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High Involvement Versus Pathological Involvement in Video Games: a Crucial Distinction for Ensuring the Validity and Utility of Gaming Disorder

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Abstract

Purpose of review The year 2018 was marked by the official recognition of Gaming Disorder (GD) as a mental condition with its inclusion in the proposed eleventh edition of the International Classification of Diseases (ICD-11). Recently, a group of scholars has repeatedly criticized the notion of GD proposed by the World Health Organization (WHO), arguing that its inclusion in ICD-11 would pathologize highly involved but healthy gamers. It is therefore of crucial importance to clarify the characteristics of high involvement versus pathological involvement in video games, the boundaries between these constructs, and the implementation of screening and diagnostic GD tools that distinguish the two.

Recent findings Increasing evidence supports the view that intense video game playing may involve patterns of gaming that are characterized by high involvement but that are non-pathological. Furthermore, some criteria for addictive and related disorders may reflect *peripheral* features that are not necessarily indicative of pathology, whereas others may reflect *core* features that are more likely to adequately identify pathological behavior and so have diagnostic validity. Finally, it is key to assess functional impairment associated with gaming, so that a GD diagnosis has clinical utility.

Summary Available evidence supports the crucial need to distinguish between high and pathological involvement in video games, in order to avoid overdiagnosis and pathologization of normal behavior. The definition of GD adopted in ICD-11 has clinical utility and diagnostic validity since it explicitly mentions the functional impairment caused by problem gaming and its diagnostic guidelines refer to *core* addiction features, reflecting pathological involvement.

Keywords Gaming disorder · ICD-11 · Gaming addiction · High involvement · Passion · Diagnosis

Introduction

Video games have become one of the most popular leisure activities worldwide, and the rapid development of e-sport is unprecedented. Although involvement in video game playing is mostly harmless and can be associated with positive outcomes (e.g., pleasure, prosocial behaviors, sense of belonging, and achievement), video game use can be a pathological behavior characterized by loss of control and functional impairment in a minority of gamers [1, 2].

The first appearance of a condition related to pathological video game use in an official nosology can be traced back to 2013 when the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [3] was released. At that time, the condition was named *Internet Gaming Disorder* (IGD) and was included in a special section (Section 3) devoted to emerging disorders in need of further research before being officially recognized. The inclusion of preliminary IGD criteria in the DSM-5 gave significant impetus to the investigation of pathological video gaming, thereby strengthening the evidence base for potential acceptance of the condition. Studies of IGD criteria investigated

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their diagnostic validity and clinical utility [4] and prompted the first rigorous prevalence studies in the field [5, 6]. The year 2018 was marked by the first official recognition of *Gaming Disorder* (GD) as a mental condition with its inclusion in the eleventh edition of the International Classification of Diseases (ICD-11) [7]. Recognition of GD by the World Health Organization (WHO) was driven by a range of scientific evidence (e.g., epidemiological, neurobiological, psychosocial) supporting the view that pathological video gaming should be considered an internationally relevant public health issue [2, 8, 9]. Crucially, in the last 2 years, there have been additional scientific reports documenting large samples of treatment-seeking individuals who experience significant impairment [10, 11], further reinforcing the burden of disease associated with GD.

However, following the provision of a "beta-draft" version of ICD-11 published in 2017 and including GD in the section on *Disorders Due to Substance Use or Addictive Behaviours*, a group of scholars has repeatedly criticized the notion of GD proposed by WHO, arguing that this pathologizes healthy gamers and creates moral panic [12–14]. These scholars have claimed that the evidence base is insufficient and too heavily grounded in what Billieux and colleagues [15] have referred to as the *Confirmatory Approach* to behavioral addictions. In a nutshell, this confirmatory approach refers to situations where potentially excessive behaviors (e.g., working and studying, dancing, tanning, taking selfies) are a priori conceptualized as genuine addictions and assessed by criteria transposed from knowledge of substance use disorders (SUDs) [16, 17], rather than developing a new conceptualization or considering alternative sound conceptualizations (e.g., obsessive-compulsive disorders, impulse-control disorders, maladaptive coping phenomena). Crucially, some scholars have suggested that applying SUD criteria (e.g., tolerance, preoccupation) to such behaviors is likely to result in overdiagnosis and inappropriate pathologization [15, 16, 18]. In other words, it is likely that some criteria which have proven useful in the diagnosis of SUDs might not have diagnostic validity in the case of non-substance-related appetitive behaviors. It is therefore of major importance to clarify (1) what the respective characteristics of high involvement versus pathological involvement in video games are, (2) where the boundaries between them lie, and (3) how best to implement screening and diagnostic GD tools that allow for distinguishing the two, so ensuring that healthy elevated gaming will not be subjected to inappropriate pathologization.

High Involvement in Video Game Exists and Is Not Necessarily Pathological

Past research has emphasized that intense video game involvement (in terms of number of hours played per day or week) is not essentially problematic nor necessarily associated with psychological distress or negative consequences [19, 20•, 21, 22]. This suggests the existence of playing patterns that are characterized by high involvement but that are not pathological. Typically, highly involved gamers can invest a significant amount of time gaming (often > 20 h a week) without experiencing loss of control or tangible negative consequences (e.g., lower academic performance) related to their gaming practices [23, 24, 25••]. It is worth noting that video game-related involvement is not confined merely to gaming per se, but encompasses all associated activities, such as watching video game live streaming (e.g., on *Twitch* or *YouTube*) or browsing video game-related forums and websites. Unfortunately, to date, empirical evidence that addresses video game-related activities—and not only time spent playing per se—is lacking, so limiting a full appreciation of gamers' extent of engagement.

Be that as it may, a substantial corpus of evidence supports the notion of high (but non-pathological) involvement in video games. For example, Billieux et al. [20•] designed a longitudinal study where 690 *World of Warcraft* players (this game being the most popular massively multiplayer online role-playing game at that time) completed an initial survey (comprising self-reported measures of online gaming motives and addictive video game use) before consenting that their actual in-game behaviors be monitored for several weeks. Capitalizing on this continued ecological measurement of gaming involvement, these authors emphasized that weekly time spent playing, specific motivations (e.g., advancement and social-related motives), and being a member of a *Guild* (i.e., in-game association of player characters), all constitute predictors of rapid progression in the game (assessed through the evolution of avatar's official rankings and in-game achievements). In contrast, rapid progression in the game was not predicted by a self-reported measure of gaming addiction symptoms. Several studies have also explored the relationships between gaming time and gaming addiction symptoms and have reported only small to moderate correlations [5, 26–28]. These findings suggest that high involvement in the game is not necessarily associated with excessive or addictive patterns of playing. Furthermore, this type of evidence draws into question the relevance of considering SUD-related constructs such as "heavy use over time" as a sole or defining indicator of pathological gaming behavior [29].

A sound theoretical framework to conceptualize the qualitative differences and determine the boundaries between high involvement and pathological involvement in video games is the *Dualistic Model of Passion* developed by Vallerand and colleagues [30, 31]. According to these authors, a passion corresponds to a strong inclination towards a personally meaningful, highly valued, and self-defining activity in which one invests time and energy. Those activities for which individuals develop a passion then become part of the self, fulfilling

various types of basic needs (e.g., social affiliation, power, achievement) and resulting in strong attachments that can be either functional or dysfunctional [30, 32]. A *Harmonious Passion* promotes well-being and happiness, and becomes part of the self in an integrated and positive way. This implies that this type of passion is fulfilled on a voluntary basis (i.e., free will governs involvement), is mainly driven by mechanisms of positive reinforcement (e.g., feeling good, experiencing a sense of mastery and control), and is indulged in harmony with the other spheres of daily life (e.g., social and family life, academic and occupational activities, everyday duties). In contrast, an *Obsessive Passion* is internalized in a way that one's self-esteem will directly be dependent on the possibility of engaging in it. Mainly driven by mechanisms of negative reinforcement (e.g., relief of negative affect or boredom), this type of passion generally constitutes a compensatory behavior displayed in reaction to unfulfilled basic needs. Obsessive passions become maladaptive as they promote rigid and compulsive involvement that go beyond free will and self-control, thus engendering addictive behaviors and interfering with daily life constraints. Crucially, contrary to harmonious ones, obsessive passions are likely to be of a functionally impairing nature.

Several studies relying on the *Dualistic Model of Passion* have found that a harmonious passion for video games is associated with higher well-being, greater satisfaction with life, and a sense of self-realization, whereas an obsessive passion for video games is associated with lower well-being and game enjoyment, as well as with more video game-related negative consequences [33, 34]. Of note, similar findings have been observed in relation to other types of online behaviors, such as porn consumption [35] or binge-watching of TV series [36, 37]. While we do recognize the possibility that this distinction is tautological (insofar as obsessive passions are associated with dysfunction, and harmonious passions are not), our view is that Vallerand's work provides a useful theoretical framework for identifying underlying dysfunction, and so ensuring the validity of diagnostic criteria that draw on it. Based on the theoretical rationale developed by Vallerand, it can thus be postulated that highly involved gamers are mainly driven by a harmonious passion for video games, whereas disordered gamers rather display an obsessive passion for them.

The Pitfalls of Taking Criteria from Other Addictive Behaviors to Diagnose Pathological Video Gaming

As mentioned earlier in this paper, a substantial amount of research has, through a *Confirmatory Approach*, merely recycled SUD criteria to identify and study pathological use of video games [13, 15]. For example, the IGD criteria included in the DSM-5 (Section 3) were directly shaped by gambling disorder and SUD criteria, generating some debates and controversies regarding their clinical utility, their ability to capture potentially unique aspects of the condition, and their ability to distinguish harmful versus healthy elevated involvement in video games [6, 38–41]. Furthermore, a growing number of studies demonstrated that although some specific addictive disorder criteria (such as loss of control or continued use despite negative consequences) are accurate for identifying and diagnosing pathological video game use, others (such as tolerance or salience) may not necessarily be indicative of pathological gaming behavior [6, 22, 25••, 28, 40, 42–45]. In other words, it may not be tenable to rely on all established SUD criteria to diagnose gaming disorder, and more generally behavioral addictions [16, 18, 46].

The seminal work by Charlton and Danforth [25••, 42, 47•] played a pivotal role in anchoring the construct of high—but healthy—involvement in the video game research field. This started when Charlton [47•] in 2002 criticized the approach that consisted in applying Brown's components of addiction [48] to define (and measure) addictive use of computers and the Internet [49]. The components included in Brown's model are: salience (i.e., the addictive behavior dominates one's life), tolerance (i.e., the need to increase involvement in the addictive behavior to get the same level of stimulation or reinforcement), withdrawal (i.e., unpleasant and aversive effects occur when the addictive behavior is disrupted), euphoria (i.e., positive reinforcement—such as "feeling high" or pleasure—results from the engagement in the addictive behavior), conflict (i.e., the addictive behavior leads to self-conflict or conflict with significant others), and relapse (i.e., the addictive behavior is resumed with the same level of involvement following attempts to reduce or stop it).

Charlton's central idea [47•] was that some traditional criteria used to define SUDs and addictive disorders (included in Brown's model) might not necessarily be useful to define (and thus diagnose) pathological use of computers and online applications. To test this hypothesis in relation to video game addictive use, Charlton and Danforth conducted two studies [25••, 42] to challenge the structural validity (using a series of items adapted to the gaming context) of Brown's addiction components. Their results revealed the existence of two distinct and stable factors, labeled "engagement" and "addiction," which were notably differentially linked to established addiction correlates (e.g., addiction—but not engagement—was correlated with emotional instability). Based on these findings, Charlton and Danforth proposed that Brown's components, when applied to intensive video gaming, either represent *core addiction criteria* (indicative of pathological behavior) or *peripheral criteria* (not necessarily indicative of pathological behavior). On the one hand, core addiction criteria include withdrawal, conflict, and relapse. Importantly, "relapse" as measured in these studies largely overlaps with the construct of loss of control (e.g. of item:

"I have made unsuccessful attempts to reduce the time I spend playing video games"), which is a hallmark of addictive disorders [50, 51]. On the other hand, peripheral criteria include salience, tolerance, and euphoria. Relying on Orford's *Excessive Appetites Theory* of addiction [52], Charlton [47•] commented that phenomena that do not necessarily result in harmful consequences for the individual should not be used to define an addictive disorder. To put it differently, although *peripheral* criteria are also common among treatment-seeking gamers, they should not be considered as indexing pathological behavior.

In the last decade, several studies have capitalized on Charlton and Danforth's work in order to explore the correlates and differential predictive power of engagement versus addiction in video games [22, 23, 28, 43, 44]. Among those, Brunborg et al. [22] found that addicted gamers are more at risk of presenting with various psychological and health-related problems (e.g., stress, low mood, feeling of being exhausted) than highly engaged gamers. More recently, Deleuze et al. [28] highlighted differential links between scales assessing engagement versus addiction in video gaming. These authors indeed found that, unlike engagement scores, addiction scores positively correlate with self-reported measures of depression symptoms and impulsivity traits. On the whole, available evidence supports the crucial need to distinguish between high and pathological involvement in video games, in order to avoid overdiagnosis and pathologization of normal behavior.

How to Screen and Diagnose GD without Pathologizing Healthy Gaming

The last—but crucial—section of the present paper aims to tackle the issue of screening and diagnosing GD without pathologizing healthy behavior, by capitalizing on previous work that emphasizes the need to distinguish high engagement and pathological engagement in video gaming. To this end, we first need to (re)consider and contextualize the claim made by some scholars that recognizing pathological video game use as a mental condition will constitute inappropriate pathologization [12–14]. Then, we will examine if current conceptualizations of pathological video gaming (DSM-5 and ICD-11) run the risk of inappropriately pathologizing non-problematic patterns of gaming.

Most criticisms and oppositions to the GD condition have been aligned with the legitimate concerns raised about the recent dramatic increase in the number of candidate behavioral addictions of questionable validity and clinical utility [15–17, 53]. Relevant to our purpose, a large number of these "new" behavioral addictions have been conceptualized on the basis of DSM SUDs criteria and/or the updated Brown's components model provided by Griffiths [54], where the euphoria component was replaced with a mood modification one. Examples of such moot behavioral addictions include (but are not limited to) "study addiction" (considered as a subtype of "work addiction") [55], "dance addiction" (considered as a subtype of "exercise addiction") [56], or "Tinder addiction" (considered as a subtype of "social network addiction") [57]. Recently, this conceptual approach has been criticized by opponents to the recognition of GD, who have argued that a general behavioral addiction rubric would be more tenable and justified than a multitude of categories for each type and subtype of behavioral addictions [12].

In fact, two types of conceptual issues relevant to behavioral addiction research have, in our view, fueled and vindicated the criticisms made of the inclusion of GD in ICD-11. First, evidence of functional impairment, consistent with clinical significance, is largely lacking or is simply not considered as a crucial aspect of many emerging behavioral addictions [1, 16]. This is especially problematic when attempting to define pathological versions of daily activities or hobbies [58]. Crucially, when it comes to pathological video gaming, and in contrast to moot behavioral addictions (e.g., addictions to selfies, study, or dance), a robust evidence base exists about treatment-seeking cases displaying functional impairment [1, 10, 11, 59–61]. In such a perspective, the recognition of GD as a new behavioral addiction in the ICD-11 followed a conservative approach, with behavioral addictions not clearly associated with functional impairment not being retained.

Second, numerous studies conducted on behavioral addictions (including addictive use of video games) have relied on definitions and screening tools that mix *core* and *peripheral* criteria, so neglecting the crucial distinction between high involvement (a passion) and pathological involvement (an addiction). This "core and peripheral criteria" issue might also apply to the preliminary IGD criteria included in the Section 3 of DSM-5. For example, it has been found that the IGD salience criterion, assessed as proposed by Petry and colleagues (i.e., "Do you spend a lot of time thinking about games even when you are not playing, or planning when you can play next?") [62], reached an endorsement rate as high as 77.3% in a sample of self-selected community gamers [40]. Nevertheless, the clinical utility of the diagnosis depends on symptoms reaching a particular threshold that is characterized by functional impairment. In Fig. 1, we provide a concrete illustration of how DSM-5 criteria mix *core* and *peripheral* features, which might in some cases (especially when functional impairment is not taken into account) result in merging highly (but healthy) involved and pathological gamers in the same group. Acknowledging and addressing these two conceptual issues in further work on GD (and behavioral addictions in general) may be useful in ensuring diagnostic validity and clinical utility, and in avoiding the pathologization of normal behavior.

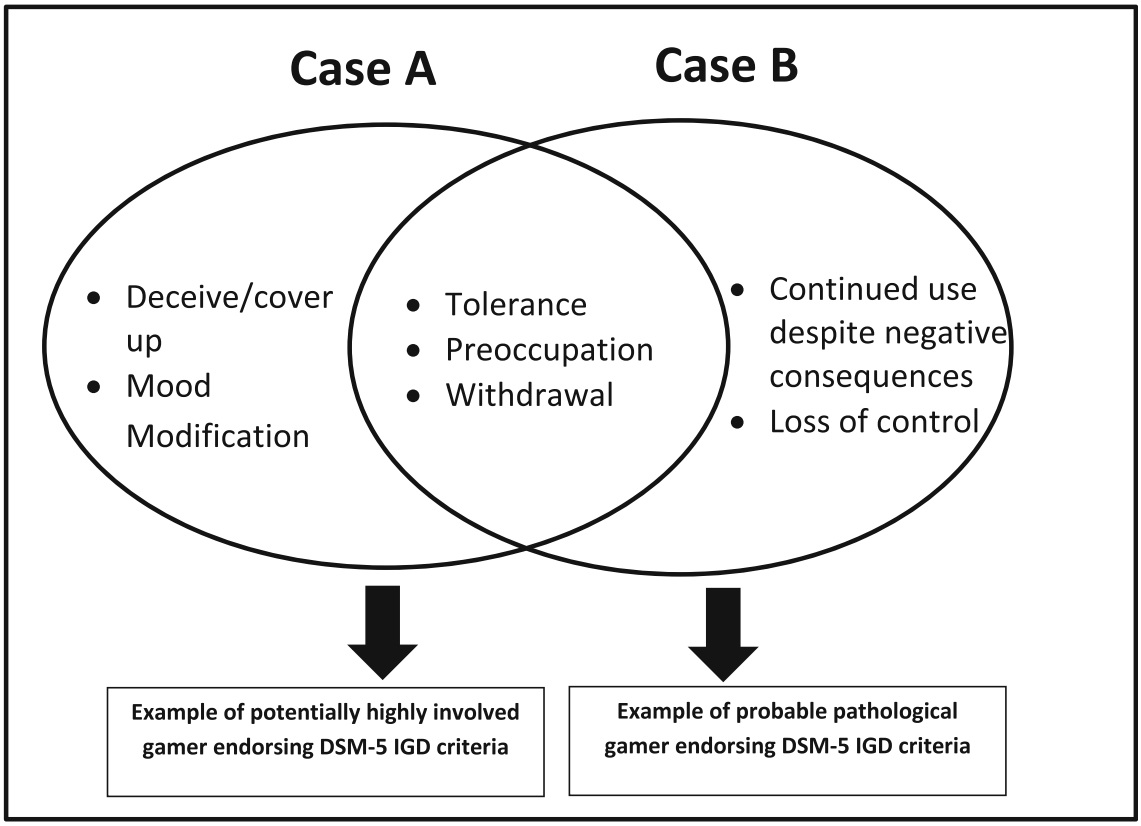

Fig. 1 This figure illustrates the risk of pathologization inherent to the use of DSM-5 IGD (Internet Gaming Disorder) criteria while not applying functional impairment as mandatory requirement for establishing the diagnosis. Both cases endorse 5 out of the 9 IGD criteria for IGD, yet for Case A, the involvement in video games could reflect a high—but non-pathological—involvement, whereas for Case B, the involvement in video games is probably pathological

We want to end this paper by examining why the approach used to define GD in ICD-11 has both diagnostic validity and clinical utility and is well positioned to accurately capture harmful or treatment-seeking cases of gaming. In the ICD-11, GD is defined as a pattern of gaming characterized by (i) impaired control (e.g., onset, frequency, intensity, duration, termination, context); (ii) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and (iii) continuation or escalation of gaming despite the incidence of negative consequences. In addition, the gaming pattern must be associated with distress or significant impairment in personal, family, social, and/or other important areas of functioning [7].

First, with its explicit mention of functional impairment caused by gaming, the definition of GD in ICD-11 avoids a first source of "overpathologization," and contributes to ensuring clinical utility [1]. Second, the diagnostic guidelines (or criteria) proposed in the ICD-11 do not include some traditional addiction features (e.g., tolerance, salience) which might be characterized as *peripheral* criteria for behavioral addictions and could be correlates of *harmonious* (and thus healthy) passion for hobbies such as video games. For example, Kardefelt-Winther [63] criticized the notion of tolerance applied to video game use by arguing that there are many reasons that can explain a progressive increase in gaming and that have nothing to do with pathology (e.g., pleasure associated with gaming, contextual events, development of e-sport practices, idiosyncratic motives). Without suggesting that *peripheral* features such as tolerance or salience are not encountered in pathological cases, such criteria might not be indicative of pathological behavior per se. In contrast, the diagnostic guidelines used to define GD in the ICD-11 reflect *core* addiction criteria, thus centrally pointing to pathological attachment to video games. It is also worth noting that these three diagnostic guidelines correspond to the three DSM-5 IGD criteria displaying the most elevated diagnostic accuracy (92.7 to 100%) in treatment-seeking gamers [4], in addition to being the most systematically endorsed ones in problematic online gamers from the community [40]. Therefore, with the combined use of these clinical guidelines and the functional impairment criterion, the stringent definition and conservative approach to GD adopted by the ICD-11 ensures diagnostic validity and clinical utility; identifying pathological gamers who deserve treatment while avoiding the risk of inappropriate pathologization of highly involved (but healthy) gamers.

Compliance with Ethical Standards

Conflict of Interest Joël Billieux and Hans-Jürgen Rumpf have participated in consultation meetings convened by WHO from 2014 onward. Participants in these meetings have received travel support from WHO or their national organizations or institutions. In the past 3 years, Dan J. Stein has been a member of ICD-11 Working Groups, and has received honoraria from Lundbeck, and Sun. Maèva Flayelle declares no conflict of interest. The authors declare that they have not received any remuneration from commercial, educational, or other organizations in relation to this paper. The statements made and views expressed in this paper by those of this group of authors neither necessarily reflect those of the organizations to which they are affiliated nor do they necessarily represent policies or decisions of WHO.

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

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