



EDITORIAL

A short update of disordered gaming

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Internet gaming is a legitimate commonly practiced leisure activity. Previous research has widely demonstrated positive effects of healthy gaming (1,2); however, for a minority of players gaming may become dysfunctional, leading to functional impairment that is harmful to their social, occupational, familial, educational, and psychological functioning (3). Investing excessive amounts of time in their activity (often 8–12 hours per day) is a primary way in which pathological gamers are negatively affected by their condition (4). Researchers and society have gradually become more interested in the problems caused by the excessive use of videogames (5). As with other addictions, diminished control in disordered gaming affecting participation in the gaming may lead gamers to continue this behavior even while they are experiencing negative consequences including distress and functional impairment in their personal, relational, occupational, educational, or other life domains (6). Again not unlike in other addictions, cue-reactivity and craving may be increased and inhibitory control lowered, representing key mechanisms in disordered gaming, particularly in the presence of specific gaming-related cues (6).

The latest (fifth) edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) included the tentative term “Internet Gaming Disorder” (IGD) in the DSM-5 (7), labeling IGD as a “condition that needs further research before being fully recognized and accepted as an independent disorder in subsequent revisions of the DSM” (8). Of the nine criteria used in the DSM-5 (preoccupation

with Internet games, withdrawal symptoms, tolerance, unsuccessful attempts to control participation in Internet games, loss of interest in previous hobbies, continued excessive use of Internet games, deceiving family members, the use of Internet games to escape, and loss of a significant relationship, job or education, or career opportunity), seven are identical to those of gambling disorder and five to substance use disorder (9). More severe degrees of IGD involving problematic behavior displacing usual and expected social, work and/or educational, relationship and family activities may result in academic failure, job loss or marriage breakdown (10). For a diagnosis of disordered gamer, five or more out of the nine criteria need to be matched over a period of 12 months (7). In the DSM-5, IGD is characterized clinically by a “persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress” (7).

In 2016 “Gaming Disorder” was included as a “behavioral addiction” in the beta draft of the 11th edition of the International Classification of Diseases (ICD-11) (11), based on the realization that by then research had demonstrated the clinical significance of playing videogames, the related health burden, and its neurobiological similarities with other substance use disorders (12). More specifically, the beta draft of the ICD-11 defines gaming as a pattern of persistent or recurrent online and/or offline gaming behavior manifested by three core diagnostic criteria: (1) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context); (2)

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increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and (3) continuation or escalation of gaming despite the occurrence of negative consequences (11). The recurrent gaming behavior involved in gaming disorder may happen online or offline, and the clinical assessment covers a 12-month period (which may be reduced if all diagnostic requirements are met and symptoms are severe), determining if the severity of the condition significantly affects personal, family, social, educational, and occupational life domains and/or other broad areas of functioning (13). The World Health Organization (WHO) proposes a number of exclusion criteria for a differential diagnosis of gaming disorder, screening the patient for hazardous gaming and bipolar type I and type II disorders (13). Finally, on May 25, 2019 at the 72nd World Health Assembly, the WHO, officially recognized disordered gaming as a mental health disorder (13).

While computer games began with quite simple foundations, they have vastly diversified today, and millions of dollars are spent on the development and updating of these games. Thus, the computer and videogame industry enjoyed a record-breaking year in 2018 when videogame sales exceeded a total of \$43.4 billion (14). Gaming is now one of the most common pastimes in highly developed societies for all social groups. The Entertainment Software Association (ESA) recently published data indicating that approximately 65% of all adults in developed countries such as the United States of America (USA) regularly play videogames, while about 75% of all households in the USA include at least one active gamer (14). Gamers in the USA are using a variety of electronic devices for gaming, primarily smartphones (60%), personal computers (52%), and dedicated game consoles (49%) (14). A similar pattern of gaming has been observed in other highly developed countries. As the Interactive Games and Entertainment Association (IGEA) reported for Australia, around 67% of all inhabitants play videogames and 97% of all households with children own computer games (15).

While most studies emphasize the risks and downsides of online gaming, there are suggestions that online games may also help address human needs emerging from modern culture in novel ways, indicated by the popularity of the games (16). If gaming satisfies people's basic needs, it cannot be categorically evaluated as bad or good (16). Rather, the features of individual games should be assessed from a motivational view,

exploring gamers' reasons and motives for playing them, without judging them as helpful or dangerous.

Gaming brings many players together in the real world. Today, gaming has become a major industry with large congresses and tournaments attended by thousands of people (17). Gaming has become professionalized, and for a minuscule group of players, competitive gaming has become a career option (18,19). This novel type of professional video gaming has been termed esports (electronic sports). Esports include professional or amateur competitions organized in coordination with leagues or tournaments supported by commercial organizations (20). Esports is a new area in gaming culture gaining prominence and popularity in parts of the videogame communities, especially among adolescents and young adults (18). Some of these games played individually or by teams are displayed on huge screens watched by thousands of people. For example, in the game titled "League of Legends," teams consisting of five people are struggling with the features they choose and a set of more than 100 heroes.

Currently the new MOBA games are the most popular esports genre, while the FPS and the RTS genres have kept their popularity. A recent report found a growth of the global esport economy in 2017 by 41.3% (up to \$696 million), expecting esport brand investment to double by 2020 (21). Esports spectators, an important element for esports competitions, are defined as individuals watching, supporting and following professional esports content (22). Online streaming platforms such as Twitch and YouTube also enable a large following for esports (18). The esports audience is estimated to have reached 385 million globally, with 45% of them being active players, 23% viewing streams of esports, and 32% both playing games and viewing streams (21). Those who are engaged with esports may be more vulnerable to disordered gaming; i.e. a study conducted among both university students and gamers in Turkey found a prevalence rate of 0.96% for disordered gaming among the whole sample according to the APA framework, whereas this rate was 2.57% among esports players (23).

A number of studies have included esports in the framework of traditional sports (24). To gain the status of sport, esports need to be accepted as such worldwide (25). At a time when the popularity and attraction of esport increase, concerns are expressed regarding not only the psychology of video gaming, but also the lack of physical activity and the sedentary nature of esports (25,26) or the intensive, excessive participation in gaming (19).

With growing interest in esports, operators for betting in online gambling and opportunities for esports players to earn money have emerged. In addition to the existing online gambling operators adding esports betting options, new specialized esports betting sites have been launched. Bets can be placed on the team that is thought to win, as in professional sports, or on additional predictions (e.g., who will win the first part played with the pistol in the Counter-Strike: Global Offensive [CS:GO] game). Bets can be made for real money or with in-game items such as skins (27).

One of the features of the videogames believed to be related with both disordered gaming and gambling is loot-box engagement (28). Loot boxes are virtual goods containing randomized rewards that can be purchased in many videogames; thus, players “gamble” for chance items (28-30). In some games, loot boxes are provided to players as a reward for completing a designated stage, level, or any other specified in-game achievement; other games allow loot boxes to be purchased at will, some games award loot boxes in what seems to be random fashion (31). In previous studies, nearly half of the participants reported that they were engaged in loot box activities in the past year (28,29). These individuals find rarer game items hedonically rewarding and motivating (32). Given the similarities found between certain loot boxes and gambling, a vivid debate investigates whether these items actually constitute a form of gambling (32,33). Recent studies that evaluated this association of loot box engagement and problematic gambling among adolescents (29,30,34,35) and adults (28,32,33). Brooks and Clark (36) suggest a relation between loot boxes and gambling. Accordingly, loot box purchasing may help trigger the transition from recreational video gaming and online gambling to problematic engagement in video gaming and/or gambling (28). The legal status of this feature has even been questioned, indicating a potential requirement to regulate their use as gambling (30), and researchers have discussed ways to reduce the impacts of spending on loot boxes (29,33). In 2016, the Chinese government passed legislation that required game developers to disclose the odds of receiving certain items from loot boxes. In 2018, the Belgium Gambling Commission declared that loot boxes are in violation of gambling legislation (37). While some researchers suggest that setting limits to the sale of loot boxes might protect videogamers at risk of gambling problems (38), others suggest that this may not be sufficient on its own to stop players overspending (39); a cautious approach to public policy may be needed to set up adequate regulation for loot boxes (40).

As we all know nowadays we have to face with the COVID-19 reality. The virus spread quickly across the globe, causing an outbreak that escalated rapidly. Uncertainty about the pandemic, death news, restrictions, economic problems and anxiety can cause people to be nervous, anxious or depressed. Since play can be used to deal with the psychological stress caused by the epidemic, psychiatrists should be aware of how much gaming can increase during the pandemic (41). Loss of routine of going to school or work and participating in other activities can cause people to be isolated at home. This ensures that environmental control mechanisms are also eliminated. The need for physical isolation and quarantine to prevent the spread of Covid-19 has led to a massive increase in participation in online games. In line with this, data obtained from studies on playing games in the middle of the epidemic show that playing games has increased in the United States, the volume of game downloads has reached a record level in Europe and live-streaming platforms YouTube Gaming and Twitch reported 10% increase in viewership (41,42). During the quarantine period, there was also a marginal increase in online game user participation and female users aged 25-35. Initiatives such as #PlayApartTogether, which encourages socialization and play to reduce stress and is supported by the World Health Organization, have been launched and can deliver positive results (42,43). Playing games is generally less harmful than many other potential behaviors used to deal with stress and negative emotions, such as alcohol and substance abuse or overeating. But while playing games is a healthy coping strategy for the majority, it can also pose risks for some susceptible individuals. Prolonged periods of social isolation and technology-based activity threaten to reinforce unhealthy lifestyle patterns and can lead to difficulties in re-adaptation when the crisis passes. Therefore, psychiatrists should create safe social interaction alternatives, especially for people at risk of gaming disorders. If outdoor and community activities involving social interaction are prohibited, indoor activities such as board games or home exercise should be designed and provided (42-44). Other things that can be done; to increase physical activity, to maintain sleep patterns, to acquire good eating and eating habits, to engage in social activities and to maintain relationships that are enjoyed, to connect with family and friends, to spend time alone and for yourself if they are experienced with someone, to organize time and energy to achieve personal goals, learning and using relaxation and other stress reduction techniques (42-

44). Of course, if the person cannot cope with the stress or problems related to playing games, it is necessary to seek professional help.

Inclusion of disordered gaming in diagnostic systems may allow reducing the public stigmatization against people suffering from this problem and may encourage them to seek help. Also this may increase the number of high quality studies concerning the treatment of disordered gaming and may force politicians to develop policies on the subject. There are risk factors that can cause recreational activity gaming to become a disorder. Considering that the most easily preventable risks can be in-game features, it is necessary to intervene in features associated with gambling such as loot-box. Consistent with this Griffiths and Pontes (45) claim that adequate cooperation between videogame operators and researchers needs to be established in order to encourage the gaming industry to set up serious social responsibility policies in order to ensure player protection and minimize harm to gamers. Finally, while gaming may be healthy way of coping for most of the players during the pandemic, some may be at risk of gaming disorder and special attention should be given to these players.

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