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## **Video Game Addiction: The Push To Pathologize Video Games**

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## **Abstract**

With proposals to include ‘gaming disorder’ in both the Diagnostic and Statistical Manual (DSM) and International Compendium of Diseases (ICD), the concept of video game addiction has gained traction. However, many aspects of this concept remain controversial. At present, little clarity has been achieved regarding diagnostic criteria and appropriate symptoms. It is unclear if symptoms that involve problematic video gaming behavior should be reified as a new disorder, or are the expression of underlying mental conditions. Nonetheless, the recent proposals around gaming disorder from respected bodies such as the World Health Organization and the American Psychiatric Association seem to lock much of the applied research into a confirmatory trajectory. Since the DSM-5 proposal, research is increasingly focused on the application of the proposed criteria, as opposed to broadly testing validity and necessity of the overarching construct. This raises multiple concerns. Firstly, the current approaches to understanding ‘gaming addiction’ are rooted in substance abuse research and approaches do not necessarily translate to media consumption. Secondly, some research has indicated that ‘video game addiction’ is not a stable construct and clinical impairment might be low. Thirdly, pathologizing gaming behavior has fallout beyond the therapeutic setting. In light of continuing controversies, it is argued that the currently proposed categories of video game addiction disorders are premature.

## **Introduction**

It is no secret many diverse people play video games across the world (Duggan, 2015), sometimes for extended amounts of time. Therefore, it is of little surprise that concerns about ‘game addiction’ have drawn substantial amounts of attention in the news and academic literature (Charlton, 2002). The interest in video game addiction has spurred parent groups and some researchers to link video games to children’s problematic behaviors, lack of social integration, and academic dysfunctioning. Many of these concerns also fit with stereotypes of gamers as physically unfit, socially awkward, and disengaged from work and school, despite evidence to suggest these stereotypes of gamers are false (Kowert, Festl & Quandt, 2015). In recent years various privatized treatment centers across the United States, Western Europe and Asia have emerged, specifically aimed at treating a “video game addiction” disorder (Russon, 2016).

However, most video game players do not appear to experience substantial difficulties with balancing their expected social roles outside games with those inside (Przybylski, Weinstein & Murayama, 2016). At extreme levels of playing, some video gamers have been shown to be encumbered with some problems, albeit not always directly related to their actual video gaming (Chan & Rabinowitz, 2006). At present, there is debate among scholars about the degree to which concerns about video game addiction represent the emergence of a new disorder as opposed to cycles of moral panic focused on new media (Bowman, 2016; Ferguson, 2013; Price, 2014; Theis, 2016).

## A brief history of Gaming Disorder

Debates over, and research on, video game addiction have been around nearly as long as video games themselves (e.g. Soper & Miller, 1983 and see Griffiths, 1991). More than three decades of research have resulted in a wide diaspora of conceptualization and assessment instruments, most, if not all, of which suffer from serious problems. The instruments lack clinical validation, lack norm scores, lack information on measurement specificity, lack standardized assessment, lack longitudinal case follow-up, are essentially atheoretical, and suffer from fundamental psychometric issues such as an implicitly assumed, but potentially inappropriate reflective measurement model (King et al., 2013; Van Rooij, Schoenmakers & de Mheen, 2017; Van Rooij, Van Looy, & Billieux, 2016). During these three decades, debates persisted over the prevalence, appropriate symptomatology, causal nature and even basic existence of video game addiction (e.g. Griffiths, 2008; Wood, 2008), but no clear resolution has been reached.

Despite the ultimate lack of clarity, there is a current push to institutionalize video game addiction as formal diagnostic categories in the Diagnostic and Statistical Manual (DSM) and International Compendium of Diseases (ICD), drafted by the *American Psychiatric Association* and the *World Health Organization*, respectively. While this type of standardization might have some positive effects, it remains unclear to what extent professional organizations have balanced careful investigation of a prospective psychological phenomenon against the driving potential of a societal narrative, impacting the scientific and medical processes in a negative manner (Bowman, 2016; Copenhaver, 2015).

Arguably, one result might be tunnel-vision like focus by the social science and medical communities on a reduction of video gaming altogether, locked in the substance use or gambling disorder metaphor (Billieux et al., 2015). This approach might detract from efforts that aim to

understand gaming, and problematic gaming in particular, as an everyday and largely normative behavior that may go awry for some individuals as many other behaviors can (APA, 2013; Bowman, 2015; Ferguson, 2013; Price, 2014; Theis, 2016). Below, we consider the advent of the two formal proposals for video game addiction disorders.

### **DSM-5: Internet Gaming Disorder proposal**

“Internet gaming disorder” was first proposed by the American Psychiatric Association (APA) in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) as a category for further study. The APA currently asserts that Internet gaming disorder (IGD) is also commonly referred to as: “*Internet use disorder, Internet addiction, or gaming addiction*” (APA, 2013, p. 796, emphasis original). In earlier online drafts, IGD was known as Internet Use Disorder only, but for unclear reasons it was respecified in the late stages of DSM-5 development to focus on online games (APA, 2012). The term “internet gaming disorder” has itself been controversial given some confusion over the boundaries of this diagnostic category (King & Delfabbro, 2014) and the somewhat rigorous exclusion of non-online video games without clear rationale (Van Rooij, Schoenmakers & Van de Mheen, 2017). In essence, the proposal suggests delineating a subset of human media-facilitated entertainment behavior via media as addictive and excluding others: e.g. Netflix addiction, offline-game addiction, newspaper reading addiction, et cetera. Unlike gambling, where the boundaries are somewhat more clear due to the involvement of harsh and life-impairing financial consequences; video gaming is much less clearly disconnected from other media behaviors.

The symptoms listed for IGD are behavioral and psychological in nature (Van Rooij et al. 2016), but appear to be devoid of a cultural or phenomenological understanding of the origins of those behaviors (the list of DSM diagnostic criteria are presented in Table 1, a graphic

interpretation of the disorder proposal is presented in Figure 1). At present, IGD's criteria appear to be borrowed largely from criteria for substance abuse addictions. They use similar terminology, under the assumption that such criteria can be applied to two different sets of behaviors with only the name of the behavior changed (e.g. "alcohol" and "gambling" to "video games"). This approach to formulating diagnostic criteria has already come under criticism, particularly for the potential for such symptoms to overpathologize normal behaviors (false positives) and its essentially atheoretical nature, that defies falsification efforts (e.g. Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015; Ferguson, Coulson & Barnett, 2011; Kardefeldt-Winther, 2015, Van Rooij & Prause, 2014).

[Insert Figure 1]

Additionally, there is much left unturned in understanding the videogamer from an ethnographic approach: the culture of video gaming itself is another important piece currently left unconsidered. At least one study that applied an ethnographic, anthropological approach to the issue of online gaming engagement suggests caution with the use of the concepts 'disorder' and 'addiction' as "*gamer respondents judged commonly used scale items, such as cognitive salience, withdrawal, and tolerance, as not fitting with their own understandings and experiences*" (Snodgrass et al, 2017). Additional researchers have discussed the importance of understanding video games, virtual worlds, and the players who participate in them from an ethnographic approach. However, involving the intricacies of player and virtual interactions is an idea that is rarely considered in the concept of video game addiction (Taylor, 2006; Boellstorff, Nardi, Pearce, & Taylor, 2012; Colder Carras, 2016).

Furthermore, researchers have discussed misrepresentations of high engagement with the term addiction, further muddying the waters of the proposed addiction disorder (Charlton, 2002;

Charlton & Danforth, 2007; Lehenbauer-Baum & Fohringer 2015). It has been argued that addiction or ‘disorder’ might not be the best conceptual framework to explain excessive play, specifically when it is tied to certain life phases. This research suggests that excessive play resolves itself when a new life phase begins, e.g., finding a romantic partner, getting a job, graduating, etc. (Karlsen, 2013). It should be researched whether this spontaneous recovery is higher than that with substance use recovery, but longitudinal research on problematic gaming has shown that it is notably high for gamers (Scharkow et al., 2014; Van Rooij et al., 2011).

[Insert Table 1 about here]

The controversial and sometimes political nature of the DSM process was further illuminated when a group of 14 scholars, including several who were part of the DSM workgroup for behavioral addictions, wrote a paper claiming “international consensus” on video game addiction, largely consistent with the DSM framing of IGD (Petry et al., 2014). This, in turn, resulted in 28 other scholars writing a reply that, in fact, no such consensus existed: Many scholars were concerned that the framing of IGD was problematic (Griffiths et al., 2016). Thus, the DSM conceptualization of IGD remains highly controversial.

### **ICD-11 Gaming disorder proposal**

In late 2016, the World Health Organization (WHO) began to release basic proposals for disorders related to “gaming disorder (WHO, 2016a) and “hazardous gaming” (WHO, 2016b.) This was quickly followed by a proposal to delete these same categories by one of the scholars in this field, a proposal which has attracted support comments and an accompanying debate paper

from other scholars (Aarseth et al. 2016; Kardefelt-Winther, 2016). As of this writing, these categories are proposals undergoing field testing, and not officially approved.

In conversations with the WHO team running the field trials for the gaming disorder categories, the WHO were very frank in acknowledging that political pressure was part of the decision making regarding these categories (personal communications occurring with Dr. Vladimir Poznyak and Dr. Geoffrey Reed; August-September, 2016). This should not be taken as indicating that the WHO team was unconcerned with the science, only that political issues, as well as scientific issues, arguably drove part of the process behind these proposals.

As of their time as proposals, the published language regarding the gaming disorders was considerably vaguer than for the DSM. For example, the entire extant description for gaming disorder in the ICD proposal is:

*“Gaming disorder, predominantly offline is manifested by a persistent or recurrent gaming behaviour (i.e., ‘digital gaming’ or ‘video-gaming’) that is not primarily conducted over the internet and is characterized by an impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities and continuation of gaming despite the occurrence of negative consequences. The behaviour pattern is of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. These features and the underlying pattern of gaming are normally evident over a period of at least 12 months in order for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe” (WHO, 2016a).*

How such a vague description of symptoms might be applied to real life scenarios is unclear. Further, no attempt is made to distinguish between gaming that is directly problematic as opposed to that used to fill time due to dysphoria resulting from another underlying condition (e.g. depression.) Lastly, although time criteria is included, such criteria are immediately undone by saying that the time criteria can be waived if the symptoms are “severe”: What this entails is left undefined. This ambiguity could lead researchers and clinicians alike to use subjective judgements about video gaming habits. This could easily cause misconstruing of healthy habits,

other mental health factors at play (e.g. depression, anxiety, etc.), and gross overestimation of the undefined disorder appearing across the world.

## **Research controversies related to video game addiction**

In this section we discuss some areas where research evidence has been mixed, and opinions among scholars are unclear. These controversies all contribute to lack of clarity regarding the validity of video game addiction as a clear diagnosis.

### **Do gaming problems necessitate a new disorder, framed as an addiction?**

One area where there is lack of clarity regarding whether video game addiction represents a unique diagnostic entity or, in the cases of some individuals, is symptomatic of an underlying mental condition. To use one example, hypersomnia (excessive sleeping) is one symptom of a major depressive episode. However, we would not diagnose depressed individuals with hypersomnia with a comorbid “bed addiction.” Further, individuals who read every day, throughout the day, are not considered to have “book addiction,” although some parties may be more accepting of this type of “addiction” due to the social appropriateness of reading. Even more, watching American football and participating in fantasy leagues is not considered to be addictive behavior unless monetarial betting is involved. Our point is that the conceptual framework remains murky to the extent which a behavior is merely a hobby regularly and enthusiastically engaged; and when that hobby becomes a full pathological disorder. Further, it is unclear whether video game addiction represents a “unique” disorder, if the excessive gaming is symptomatic of underlying issues, that are being miscatagorized and misinterpreted as a separate

disorder, or if it is simply a useful way to categorize a set of behaviors (Van Rooij, Van Looy, & Billieux, 2016).

Of course mental disorders can be comorbid and it may entirely be possible for a video game addiction to exist comorbid with other, underlying mental illnesses. However, one key test of the viability of video game addiction as a unique disorder would be documentation of its existence as either a solitary condition or an originating condition, at least within some individuals with the disorder. In other words, it should be possible to document that there are some individuals who *start* with video game addiction even if that then worsens into depression or other issues. Further, video game addiction would need to be shown to create interference or impairment independent of underlying mental health issues. To date, scholars, clinicians, and researchers have been unable to produce sufficient research and clinical casework showcasing convincing evidence of the solitary condition (Griffiths et al., 2016.; Kardefelt-Winther, 2016; King et al., 2003).

Overall, evidence from specific studies in this realm has been mixed, leading to controversy. For instance, one recent survey study has found that, although video game disorder appears to be unrelated to other mental health concerns, symptoms of the disorder were not associated with decreased social health or psychological impairment, as would be suggested by the DSM and ICD proposals (Przybylski, Weinstein & Murayama, 2016) The authors concluded that these results argued against the robustness of this disorder. Other studies have specifically examined the degree to which video game addiction may even serve as an independent disorder, providing potential evidence against this construct (Griffiths, Kuss & King, 2012; Wittek et al., 2016). Yet still other studies studies have indicated that video game addiction is symptomatic, arising from underlying conditions rather than existing as an independent diagnosis (Ferguson &

Ceranoglu, 2014). However, some scholars continue to assert that their data may indicate the existence of a unique disorder (Sakuma et al., 2017). Thus, it is difficult to make definitive statements about the existence of video game addiction as a unique disorder.

Case examples, likewise, document that it can be difficult to distinguish the degree to which video game addiction can be identified as a distinct disorder, or symptom of underlying problems. For example, in one paper Griffiths describes the case of “Gary” who escapes into his computer due to social, psychological, and physical problems:

*“There is no doubt that this appears to be an unusual case and that Gary’s excessive time spent on the computer appears to be symptomatic of other underlying problems [...] His primary motivation for excessive use of his computer appears to be some sort of escapism into his own world where he can counteract his depression and forget about his social isolation and his medical condition (neurofibromatosis).” (Griffiths, 2000, p. 213).*

Later Griffiths further summarizes that:

*“It is quite obvious that of the five cases, possibly only two of them (Gary and Jamie) were addicted according to the addiction components criteria. The excessive usage in the majority of cases was purely symptomatic and was where the Internet/computer was used to counteract other deficiencies (e.g., relationships, lack of friends, physical appearance, disability, coping, etc.)” (Griffiths, 2000, p. 216).*

Overall this information suggests a latent cause of the use of internet/computer usage, rather than a pure addiction component with no masked or additional causes.

Due to such divergent results, a lack of clarity remains regarding the causal and temporal order between the development of video game addiction and other, potentially underlying mental disorders. Few studies are available to examine this causal ordering and without these it remains unclear whether video game addiction would add value to clinical practice and our understanding of extreme gaming behavior as an independent disorder.

### **Clinical Significance and False Positives**

Since the DSM and ICD classification systems for video game addiction have evolved, scholars and practitioners have become significantly more interested in researching their clinical relevance. This has spawned multiple instruments attempting to measure the proposed phenomenon (King et al., 2003). Individuals instruments continue to be produced with heterogeneous assumptions and potentially problematic psychometric properties (i.e. low specificity and sensitivity), mainly reliant on self-report surveys (Kardefelt-Winther, 2014; King et al., 2003; Przybylski, Weinstein & Murayama, 2016). Unfortunately, the symptoms used in many such surveys are often based on the criteria in the DSM-5 proposed category. This approach does not seem to be sufficiently indicative of actual distress or impairment (Przybylski, Weinstein, & Murayama, in press). The tautological relationship between survey instruments and proposed diagnostic criteria additionally questions the validity of the DSM and ICD proposed diagnostic criteria themselves. For instance, most diagnostic surveys rely upon the reformulation of criteria from substance abuse or gambling abuse disorders, with the assumption such criteria will easily transfer to video games. Researchers using the same or similar instruments in order to measure gaming behaviors replace words such as “heroin” with “video games”, with little regard to the construct validity of merely rewording questions without a platform of foundational research (Byrne, Sias & Kim, 2016, Charlton, 2002; King et al., 2003; Przybylski, 2016), an issue we return to in a moment.

Because of the heterogeneous nature of the existing measures of video game addiction, prevalence rates suggested by studies vary wildly. As examples of these extremes, Wan and Chiou (2006) estimate 45% of their sample to have met acute addiction criteria whereas other researchers have conservatively suggested problematic gaming to be closer to 1% of the

population (Festl, Scharkow & Quandt, 2013). In particular, this raises the issue of considerable over identification of false-positive cases, particularly using measures that rely upon the DSM-5 proposed criteria (Kardefelt-Winther, 2014; King et al., 2013; Przybylski, 2016).

This potential problem of false positives is, in part, due to the pathologization of normal behaviors under the assumption that criteria that worked well for substance abuse disorders would also work well for “video game addiction.” In this case, the cart may have been put before the horse. In essence, the DSM-5 criteria appear to have been developed largely based on assumptions rather than sound data, with subsequent study of the DSM-5 criteria arguably designed to find support for them. Examples include symptom items related to using video games to relieve stress or negative moods, or losing interest in old hobbies to pursue gaming. While such behaviors are, indeed, problematic when discussing substance abuse, they are also common for virtually any harmless hobby. In Table 1 we list the DSM-5 proposed criteria, marking those we (and other scholars, see Aarseth et al. 2016; Kardefeldt-Winther, 2015) identify as particular at risk for false-positive results. As we note, concerns about the false-positive potential for the symptoms are, arguably, moderate to high for all but three of the symptoms.

Clinicians are faced with the difficult task of critically examining psychometrically sound psychological tests in order to provide guidance for clinical disorders. With varying clinical tests being used, adapted, and utilizing poor psychometrics and operational definitions, it appears to be a daunting task. A lack of general consensus on symptomatology, assessment, and use of psychological tools suggests no clarity on the subject of IGD. The main risk is that a diagnoses lacking such basic clarity may ultimately do more harm than good.

### **Video Game Addiction is Not a Stable Construct**

A further issue that has been raised in recent research is that video game addiction does not appear to be a stable construct over time. That is to say, identification of the disorder, or elevated symptomatology of the disorder at one time point, is not predictive of later identification of the disorder. Of course some clinical disorders may be fairly transient. However, in such cases, we would expect these disorders to demonstrate short-term impairment and potentially require short-term treatment to manage. Furthermore, classification of video game addiction appears to resolve spontaneously without intervention (Przybylski, Weinstein & Murayama, 2016; Rothmund, Klimmt & Gollwitzer, 2014; Scharkow, Festl & Quandt, 2014; Strittmatter et al., 2016).

Evidence is lacking that video game addiction displays any of these features, demonstrating low stability with spontaneous recovery and limited impairment. Taken together, these issues are problematic for the concept of video game addiction, at least as currently conceptualized.

### **Why Video Game Addiction and Not Other Behavioral Disorders?**

Before the invention of video games and video game addiction other behaviors and technologies were considered to be addictive. Computer addiction and addiction to programming caused significant concern in the 70s and 80s (Shotton, 1989), but these "machine-code junkies," "hackers," and "micromaniacs" have not been given a diagnostic category as of yet.

Weizenbaum, a professor of computer science, (1976) warned of the dangers that computers represented for "compulsive" programmers who, in contrast to "professional" programmers, spent their time programming for programming's sake producing overly-ambitious, lengthy and poorly documented code. "Professional" programmers, on the other hand, did not code just for the sake of coding, but solely to achieve a certain aim or accomplish a goal.

Somewhat provocatively we might ask if the difference between the two could not also be described as intrinsically motivated creative pursuits versus extrinsically motivated work. It is safe to say that these concerns are no longer prominent in academia, mass media, or anywhere else. It remains an open question whether concerns about internet gaming disorder will suffer the same fate as computer programming addiction.

The work group that decided to include Internet gaming disorder as a disorder for further study in the DSM-5 consisted of 12 experts and 20 advisors. The scope of this work group included Substance Use Disorders as well as a new and controversial subject: behavioral addictions (Petry & O'Brien, 2013). The work group considered other potential non-substance addictive-related behaviors such as: gambling, internet gaming, internet use more generally, shopping, exercise, excessive eating and sexual behaviors (Petry & O'Brien, 2013). However, only gambling was considered to have sufficient scientific merit as a non-substance addictive behavior. It was therefore moved from the impulse control disorders due to overlap in etiology, biology, comorbidity, and treatment (Petry & O'Brien, 2013). The authors stress that specific criteria and threshold for diagnosis require systematic investigation and empirical validation before wide-scale adoption. The authors further state that the proposed criteria only apply to internet gaming, and not internet use more generally, which, according to the authors, may differ in terms of symptoms, etiology, comorbidity, course, and treatment. This is sound advice, but somewhat curious, because the authors claim to base their criteria on a proposal of criteria for internet addiction called "Proposed diagnostic criteria for internet addiction" (Tao et al., 2010). Tao and colleagues view internet addiction as an umbrella term that encompasses at least three subtypes: "*Internet addiction is comprised of at least three subtypes: excessive gaming, sexual preoccupations and e-mail/ text-messaging*" (Tao et al., 2010, p. 556). Petry and O'Brien (2013)

warn that care and rigour should be exercised when new psychiatric disorders are proposed. In the words of the authors:

*“Introducing conditions into the DSM-5 that are not well established or that do not cause significant distress and impairment (e.g. chocolate addiction) will lower the credibility of psychiatric disorders more generally, thereby undermining the seriousness of psychiatric disorders. Thus, strong empirical data will—and should be—required to include new mental disorders, including internet gaming disorder, in future versions of the DSM.” (Petry & O’Brien, 2013, p. 1187)*

We, the authors of the present paper, wholeheartedly agree. However, we question whether “video game addiction” is more well established at this point than “chocolate addiction” is. Undoubtedly there are more research studies on video game than chocolate addiction, but, as we’ve covered, it is likely this scholarly interest matches a cultural preoccupation with video games and it’s less clear that this body of scholarly work has been precise or foundational in clearly establishing an evidence base for a new diagnostic category. Since evidence comes primarily from questionnaire based prevalence studies, that same method in all likelihood would have yielded just as much evidence for “chocolate addiction” had a similar number and type of studies been done on this concept.

This top-down approach to discovering new addictions could potentially define many human activities as an addiction. A bottom-up approach, built on ethnographic and clinical observation would constitute more compelling evidence. This concern is, perhaps, even more considered when examining other areas that may have as much or more research coverage. For instance, a PsycINFO search in December of 2016 of (video game OR videogame OR computer OR internet game\*) AND addiction as *subject* terms resulted in 790 hits. (Sex\* AND addiction) resulted in 2009. Work and addiction resulted in 329. (Food OR eat\*) AND addiction) resulted in 704. Although it might presumably be argued that video game addiction research is of better

quality than these other fields, our own assessment of the video game addiction literature with its inconsistencies, heterogeneity and contradictions, would not appear to support such a contention.

As such we raise the potential that video game addiction is a “thing” for the psychiatric and medical community less because empirical research has demonstrated a clear foundation; but rather because video game addiction is a “thing” in the general public’s eye. That is to say, video game addiction offers the potential for grant funding, practice opportunities for members of professional societies and political influence not offered by other potential behavioral addictions. With this in mind, we turn our narrative to moral panic theory to explain how and why this occurs.

### **Moral Panic Theory and Video Games**

Moral Panic Theory (Cohen, 1972) concerns itself with the ways in which societies construct narratives about perceived threats and the moral causes of these threats. Moral panics often focus on youth, either their behavior or perceived risks to their well-being (Ben-Yahuda, 2009) There is a long history of moral panics focusing on perceived harms due to media (Bowman, 2016; Kill Screen, 2010; Kutner & Olson, 2008), ranging from comic books, to pinball machines, to Elvis Presley, to 80’s rock music to video games. Understanding Moral Panic Theory is essential to understanding the concept of video game addiction. Moral repugnance toward an issue, particularly by older adults, can incentivize scientific (or pseudo-scientific) agendas, using the veneer of the scientific process as cover for moral or political causes (Critcher, 2009). This is particularly at issue in light of evidence suggesting that the opinions of clinicians toward video games is determined by age cohorts (Ferguson, 2015a),

similar to the general population (Przybylski, 2014). As such, decisions by scientific bodies may reflect generational attitudes and moral panic, as much as they do scientific evidence.

The mechanism of a moral panic as relates to media may often involve sensationalist language implying that exposure to the media in question will result in a critical moral failure of the individual consuming that media. This is typically done through sensationalistic claims by politicians, advocates and some scholars (Markey, Males, French & Markey, 2015). Historically, many of these types of claims have focused on the potential for video games to fundamentally changes players' personality structures such as "[I]n essence...creation and automatization of these aggression-related knowledge structures and the desensitization effects change the individual's personality" (Anderson & Dill, 2000, pg 774). Despite that updated research has largely failed to provide consistent and unilateral support for these claims (Bean & Ferro, 2016; Ferguson, 2013; 2015; Przybylski, 2014) such portrayals tend to persist so long as there is an *audience* for them in the person of older adults whose views on the new media are in line with such sensationalist claims (Bowman, 2016.) Regarding video game addiction issues, comparisons of video games to illicit substances such as heroin or cocaine are the equivalent to claims that violent games could produces mass murderers (Markey, Markey & French, 2015).

As a fundamental phenomenon, moral panics related to media tend to thrive on instinctual fears of a new technology, misunderstandings of an undocumented phenomenon, and faulty perceptions of risk. For instances, both among the general public (Przybylski, 2014) and clinicians (Ferguson, 2015a), fears of video games tend to be most pronounced among older adults who have little experience with games, and whom may also harbor negative opinions of youth themselves. Within each generation a moral panic society has been pushed and

manipulated to take a “righteous stand” against whatever is deemed to be the enemy - whether proven and true or not (Cohen, 1972; Ben-Yahuda, 2009; Tuchman, 1978).

A prominent question which rises out of moral panic theory, is the one about who benefits from the public fear created. Central to the concept created by Cohen is an argument that creating a moral panic is beneficial to state officials, news agencies, and law enforcement (Cohen, 1972). This incentive structure can be extended to scholars, for whom grant funding, news media attention, and professional prestige can flow from research supporting a moral panic and “saving children.” Such morally driven research might be facilitated via a larger system of questionable researcher practices (including large amounts of freedom in running and interpreting analyses). This can be harmful, as the replication crisis in psychological science shows (Ferguson, 2015b). The crux of this symbiotic relationship is the creation of a moral panic inadvertently creates an avenue in which to disperse approved rhetoric for the politicians, codes of conduct for the law enforcement, and tantalizing stories which will attract consumers further attracting monetary gain (Cohen, 2002, Tuchman, 1978). In the end, distortion of the message ensues, exacerbating current problems and creating an imaginarily large problem which may be as poignant as portrayed.

[Insert Figure 2 about here]

Figure 2 presents the general model of Moral Panic Theory. As discussed above, moral panics are driven by predetermined decisions by society about a new media, typically by older adults who do not consume such media. The predetermined belief ultimately incentivise scholars, politicians and news media to make public claims supporting the moral panic. Moral panics most often decline when the audience does: put bluntly, moral panic beliefs tend to die off when older adults who believe in them do.

The environment of moral panic can create enormous pressure on scientific organizations to promote research, reports, or policies consistent with the moral panic so as to combat the perceived threats. This can be observed in some of the reasoning behind the proposed categories for gaming disorders in the ICD-11. Communications by the current authors with the World Health Organization (WHO) on the new topic of “Gaming Disorder” and “Hazardous Gaming” in the proposed ICD-11 resulted in acknowledgements by the WHO of this pressure. In speaking with WHO officials (personal communications occurring with Dr. Vladimir Poznyak and Dr. Geoffrey Reed; August-September, 2016) these officials reported receiving “enormous pressure” to include video gaming as an addiction disorder particularly from Asian countries and that “we have strong request from our stakeholders to take into consideration the health aspects” While these statements do not exclude empirical considerations, they do provide a frank acknowledgement of the political and social pressure that is often behind decisions made by scientific organizations.

Henceforth we have largely discussed the scientific merits of video game addiction diagnoses. In the following sections, aside from the potential harms to scientific credibility, we note some areas where premature introduction of video game addiction diagnoses, particular based on criteria with high false-positive rates, can cause unintended harms to children.

### **Video gaming benefits are at risk**

A first concern is that perpetuating a moral panic on video games may create an environment in which the positive use of video games may become less likely. Video games have been shown to have significant positive effects upon players serving a wide range of emotional needs, intellectual stimulation, and physical rehabilitation aspects (Granic, Lobel, & Engels, 2013; Kato, 2010; Redd et al., 1987; Turkle, 1994; Vasterling, Jenkins, Tope, & Burish,

1993). Evidence has also developed suggesting that video games are effective when employed in educational settings (Wexler et al., 2016).

Summarizing the extant literature, Olson (2010) found youth who played video games were able to express creativity easier, had increased social and intellectual curiosity, and a larger focus to discover the real world compared to youth that did not play video games. Within the medical field, video games have been shown to help with the engagement of patients, pain management for chemotherapy treatments, and prevention of asthma attacks (Kato, 2010; Redd et al., 1987; Vasterling, Jenkins, Tope, & Burish, 1993). Furthermore, video games are currently being used in some mental health settings and have resulted in clients being more cooperative and enthusiastic about psychotherapy (Ceranoglu, 2010; Kato, 2010). Finally, video games have been utilized in education to increase grades, learning, reading, and working with abstract ideas (Gee, 2007; Koster, 2005; Squire & Barab, 2004).

Evidence about video gaming benefits is not without debate either, and the benefits might be most associated with the motivational properties of the medium (Hamari et al., 2014). For instance, suggestions that video games improve IQ or visual spatial cognition remain controversial at best (Simons et al., 2016). For instance non-replication of previous studies of visuospatial information processing video game research conducted by Van Ravenzwaaij et al. (2014) concluded that while playing action video games does not improve the speed of information processing of a video gamer, *playing any video game* can improve information processing with enough practice. Thus we are cautious to note that, although video games appear to have some real benefits, it is important to not exaggerate the benefits of games in the same manner as as the risks.

Regarding personality development, video gamers have been shown to have appropriately developing personalities, similar to individuals who do not play video games (Bean et al., 2016; Bean, 2015; Bean & Groth-Marnat, 2014). In some cases, research has shown video gamers have lower levels of emotionality in stressful situations, suggesting gamers may manage stress better than non-gamers (Ferguson & Rueda, 2010). This is further consistent with claims of researchers suggesting video games may be considered to be providing a safe haven for individuals to experience and process emotional content (Jansz, 2005).

Durkin and Barber (2002) found no support for the stereotypical negative beliefs about computer games and concluded that: “computer game play is not necessarily a monolithic, moronic, or antisocial imposition on children’s lives” (p. 375). Contrary to popular beliefs about digital games this study found that among a sample of 1,304 American students, playing video games correlated with positive adolescent development. Compared to adolescents that did not play computer games, gamers reported lower levels of depressed mood, lower levels of substance abuse, lower levels of absenteeism from school, lower levels of risky behavior and disobedience, higher levels of family closeness, higher levels of active engagement in clubs, and finally they exhibited higher grade point averages.

Other evidence has suggested that video games are related to increased social interactions of individuals who suffer from difficulties with social engagement along with increasing curricular engagement (Adachi & Willoughby, 2013; Durkin, 2010; Nebel, Schneider, & Rey, 2016; Shute, Ventura, & Ke, 2015). For instance, games like Minecraft may be valuable in promoting social engagement for individuals on the Autism Spectrum (Ringland et al., 2016). Related to this, research suggests that social game playing is related to promotion of prosocial

behaviors, social engagement and empowerment, and problem solving skills (Adachi & Willoughby, 2013; Nebel, Schneider, & Rey, 2016; Shute, Ventura, & Ke, 2015).

## **Concluding Observations**

Reviewing the current literature, we express the concern that significant confusion and misinformation exists about the concept of video game addiction. As such, at present, the potential for the misuse of diagnostic categories related to video game addiction remains high. For instance, despite the controversies remaining in the assessment of video game addiction, with the potential for false positives, it remains common for some scholars to suggest potentially sensationalistic prevalence estimates in the range of 8-10% (Choo et al., 2010; Gentile, 2009) despite other data reporting a more conservative range of 0.6-3% (Charlton, 2002; Mentzoni et al., 2011; Morahan-Martin & Schumacher, 2000; Scharnow, Festl & Quandt, 2014; Van Rooij et al., 2011). These potentially alarmist statements from experts, researchers, and scholars, particularly when reified in diagnostic categories, can easily confuse the public and clinicians, promoting beliefs in a false epidemic of video game addiction.

Teenagers are the main consumers of video gamers, with 97% of ages 12-17 playing a form of video games across tablets, computers, and consoles (Lenhart et al., 2008). The push to pathologize an enjoyable pastime and recreational event for a significant amount of video gamers has generated a large number of problematic and confirmatory studies, but has not resulted in solidarity between studies or overall agreement between researchers (Charlton, 2002; Ferguson, 2016). For instance, past studies have been heavily criticized for a large focus upon preoccupation symptoms of video games and video gamers resulting in a misinterpretation of

addiction versus high engagement play; which is considered to be healthy psychologically (Charlton, 2002).

We also express the concern that these diagnostic categories may be used to promote abusive practices toward minors in some countries and cultures. For example, recent news media coverage has detailed youth camps for ‘video gaming addiction’ being implemented across China (Russon, 2016; The Paper, 2016; Top News, 2016). The practices detailed in these accounts are arguably abusive and unethical and not in the interest of the youth forced into these camps. One report chronicled a 16-year old girl’s experience with China’s “boot camp” for children and adults believed to be addicted to technology and video gaming. She was abducted and brought to the Shandong Science and Technology Defense Training Institute against her will while reportedly being allowed to see her family only once every three months. She reported physical and mental abuse occurring during her four month internment behind barbed wire fences (Russon, 2016;). Her story allegedly has been corroborated by others reporting similar treatment during their stays. Reporters even experienced instances of attacks from the school personnel when attempting to question the complex about its methods (Russon, 2016; The Paper, 2016).

Of course the experiences in China may be an extreme. However, we are skeptical that predatory treatment programs will be limited to Asian countries. In the US, various treatment programs have emerged to intensively treat video gamers as addicts - even without a mental health diagnosis or clear standards for diagnosis or treatment (Addictions.com, 2016; CRC Health Group, 2016; Illinois Institute for Addiction Recovery, 2016). We suspect that the emergence of such clinics will continue internationally, with the market only increased by

reimbursable conditions related to video game addiction. At present, the research base does not support that such a plethora of programs would be in the interest of youth.

We express concern for the lack of basic conceptual research in video game addiction. As we've noted earlier, much of the research base simply assumed that criteria for substance abuse could be used for video game addiction, without clear foundational research. There has also been a basic lack of qualitative, interview research. It would be important for prevalence studies that employ questionnaires and screening tool to validate their results with thorough clinical interviews with those who score as "addicts" (Nielsen, 2015). To the best of our knowledge no quantitative study of game addiction has validated video game addiction scores with in-depth qualitative research in the same subjects. By contrast, one study by Nielsen (2015) did not find evidence that individuals who scored as "addicted" to video games on surveys displayed distress or impairment as assessed by thorough interviews. Without such foundational work, it remains difficult to know what survey responses to "video game addiction" criteria, including those promoted by the DSM-5 truly mean.

In conclusion: We agree with the American Psychiatric Association (APA) that significant problems remain for the concept of video game addiction and that the extant literature remains problematic, inconsistent and lacking in basic foundational work, particularly as relates to proposed diagnostic categories. In the words of the APA: *"The literature suffers, however, from lack of a standardized definition from which to derive prevalence data. An understanding of the natural histories of cases, with or without treatment, is also missing."* (APA, 2013, p. 796). As a clear result, it is obviously premature to propose gaming disorder as a distinct psychological disorder at this time.

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**Table 1: DSM-5 Proposed Criteria for Internet Gaming Disorder**

<b><u>Criteria</u></b>	<b><u>Controversy Over False Positive Results</u></b>
1) Preoccupation with Internet Games Gaming becomes dominant activity	High
2) Withdrawal Symptoms (anxiety, sadness when the game is taken away)	Moderate
3) Tolerance (need to spend more time gaming)	Moderate
4) Unsuccessful attempts to control amount of gaming	Low
5) Loss of interest in previous hobbies	High
6) Continued use despite problems	Low
7) Deceived family about time spent gaming	High
8) Games to escape negative mood	High
9) Lost relationship due to gaming	Low

Note: 5 or more symptoms endorsed within 12-month period required for diagnosis.

**Figure Caption**

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Figure 1: A visual interpretation of the DSM-5 proposal for Internet Gaming Disorder

Figure 2: Moral Panic Theory

*Figure 1. A visual interpretation of the DSM-5 proposal for Internet Gaming Disorder  
(reprinted with author's permission: Van Rooij et al., 2016, doi: 10.1111/pcn.12404)*

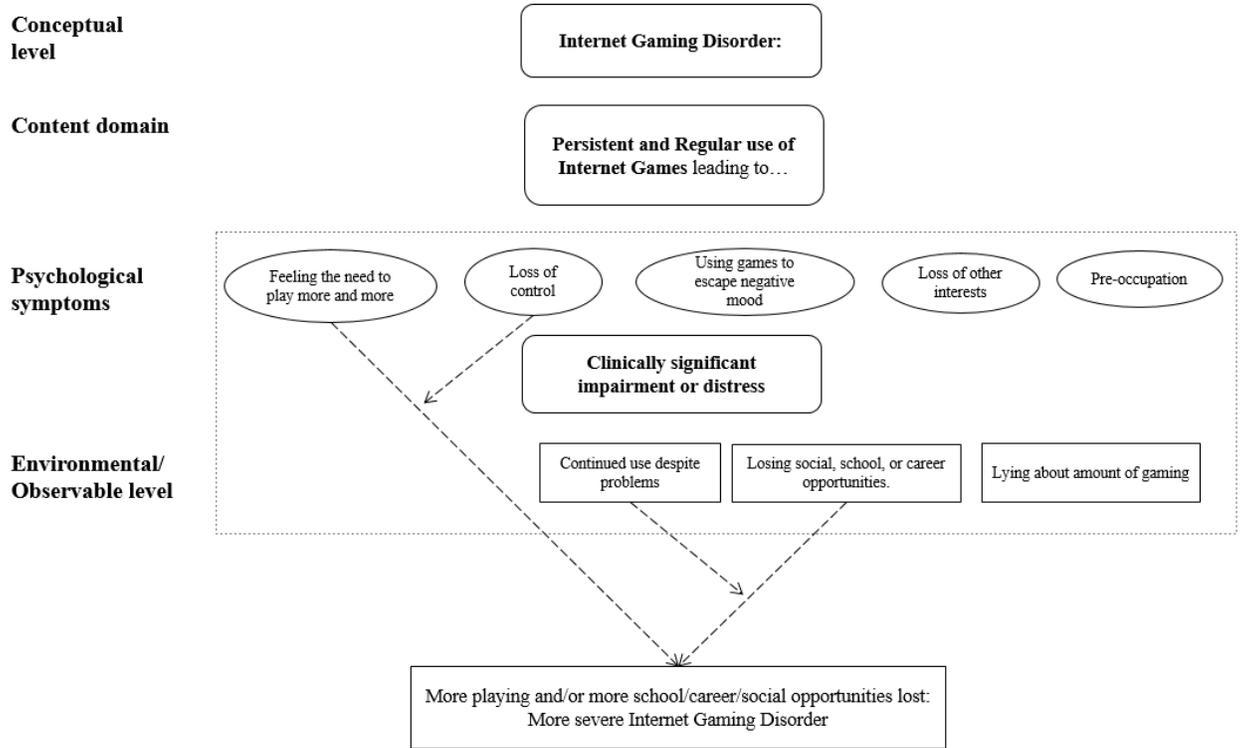


Figure 2: Moral Panic Theory

