



## THE DIAGNOSIS OF VIDEO GAME ADDICTION IN THE DSM-5 AND THE ICD-11: CHALLENGES AND OPPORTUNITIES FOR CLINICIANS

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*El trastorno de juego por internet (conocida como adicción a videojuegos) se caracteriza por un patrón de comportamiento de juego persistente y recurrente que conlleva un deterioro o malestar clínicamente significativo por un periodo de 12 meses. El objetivo del presente análisis del estado de la cuestión es comentar los retos y oportunidades del DSM-5 y la CIE-11 para su diagnóstico dada su actualidad y su rápida evolución. Para ello se revisan las posibles adicciones tecnológicas que no están incluidas en el DSM-5, sus ventajas y retos y oportunidades y se comentan algunos de ellos: gravedad de los síntomas y del trastorno, el riesgo de patologizar la vida cotidiana, edad de la población afectada, los juegos freemium y los pay-to-play, los e-Sports y la cartera de servicios de salud.*

**Palabras clave:** Trastorno de juego por internet, Video game addiction, DSM-5, CIE-11.

*Internet gaming disorder (IGD) (formerly known as video game addiction) is characterized by a pattern of persistent and recurring video game behavior leading to clinically significant impairment or distress for a period of 12 months. The objective of the following state-of-the-art analysis is to comment on the challenges and opportunities of the DSM-5 and ICD-11 regarding the diagnosis of IGD that is still being developed. With this purpose in mind, possible technological addictions that are not included in the DSM-5 are reviewed and some of their advantages, challenges, and opportunities are commented on, including severity of effects, age of the most affected population, freemium vs. pay-to-play games, the risk of pathologizing daily life, e-Sports, and the health services portfolio.*

**Key words:** Internet gaming disorder (IGD), Gaming disorder (GD), Video game addiction, DSM-5, ICD-11.

The aim of this analysis of the state of the art is to comment on the challenges and opportunities that the inclusion of "internet gaming disorder" in section III of the DSM-5 (American Psychiatric Association, 2013) and "gaming disorder" in the ICD-11 (World Health Organization, 2018) represents for the diagnosis of video game addiction. Before starting, however, it is necessary to consider some limitations of our work. Firstly, the rapid evolution of this entertainment will make many video games obsolete, as has already happened with Tetris, which turned 35 years old in the summer of 2019, and Pong or the classic Game Boy video console. Secondly, we must bear in mind that full consensus has not been reached among researchers and, therefore, the controversy over the conceptualization and diagnosis of video game addiction continues (Aarseth et al., 2016; Griffiths et al., 2016, 2017; Kardefelt-Winther, 2015). All of this forces us to review our considerations, which run the risk of being overtaken by technological advances.

The DSM-5, faithful to the principles of the previous editions, has inherited their criticisms and virtues and become a source of challenges for clinicians and researchers. We will begin with what the DSM-5 does not consider an addiction. And this

manual omits a great deal. This list of possible behavioral addictions could include shopping, tango (Targhetta et al., 2013), dance (Maraz et al., 2015), tarot (Grall-Bronnec et al., 2015; Tomás, 2019), tanning (Nolan & Feldman, 2009), Harry Potter (Rudski et al., 2009), study (Atroszko et al., 2015), work (Orosz et al., 2015; Quinones & Griffiths, 2015), cosmetic surgery (Suissa, 2008), talking (Bostrom & Harrington, 1999; McCroskey & Richmond, 1993, 1995), Star Wars board games (Calvo et al., 2018), and other behaviors for which scientific articles have been published pointing out possible addictive consequences. However, only sex, exercise, and shopping addiction merit a specific comment from the DSM-5, when it states on page 481 that "There is not enough evidence to establish the diagnostic criteria and descriptions of the disease course necessary to identify these behaviors as mental disorders." We will not pause to ponder whether the DSM is right and instead we will focus on three technological addictions explicitly excluded from the DSM-5.

- ✓ Non-Internet computerized games: These «could be included but have been researched less» (p. 796). In other words, it does not contemplate video games without an Internet connection but at the same time leaves the door open with the expression "could be included".
- ✓ Online social networks such as Facebook and online pornography: "Excessive use of the Internet not involving playing of online games (e.g., excessive use of social me-

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dia, such as Facebook; viewing pornography online) is not considered analogous to Internet gaming disorder ...” (p. 797). Without a doubt, the debate about the addictive capacity of social networks is not a closed one. We argue that it is not appropriate to use the term addiction in relation to social networks and that using the framework of addiction to explain their intensive use is overly reductionist (Carbonell & Panova, 2017).

- ✓ Internet addiction: «Recreational or social use of the Internet is not a disorder» (p. 796). The DSM is very succinct on this point and does not elaborate on the technology with which the modern era of technological addictions began (Griffiths, 1995; Kraut et al., 1998; Young, 1998). In our opinion, DSM-5 makes this decision because the Internet is only the medium that allows us to access applications and websites (Carbonell et al., 2012). Gambling online may be the problem; the Internet, however, is not.

There is a fourth technological addiction about which there is an abundance of scientific literature that is not mentioned in the DSM-5: cell phone addiction. From our point of view, the cell phone is a platform, which like the Internet, allows access to apps, airline websites, weather forecasts, social networks, pornography, video games, gambling, bank statements, etc. but the problem, if it exists, cannot be in the medium we use to access that information and/or communication. That would be a bit like confusing alcohol addiction with an addiction to the glass or bottle, which are the containers that we use to preserve or ingest alcohol (Panova & Carbonell, 2018).

What cannot be denied is that the smartphone has made many behaviors more accessible. Whereas before you had to wait to get home to consult social networks on your computer, now it is possible to do so immediately, in absolute privacy, and in a wide variety of places. In a way, you can compare the cell phone with the cigarette. The cigarette format is one of the most successful industrial products of the 20th century whose price, availability, and ease of use has popularized the consumption of nicotine where neither the cigar, the pipe, snuff, nor chewing tobacco could have reached. However, the cigarette is not the problem, nicotine is. In other words, the smart phone increases the addictive risk of some behaviors that can be executed comfortably and reinforced immediately, but neither the cell phone nor the Internet are the problem. Let us not forget that the cell phone is a platform in constant evolution and that the problem lies in the use of some of its applications and not in the platform itself, as happens with the personal computer as well. “Computer addiction” (Shotton, 1989) is a term that has become outdated because it focused on the device and not on its uses.

According to Goodman (1990), the addition defines a condition by which a problematic behavior is characterized by a recurrent failure to control the behavior and by continuing the behavior despite significant negative consequences. The addiction symptoms proposed by Griffiths are mood modification, tolerance, prominence, withdrawal

symptoms, conflict, and relapse (Griffiths, 1995, 2005). However, descriptions of these criteria can cover a broad spectrum of severity, which may be more or less significant. Recently, Saunders et al. (2017) stated that in the draft ICD-11, the main characteristics of substance dependence are as follows; (a) a strong internal drive to use the substance, along with an impaired ability to control that use; (b) priority given to use of the substance over other activities; and (c) persistence of use despite harm and adverse consequences. According to Carbonell et al. (2008), the essential diagnostic elements of addictions are psychological dependence and harmful effects. Psychological dependence includes craving, polarization or attentional focus, mood modification (a feeling of increased tension immediately preceding the onset of the behavior; pleasure or relief or even euphoria while the behavior is being carried out; agitation or irritability if the behavior cannot be carried out), as well as the inability to control the behavior and powerlessness. The harmful effects must be severe and alter both the intrapersonal (subjective experience of discomfort) and interpersonal environments (work, study, finances, leisure, social relations, legal problems, etc.). Specifically, on behavioral addiction, Kardefelt-Winther et al. (2017) proposed a definition of two components: (a) significant functional impairment or distress as a direct consequence of the behavior and (b) persistence over time. Therefore, we can summarize the theoretical definition of addiction from its various sources in two key points: (a) the (severe) impairment or negative consequences and (b) the psychological (desire, focus and loss of control) and physical dependence (tolerance and abstinence) that lead to the perpetuation of the behavior.

As it is known, for the DSM-5 the essential characteristic of addiction to online video games is the recurrent and persistent participation for many hours in video games, usually in groups, which leads to a clinically significant deterioration or distress for a period of 12 months (American Psychiatric Association, 2013). These criteria include social and psychological symptoms, including tolerance and withdrawal.

For ICD-11, video game use disorder is characterized by a persistent or recurring pattern of gaming behavior («digital games» or «video games»), which can be either online (i.e., on the Internet) or offline. That is, unlike the DSM, it considers, as it does for gambling disorder, that offline (offline) video games are also addictive. According to the World Health Organization, video game use disorder is characterized by: a) impaired control over gambling (e.g., initiation, frequency, intensity, duration, termination, context); b) increased priority given to gambling to the extent that it takes precedence over other interests and activities of daily living; and c) continued or increased gambling despite negative consequences. Like the DSM-5, it requires a period of at least 12 months for the diagnosis to be assigned.

The two nosological classifications seem to have the appropriate psychometric properties (Montag et al., 2019),



although the WHO approach might be more useful to the clinician because it emphasizes the two basic aspects of an addiction (Sánchez-Carbonell et al., 2008): a) psychological dependence, observed in loss of control, intense desire, mood swings, and salience; and b) serious intrapersonal (physical and/or psychological) and/or interpersonal consequences (academic, work, family, economic, legal, etc.). It seems, therefore, that the two systems coincide, with the exception that for ICD-11 the disorder can also occur in video games that are not connected to the Internet.

### ADVANTAGES

Without a doubt, the first contribution of the DSM and the ICD-11 is to separate the wheat from the chaff: what constitutes a disorder from what constitutes a social concern, and what constitutes an addiction from what constitutes a transitory condition. Despite their limitations, the criteria of DSM-5 and ICD-11 are the first step in distinguishing between highly committed, problematic, professional, and addicted gamers.

Thanks to the criteria, diagnostic tools have begun to be developed to assist clinicians and researchers in their diagnosis. Among these tests, we can highlight the Internet Gaming Disorder Scale - 20 (Pontes & Griffiths, 2015) adapted to Spanish (Fuster et al., 2016), the Internet Gaming Disorder Scale - short form - 9 (Pontes & Griffiths, 2015) and its Spanish adaptation (Beranuy et al., 2020), and the *Cuestionario de Experiencias Relacionadas con Videojuegos* [Questionnaire of Experiences Related to Video Games] (CERV in Spanish) (Chamarro et al., 2014). Also available is the review of the measuring instruments for youth and adolescents according to the DSM-5 criteria (Bernaldo-de-Quirós et al., 2019). Despite the progress they represent, more studies with clinical populations are still necessary (Bernaldo-de-Quirós et al., 2019).

### CHALLENGES AND OPPORTUNITIES

Let us now look at some of the challenges that, in our opinion, the diagnosis of video game addiction poses.

*Severity of symptoms.* The consequences must be serious. In essence, when we compare physical impairment due to substances such as alcohol, cocaine, or heroin, with impairment due to video games, an important difference emerges: the physical consequences of video games are less severe than those of substance use, so much so that we may overlook the problem. As for functional impairment, its intensity should be investigated and compared with that caused by drugs but, so far, most studies that validate scales of addiction are cross-sectional and use non-clinical samples of fully integrated players, highlighting the need to use clinical samples (Kuss & Griffiths, 2012; Torres-Rodríguez et al., 2018).

*Severity of the disorder.* Unlike substance dependence disorder, the DSM-5 does not establish a gradation between

mild, moderate, and severe. This gradation would seem especially important in a behavior in which the continuum of normality-pathology is so evident.

*Pathologizing everyday life.* A clear risk is that of pathologizing millions of video players worldwide (Griffiths et al., 2017; Kardefelt-Winther, 2015). For example, onychophagy is an inappropriate habit with harmful consequences (Ghanizadeh & Shekoochi, 2011; Tanaka et al., 2008) that shares some symptoms of a behavioral addiction (e.g., loss of control, inability to abstain) but, in the absence of serious consequences, it is not considered a mental disorder. Daily life should not be pathologized (Billieux et al., 2015; Frances & Widiger, 2012; Petry & O'Brien, 2013). A similar case could be 'chocolate addiction', which should not be equated with substances that alter the central nervous system (Petry & O'Brien, 2013).

*Video games evolve.* Video games are constantly evolving, and this evolution is supported by a powerful industry. The game mechanics, that is, the actions of the players to modify the position and specific characteristics of all the objects and environments of a game at a precise moment in time, vary according to the typology of the video game and have evolved as much or more than the graphics. Entertainment games like PONG, Pokemon Go, Call of Duty, or World of Warcraft have nothing in common with each other (Carbonell, 2017).

*The importance of the avatar.* Until the middle of this decade, scientific articles were interested in the addiction to Massively Multiplayer Online Role-Playing Game (MMORPG) games such as the World of Warcraft (Fuster et al., 2014; Smahel et al., 2008). In these, the player creates an avatar that represents him or her in the game and that has a look and qualities that can cause identification and mean that living the life of this avatar is more reinforcing than the boring, failed, or lonely daily life (Li et al., 2013). However, the popularity of this type of game has declined and made way for team games (e.g., League of Legends) or individual games (e.g., Fortnite), in which one can compete in stadiums and broadcast the matches on television via streaming.

*Changing consequences?* Now we have shown that video games are evolving, it is logical that their consequences are evolving too. Returning to the parallel drawn with substance addiction, we do not expect the same symptoms of a heroin addiction as a tobacco addiction, because they do not have the same consequences on individual or social health and well-being. It may be similar with video games, the symptoms of addiction to a video game in which the identity is at stake, such as the World of Warcraft, may not be comparable to those of a team video game. We need to distinguish the consequences that different videogames can have in order to design effective interventions for videogames of a very diverse nature.

*Age of the affected population.* The DSM-5 and ICD-11 are intended for adults. However, the vast majority of people who



attend consultancy are family members of adolescents, so we are at risk of applying adult criteria to adolescents. This could result in applying adult criteria to these adolescents and not using criteria that are relevant to this age group. Another challenge in relation to the age of the affected population is the stability of the disorder. While in the case of adults the 12 months required for diagnosis are useful to distinguish a mental disorder from a transient condition, in children and adolescents this period of time may be too long. However, it is difficult to establish clearly and precisely what is a social, excessive, problematic, and addictive player especially in adolescents and young people (Bernaldo-de-Quirós et al., 2019; Carbonell et al., 2016). An alternative would be to turn to using diagnostic tools that allow an assessment of severity with standardized scores, without resorting to diagnostic criteria (Bernaldo-de-Quirós et al., 2019).

*Time invested.* The time invested in playing is not as important as the negative consequences that can result (Charlton & Danforth, 2007, 2010; Wood & Griffiths, 2007). Time spent playing impedes the development of other activities and can have physical, psychological, and social consequences (Snodgrass et al., 2011). This apparent contradiction is also reflected in the criteria of the DSM-5 and ICD-11; in neither case is time spent playing used as a diagnostic criterion. This is similar to the criteria for the diagnosis of substance use disorder, which do not capture the amount of substance consumed.

*Diagnostic labelling and stigma.* Some critics argue that a diagnostic label can mark an adolescent's development. One must be very cautious before establishing a mental diagnosis that will accompany a person throughout his or her life and that may be more disabling than the disorder itself. In many cases, it will be more beneficial to avoid using a diagnostic label in order not to pathologize and stigmatize the life of an adolescent and to accept that we are attending to a possible stage of their development.

*Controversy and consensus.* We should not forget that there are still problems with the diagnosis of substance abuse and that we are at the beginning of a possible disorder in constant evolution. For example, in DSM-5, caffeine is a substance that produces intoxication and withdrawal, but excessive consumption of caffeine is not considered to cause a substance use disorder like the excessive consumption of alcohol, nicotine, or cannabis does. Interestingly, caffeine use disorder also appears in Section 3 («Conditions for Further Study»), right before the pages on IGD (APA, 2013, p. 792). And that is because we have known for many years the effects of caffeine and have been able to observe its effects in a multitude of media and people (Addicott, 2014; Budney & Emond, 2014). If caffeine still generates these doubts, it is logical that this will also happen with video games (Griffiths et al., 2016, 2017).

*Video game industry against internet gaming disorder: The match of the century.* When the expression the match of the

century is used it can refer to the match when Boris Spasky faced Bobby Fisher in Reykjavik in 1972 or the fight in which Muhammad Ali faced Joe Frazier in 1971. The challenge for the health professionals is to face the diagnosis with the understanding that to become a professional video player it is necessary to invest many hours training and competing. It is essential to distinguish between the «high commitment» proposed by Charlton and Danforth (2007, 2010) and addictive behaviors. Obviously, a beginner in League of Legends needs a period of training and practice to become a professional. How should we refer to this period of time: High commitment? Problematic use? Pre-professional? Amateur? Professional player? Without a doubt, we should ask ourselves if we would apply the same diagnostic criteria to an eSports player as to a bridge player.

Three million dollars are at stake. This is the figure won in July 2019 by Kyle Giersdorf, a 16-year-old video player, better known by his pseudonym Bugha (Del Palacio, 2019). And it is even more when the entertainment and television industry invests in Las Vegas looking for a younger potential client both as an alternative to the public that goes to a boxing match and to the one that bets in the casinos. It is useful to avoid a possible confrontation with the industry instead looking for constructive ways of collaboration, but at the same time to overcome the model of 'responsible player' or 'responsible drinker' that the industry built for gambling and alcohol consumption.

*The e-Sports exhibition sport in Tokyo 2020.* This debate takes place when eSports is scheduled to be an exhibition sport in Tokyo 2020. According to Marca newspaper, \$500,000 in prizes will be distributed in two tournaments: one of Rocket League (soccer with vehicles) and another of Street Fighter V (fighting) (Redacción, 2019). Recalling that the Olympic Games will begin on July 24, the finals of these electronic competitions will be held at the Zepp Diver City in Tokyo from July 22 to 24, to coincide with the big event. In addition, professional soccer clubs such as Real Madrid (Mateo, 2018; Redacción Marca, 2019), Barcelona (Redacción, 2018), Valencia (Wikipedia, 2019), and Seville are preparing their participation in eSports competitions. Here, the role of sports institutions may be transcendental. It is worth remembering in this respect that bridge and chess are sports without physical activity that belong to the Association of IOC Recognised International Sports Federations (ARISF, 2020), an organization constituted and recognized by the International Olympic Committee whose members are international sports federations that do not compete in the summer or winter Olympic Games, among which, as well as the two mentioned, there are also Basque pelota, orienteering races, and polo. For example, the activity of the chess player is eminently cognitive and can increase the level of concentration, improve working under pressure, develop the capacity to remember, exercise spatial-temporal orientation and concentration, facilitate problem-solving management,



and generate analytical capacity (González, 2017).

*Cultural context and social adaptation.* We must not forget the place and the time in which playing occurs. Asian countries, such as Taiwan, South Korea, and China, are more prone to the diagnosis of young people immersed in video games because the society (and its psychologists and psychiatrists), have a stricter consideration of loss of time and academic performance than in Western countries. Secondly, would we apply the same diagnostic criteria to a chess player as to a Fortnite or League of Legends player? We will need some years to fully understand how video games affect their followers.

*Comorbidity.* It has been noted that adolescent addicts are more at risk of being diagnosed with depression and challenging behavior (Jo et al., 2019). So far, no comorbidity with drug use or addiction has been reported. It is important to be aware of other possible primary or secondary disorders. Linked to comorbidity is the challenge of establishing typologies of addicts, which we will attain when we advance in the understanding of the disorder (Jo et al., 2019; Martín-Fernández et al., 2016).

*Economic impact.* Although in some games you can spend a lot of money, the negative consequence of the financial loss is very relative. Without a doubt, gambling is much easier to diagnose due to the financial losses and the consequent psychological and social consequences, although in some freemium and pay-to-play and play-to-win games a lot of real money can be spent, as discussed below.

What about freemium and pay-to-play and play-to-win games? Freemium (a contraction of the words “free” and “premium”) is a video game model that works by offering basic services for free, while charging money for more advanced or special services (for example, Fortnite’s skins). These micro-payments or micro-transactions are one-time use and clients have to pay again in order to, for example, «buy» virtual currency for the game, or a loot box; therefore, free games are often not completely free. What about pay-to-play games? In these games, as the name suggests, you pay to play, to keep your account active, or to play within another game. Finally, there is the more frequent pay-to-win model in casual mobile games and social networks, whereby you have to pay to improve the experience or to win; it is a way to trade the time needed in order to progress for money (Carbonell et al., 2016; Miguel, 2019). It is in these models where the boundaries between gaming and gambling tend to disappear, because there are adults and young people who can spend significant amounts of real money.

*Addictive potential offline vs. online* Although the WHO considers that offline addiction is possible, it is becoming increasingly difficult to understand a video game that is not online in some way, either to interact during the game, to comment on its ranking in social networks, or to view it via streaming (Internet TV that frequently broadcasts sports or music events, live or delayed). A “console” or offline video

game has a beginning and an end, and designers calculate the time an average player needs to invest to “up their level”. In these video games, regardless of their modality, the player usually plays alone against an artificial intelligence or in multiplayer mode in cooperative or competitive games that usually bring together between two and 64 players. Estallo et al. (2001) analyzed the addictive potential of these games and concluded that it was low. However, the addictive capacity of online video games is higher. For example, the Massively Multiplayer Online Role-Playing Games (MMORPG) present complex and persistent worlds cohabited by thousands of users. In these worlds the interaction with other players is the best way to progress and, consequently, they have specific systems that govern the formation of groups or clans with the same objectives that involve social pressure to play (Carbonell et al., 2016).

*Gender perspective.* The incorporation of women makes a gender perspective necessary to address the diagnosis and treatment of video game addiction, as has happened with substance addictions. The gaming industry has a special interest in having women incorporated in the same proportion as men in video games to double the number of potential customers.

*Other gaming platforms.* The incorporation of the tablet and the smartphone as gaming platforms is a challenge for designers but also for clinicians. The platform (tablet, smartphone, computer, game console) can influence how symptoms manifest and how quickly they are established.

*Incorporating the treatment of video game addiction into the health portfolio.* And finally—and perhaps most importantly—when the ICD-11 is official in 2022, gaming disorder will be officially considered a disorder and as such should be treated in the common services portfolio of the Spanish National Health System and insurance companies.

## IN ESSENCE

The value of this analysis of the state of the art lies in bringing a point of view to a new and controversial topic. In the DSM-5, as you all know, two important milestones for behavioral addictions can be highlighted. The first is the inclusion of “gambling disorder” (pathological gambling in the official Spanish translation) on the same level as substance addictions. The DSM had always been reluctant to recognize that behavioral addictions are a mental disorder, to this effect, it can be recalled that in the DSM-IV and the DSM-IV-TR pathological gambling was included in the section «Impulse-control disorders not classified in other sections». Gambling disorder is included in the chapter “Substance-related and addictive disorders” with the argument that gambling behaviors activate reward systems similar to those activated by drugs and produce some behavioral symptoms comparable to those produced by substances.

The second milestone is the inclusion of internet gaming disorder (IGD) in the third section, that of diagnoses that need



further investigation (p.795-798). For its part, the WHO takes it a step further and fully recognizes gaming disorder in the ICD-11.

Without a doubt, incorporating video game addiction into the diagnostic manuals will allow us to improve the diagnosis and treatment of technological addictions (Montag et al., 2019; Petry & O'Brien, 2013). It seems, therefore, that the first contribution of the DSM-5 and the ICD-11 will help us to distinguish between disorder and social concern. The criteria will allow us to distinguish among entertainment-oriented, highly committed, problematic, professional, and addicted gamers, and we have already begun to develop proven diagnostic tools.

Videogame addiction is a challenge of particular interest for clinicians because it is necessary to respond to challenges about the severity of symptoms and the disorder, the types of players and addicts, comorbidity, the evolution of videogames, the context, and the social adaptation, in which the novelty of the disorder, social pressure, and the industry will make it difficult to reach consensus on its diagnosis and treatment.

#### CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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