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Problematic gaming exists and is an example of disordered gaming

Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal (Aarseth et al.)

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Background: The recent paper by Aarseth et al. (2016) questioned whether problematic gaming should be considered a new disorder particularly because "Gaming Disorder" (GD) has been identified as a disorder to be included in the next (11th) revision of the World Health Organization's International Classification of Diseases (ICD-11). *Methods:* This study uses contemporary literature to argue why GD should be included in the ICD-11. *Results:* Aarseth and colleagues acknowledge that there is much literature (including papers by some of the authors themselves) that some individuals experience serious problems with video gaming. How can such an activity be seriously problematic yet not disordered? Similar to other addictions, gaming addiction is relatively rare and is in essence a syndrome (i.e., a condition or disorder characterized by a set of associated symptoms that tend to occur under specific circumstances). Consequently, not everyone will exhibit exactly the same set of symptoms and consequences, and this partly explains why those working in the problematic gaming field often disagree on symptomatology. *Conclusions:* Research into gaming is not about pathologizing healthy entertainment, but about pathologizing excessive and problematic behaviors that cause significant psychological distress and impairment in an individual's life. These are two related, but (ultimately) very distinct phenomena. While being aware that gaming is a pastime activity which is enjoyed non-problematically by many millions of individuals worldwide, it is concluded that problematic gaming exists and that it is an example of disordered gaming.

Keywords: Gaming Disorder, Internet Gaming Disorder, problematic gaming, gaming addiction, video games

The recent commentary paper by Aarseth et al. (2016) questioned whether problematic gaming should be considered a new disorder particularly because "Gaming Disorder" (GD) has been identified as a disorder to be included in the next (11th) revision of the World Health Organization's International Classification of Diseases (ICD-11). The main concerns raised by Aarseth et al. (2016) were that (a) the current research base is of low quality, (b) the current operationalization of GD is too heavily based on the criteria for substance use and gambling disorder, and (c) at present there is a lack of consensus on the symptomatology of GD and how to assess it. The authors also claimed in their paper that the "*premature inclusion*" of GD in the ICD-11 "*will cause significant stigma to the millions of children who play video games as a part of a normal, healthy life*" (p. 1).

No one in the field that has collected and published empirical data concerning problematic gaming will argue that the topic is not without controversy. Aarseth and colleagues twice cited a paper (i.e., Griffiths et al., 2016), that the first author of this study led on highlighting that there was little consensus in the field about the criteria for Internet Gaming Disorder (IGD) in the latest (fifth) version of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association [APA], 2013). Other recent papers by the present authors have also argued that the text in the DSM-5 created "*chaos and confusion*" in the field (Kuss, Griffiths, & Pontes, 2017, p. 1), particularly because the DSM-5 asserted that IGD can also include offline video gaming and it stated that IGD and Internet Addiction Disorder are the same, even though there is a consistent body of empirical evidence suggesting that this is not the case (Griffiths & Pontes, 2014; Király et al., 2014). However, it seems that online gaming could present a higher risk for the development of problematic gaming (Lemmens & Hendriks, 2016; Tejeiro, Espada, Gonzalvez, Christiansen, & Gomez-Vallecillo, 2016) in comparison with offline gaming, even though problematic gaming is associated with both types of play (Lemmens & Hendriks, 2016).

Aarseth et al. (2016) do not deny that some gamers experience serious problems as a consequence of playing video games. In fact, some of these coauthors have

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published high-quality peer-reviewed empirical papers on the topic of problematic gaming in a variety of mental health and addiction journals (which at the very least suggests that some of the coauthors view problematic gaming as both a mental health issue and/or an addiction-like phenomenon worth being investigated). However, it should also be noted that a number of the coauthors of the Aarseth et al.'s (2016) study have not published any empirical data in this area and may therefore not be sufficiently familiar with the debates in this field. For those coauthors who genuinely accept that "*[s]ome gamers do experience serious problems as a consequence of the time spent playing video games*" (p. 2), we would pose a very simple question: How can such playing of video games be problematic, yet not be disordered? Disordered behavior typically refers to a disruption of normal functioning of the behavior in question (in this case, gaming), leading to psychosocial and functional impairments. Or are Aarseth et al. (2016) making a distinction between "Gaming Disorder" (as an official diagnosis that may appear in the next ICD-11) and "gaming disorder" as a more generic term referring to someone who might be experiencing disordered gaming? For us, there is no real difference to the person suffering from the problem. They just want to be accurately diagnosed, treated and to receive adequate psychological and/or pharmacological treatment to overcome the problem. Furthermore, specialized treatment centers across the world are now treating GDs, suggesting that for some of the most excessive gamers who experience serious problems as a consequence of their gaming, professional treatment is indeed required (Kuss & Griffiths, 2015). From a clinical standpoint, the concept of IGD is gaining recognition, although the clinical evidence suggests heterogeneity in its manifestation, and typologies have been suggested (i.e., "impulsive/aggressive," "emotionally vulnerable," "socially conditioned," and "not otherwise specified"; Lee, Lee, & Choo, 2016).

We view gaming as being on a continuum ranging from non-problematic occasional and regular gaming at one end of the scale through to problematic excessive and addictive gaming at the other. Similar to other *bona fide* addictions, gaming addiction is relatively rare and is in essence a syndrome (Shaffer et al., 2004) (i.e., a condition or disorder characterized by a set of associated symptoms that tend to occur under specific circumstances). Consequently, not everyone will exhibit exactly the same set of symptoms and consequences, and this partly explains why those working in the problematic gaming field often disagree on symptomatology (Griffiths et al., 2016). Thus, it would not be appropriate to completely disregard the potential detrimental effects that GD can have on the mental health of a minority of gamers on the grounds that there is currently a "*lack of consensus on symptomatology and assessment of problematic gaming*" (p. 1).

To this end, it can be argued that consensus is likely to be achieved in terms of symptomatology and assessment of problematic gaming provided unifying frameworks, such as GD (ICD-11) are developed and further refined as they provide an effort to establish a robust evidence-based diagnostic framework for GD that could result in further understanding of both symptoms and assessment practices given the current heterogeneity of conceptualizations and assessment practices in problematic gaming that hinders research progress (King, Haagsma, Delfabbro, Gradisar, & Griffiths, 2013; Király, Griffiths, & Demetrovics, 2015; Pontes & Griffiths, 2014). In short, the current lack of an officially recognized and unifying diagnostic framework may be one of the main reasons that past studies have come to the conclusion that problematic gaming symptoms and assessment practices are not consensual.

Aarseth et al. (2016) also claim that "*it is far from clear that these problems can or should be attributed to a new disorder*" (p. 2). Problematic gaming is not a new disorder, particularly as there have been reports in the psychiatric and psychological literature dating back to the early 1980s (e.g., Nilles, 1982; Ross, Finestone, & Lavin, 1982; Shotton, 1989) as well as published case studies outlining treatment protocols for gaming addiction (e.g., Keepers, 1990; Kuczmierczyk, Walley, & Calhoun, 1987). [For a review of the empirical and clinical studies on gaming addiction in the 1980s and 1990s and comparison with contemporary gaming addiction research, see Griffiths, Kuss, and King (2012).]

Furtherly, Aarseth et al. (2016) claim that "*nearly all the research in this area is purely tentative or speculative in nature as clinical studies are scarce and suffer from small sample sizes*" (p. 2). However, this statement begs the following question: How can there be clinical samples in relation to a mental disorder that should not exist in the first place? If clinical samples and data on problematic gaming are to be collected, then surely a robust and officially recognized diagnostic framework, such as GD is required for establishing a clinical "gold standard" for the condition whereby clinicians and researchers would be able to validly and reliably distinguish between clinical and normative samples in respect to problematic gaming.

We also note that some of the main claims put forth by Aarseth et al. (2016) against including GD in the ICD-11 are themselves based on speculation given the frequent use of terms, such as "might" and "may," as well as uses of other terms, such as "likely," "expect," and "potentially," which are arguably stronger than the use of "might" or "may" but in this context are equally as speculative. For instance (and with our emboldening):

– "*Moral panics around the harm of video gaming **might** result in premature application of a clinical diagnosis and the treatment of abundant false-positive cases, especially among children and adolescents*." (abstract and p. 3)
– "*[A] diagnosis [of gaming disorder] **may** be used to control and restrict children*." (p. 3)
– "*A disorder **might** detract attention from improving media literacy, parental education, and other factors that would actually contribute to the resolution of some of the issues with problematic gaming*." (p. 3)
– "*The presence of a current moral panic regarding video games **may** cause the medical community to take ill-considered steps*." (p. 3)
– "*These over pathologized symptoms **may** include those related to thinking a lot about games, using them to improve mood or lying to parents or significant others about the amount of time spent gaming. These criteria **may** therefore have low specificity, and applying criteria*

*with low specificity **may** lead to many gamers being misclassified as having problems*." (p. 2)
– "*The proposed categories **are likely** to be met with significant skepticism and controversy by both the scholarly community and the general public*." (p. 3)
– "*We **expect** that inclusion of gaming disorder in ICD-11 will cause significant stigma to the millions of children and adolescents who play video games as part of a normal, healthy life*." (abstract and p. 3)
– "*(...) **potentially** leading to a saturation of behavioral disorders*." (p. 2)

The concluding statement (below) is arguably the best example in the paper of speculative hyperbole, and this is perhaps the one place where the authors should have used "might" or "may" rather than the word "will":
– "*...including this diagnosis in ICD-11 **will** cause significantly more harm than good. Given the immaturity of the existing evidence base, it **will** negatively impact the lives of millions of healthy video gamers while being **unlikely** to provide valid identification of true problem cases*." (p. 3)

Returning to the actual claim that "*nearly all of the research in this area is purely tentative or speculative in nature*" (p. 2), while arguably true as little as 5 years ago, this is not the case now. Petry and O'Brien (2013) asserted that GD would not be included as a separate mental disorder in future editions of the DSM until the (a) defining features of IGD have been identified, (b) reliability and validity of specific IGD criteria have been obtained cross-culturally, (c) prevalence rates have been determined in representative epidemiological samples across the world, and (d) etiology and associated biological features have been evaluated. Since the publication of that paper, there have been dozens of high-quality studies using a number of different methodologies addressing the four shortcomings noted by Petry and O'Brien (2013). For instance, there are at least seven epidemiological studies assessing problematic gaming using validated instruments and nationally representative data (six of which have been published since 2014) including American youth aged 8–18 years (Gentile, 2009), German adolescents aged 13–18 years (Rehbein, Kliem, Baier, Mößle, & Petry, 2015), Dutch adolescents aged 13–20 years and Dutch adults (Lemmens, Valkenburg, & Gentile, 2015), Hungarian adolescents aged 15–16 years (Király et al., 2014), Norwegian gamers (Wittek et al., 2016), youth from seven European countries aged 14–17 years (Müller et al., 2015), and Slovenian adolescents aged 12–16 years (Pontes, Macur, & Griffiths, 2016). There have also been over 30 neuroimaging studies with 18 of these studies reviewed in 2012 (see Kuss & Griffiths, 2012) and a further 14 studies in the period 2013 to the beginning of 2016 (see Pontes, Kuss, & Griffiths, 2017). Overall, these studies suggested that Internet and gaming addiction were similar to substance-related addictions on various levels.

On the molecular level, research suggests that Internet and gaming addiction are linked to a reward system deficiency, as indicated by low dopaminergic activity. From the level of neurocircuitry, prolonged use of the Internet and gaming has been found to result in alterations in neuromorphometry. Finally, from a behavioral perspective, Internet and gaming addiction negatively impact upon cognitive functioning (Kuss & Griffiths, 2012). Taken together, the results from empirical research suggest that there is evidence for similarities between Internet and gaming addiction and substance-related addictions on a neurobiological level (Pontes et al., 2017), although these activities may be behaviorally distinct possessing other unique features (Pontes, 2016).

Numerous cross-cultural research using standardized and psychometrically robust instruments assessing IGD have been recently published. For instance, instruments developed by some of the present coauthors including the Internet Gaming Disorder Test (IGD-20 Test) (Pontes, Király, Demetrovics, & Griffiths, 2014) and the Internet Gaming Disorder Scale – Short-Form (IGDS9-SF) (Pontes & Griffiths, 2015) have been validated and utilized to assess IGD in a number of cultures, including Spain (Fuster, Carbonell, Pontes, & Griffiths, 2016), Portugal (Pontes & Griffiths, 2016), Italy (Monacis, de Palo, Griffiths, & Sinatra, 2016), and Slovenia (Pontes et al., 2016) [see Pontes (2016) for a brief review on the clinical and psychometric assessment of IGD on the basis of the APA (DSM-5) framework]. Additional instruments have been developed and more recently published, including the seven-item Game Addiction Scale, which has been validated in French and German (Khazaal et al., 2016).

Aarseth et al. (2016) also note that: "*There is no substantial difference between gaming and most other forms of entertainment, and pathologizing one form of entertainment opens the door to diagnoses involving sport, dancing, eating, sex, work, exercise, gardening, etc., potentially leading to a saturation of behavioral disorders*" (p. 3). We would argue that there are many substantial differences between gaming and the activities listed, but the one key characteristic they all have in common is that they all have the potential to be highly rewarding behaviors and therefore have the capability of being potentially addictive (Wenzel, Liese, Beck, & Friedman-Wheeler, 2012). While there is no empirical evidence that gardening is potentially addictive (Griffiths, 2015), there has been much research on addictions to exercise [including various sporting activities (Mónok et al., 2012), work (Andreassen et al., 2014), sex (Kraus, Voon, & Potenza, 2016), and eating (Hebebrand et al., 2014), as well as empirical studies examining dance addiction (e.g., Maraz, Urbán, Griffiths, & Demetrovics, 2015; Targhetta, Nalpas, & Perney, 2013)]. Research into gaming is not about pathologizing entertainment, but about pathologizing excessive and problematic behaviors that cause significant psychological distress and impairment in an individual's life. These are two related, but (ultimately) very distinct phenomena.

The paper by Aarseth et al. (2016) argues that inclusion and recognition of GD "*might result in premature application of diagnosis in the medical community and the treatment of abundant false-positive cases, especially for children and adolescents*" (p. 1). On the one hand, we would argue that the existence of an evidence-based diagnostic framework that is devised in light of the recent developments in the field (such as the one proposed by the WHO in the ICD-11) may have the opposite effect by mitigating premature and inaccurate diagnosis as this would likely

provide a clearer and more objective clinical rationale as to how clinicians and researchers should diagnose clinical cases in a less heterogeneous and non-specific way. This would be beneficial in the case of problematic gaming given the lack of consistency and robustness in current diagnostic practices that hinders research progress and results in a wide range of methodological issues (e.g., impossibility of cross-cultural comparisons, inaccurate prevalence rates, and misdiagnosis).

The drawbacks emerging from the lack of diagnostic consistency and use of non-validated criteria to diagnose problematic gaming have been widely reported by several scholars (King et al., 2013; Király et al., 2015; Pontes & Griffiths, 2014) and therefore efforts by reputable organizations (e.g., WHO) in relation to GD are timely and much needed. On the other hand, the argument that recognition of GD as a *bona fide* addiction would lead to increased rates of false positive cases is not entirely valid. Maraz, Király, and Demetrovics (2015) demonstrated that in general, diagnostic accuracy tends to worsen (i.e., increased rate of false positive cases) in rare disorders, such as behavioral addictions (including GD and gambling disorder). Notwithstanding this issue, this is not a reason per se for not acknowledging the existence and impact such disorders can have on mental health solely on the basis of estimation of predictive values and diagnostic accuracy because issues related to false-positives are present in all medical and psychiatric conditions as true gold standard diagnostics are rare in medicine (Omurtag & Fenton, 2012).

As far as we are aware, there is no minimum number of cases needed to be identified for a disorder to be classed as such. Some psychological disorders are notably rare (e.g., substance use disorder) with very low prevalence rates, but this does not preclude them from appearing as official diagnoses in psychiatry texts and diagnostic manuals. We would agree that the number of clinical cases and treatment studies in the literature is sparse as shown in previous systematic reviews (e.g., King, Delfabbro, Griffiths, & Gradisar, 2011; Kuss & Lopez-Fernandez, 2016), but the extant papers highlighting the clinical features of the disorder (e.g., Park, Lee, Sohn, & Han, 2016; Sakuma et al., 2016; Yao et al., 2017; Young, 2013) should not be dismissed just because they are relatively small in number.

All of the present authors were also coauthors on the paper by Griffiths et al. (2016) demonstrating there is no international consensus regarding the DSM-5 criteria for IGD. However, this study examined the specific wordings of individual criteria, and did not argue against the concept of GD (although a few of the 28 coauthors in that paper were admittedly skeptical about the status of the concept as a disorder).

Taken together, and in direct response to Aarseth et al. (2016), it has been argued that problematic gaming indeed exists and that it is an example of disordered gaming. The results of empirical research have been presented to indicate the scientific field and the study of problematic and potentially addictive gaming has rapidly moved forward within the last few years. Moreover, criteria called for previous research to enable the inclusion of IGD in iterations of the DSM, that is, defining features, obtaining reliability and validity of diagnostic criteria, prevalence rates, the etiology and biological features, have now been addressed by recent research. Rather than over-pathologizing everyday behaviors, we would claim that for a small minority of excessive users, gaming may result in negative consequences traditionally associated with substance-related addictions, which may require professional help.

Dismissing the clinical significance and the individual impact that excessive gaming can have on overall health may inevitably lead to a number of detrimental outcomes. First, it could lead to a reluctance on behalf of insurance and treatment providers to offer specialized and efficacious treatments. Second, it could minimize the scientific community's motivation to progress research in the field, which is crucial in answering questions regarding diagnostic criteria and cross-cultural prevalence. Third, it exacerbates the negative consequences for the individuals who are experiencing serious problems as a result of their disordered gaming by invalidating their personal experiences. While being socially conscious and aware that gaming is a pastime activity which is enjoyed by many millions of individuals, most of whom will never develop any problems as a consequence of engaging in gaming, we need to be respectful of the problematic gamers' experiences and offer the empirical foundations for targeted prevention efforts and professional support.

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