appear particularly habit-forming (Király et al., 2015b). User characteristics also relate to IGD. For instance, motives behind gaming, such as escape and desire for competition, are predictive of problematic gaming (Eichenbaum, Kattner, Bradford, Gentile, & Green, 2015) and may be useful screening criteria for early intervention. Interventions for IGD in the US are still in the early stages, with greater activity in South Korea and China (Hyun et al., 2015). Most treatments follow an abstinence approach, although harm reduction models exist. Additional research is needed to determine treatment efficacy.

4. Moving forward

Considering the number of individuals playing digital games, the estimates of IGD prevalence, the trajectory of digital gaming sophistication, and the lack of evidence-base for effective treatment and

prevention strategies, IGD is on course to becoming a major public health problem. The APA's decision to list IGD as a “Condition for further study (American Psychiatric Association, 2013)” signals appreciation for the clinical nature of the disorder and the need for invested research.

As in the case example of the isolating college student, digital gaming can be largely invisible. Needed are public health campaigns and product labeling to raise awareness of the problem of IGD. Further, research investment is needed to identify the causes and consequences of IGD as well as best practices for intervention. The Entertainment Software Rating Board is the group responsible for age and content ratings applied to video games and mobile apps. In clinical practice, providers can screen and document digital game use and the associated negative consequences. Though digital games may be fictional in content, in the extreme, the consequences are real and warrant attention.

Additional information

The views expressed are the authors' own and do not necessarily represent that of their institutions.

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Contributors

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Conflict of interest

All authors declare that they have no conflict of interest.

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