



Toward a consensus definition of pathological video-gaming: A systematic review of psychometric assessment tools



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HIGHLIGHTS

- ▶ We review the psychometric properties of eighteen instruments for pathological video-gaming.
- ▶ Available measures may be broadly characterized as inconsistent.
- ▶ Research consensus suggests three key symptoms of pathological video-gaming.
- ▶ Instruments are limited by differing theoretical orientations, and some psychometric inadequacies.
- ▶ Areas of improvement for future research on the proposed DSM-V disorder are outlined.

ARTICLE INFO

Article history:

Received 22 October 2012

Received in revised form 30 December 2012

Accepted 3 January 2013

Available online 12 January 2013

Keywords:

Pathological video-gaming

Assessment

Systematic review

Internet use disorder

Video-gaming addiction

DSM-V

ABSTRACT

Pathological video-gaming, or its proposed DSM-V classification of “Internet Use Disorder”, is of increasing interest to scholars and practitioners in allied health disciplines. This systematic review was designed to evaluate the standards in pathological video-gaming instrumentation, according to Cicchetti (1994) and Groth-Marnat’s (2009) criteria and guidelines for sound psychometric assessment. A total of 63 quantitative studies, including eighteen instruments and representing 58,415 participants, were evaluated. Results indicated that reviewed instrumentation may be broadly characterized as inconsistent. Strengths of available measures include: (i) short length and ease of scoring, (ii) excellent internal consistency and convergent validity, and (iii) potentially adequate data for development of standardized norms for adolescent populations. However, key limitations included: (a) inconsistent coverage of core addiction indicators, (b) varying cut-off scores to indicate clinical status, (c) a lack of a temporal dimension, (d) untested or inconsistent dimensionality, and (e) inadequate data on predictive validity and inter-rater reliability. An emerging consensus suggests that pathological video-gaming is commonly defined by (1) *withdrawal*, (2) *loss of control*, and (3) *conflict*. It is concluded that a unified approach to assessment of pathological video-gaming is needed. A synthesis of extant research efforts by meta-analysis may be difficult in the context of several divergent approaches to assessment.

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1. Introduction

Video-gaming is an increasingly prevalent activity worldwide and has attracted increasing research attention in psychology and psychiatry (Sim, Gentile, Bricolo, Serpollini, & Gulamoydeen, 2012; Weinstein & Lejoyeux, 2010). Clinicians and researchers in allied mental health disciplines have proposed that, under certain conditions, video-gaming may become psychologically, socially, and/or physically detrimental to the user (e.g., Kuss & Griffiths, 2012a; Salguero & Moran, 2002). The question of whether a pattern of problematic video-gaming behaviors over a sustained period of time may constitute a psychological disorder is the topic of ongoing debate (Blaszczynski, 2006; King, Delfabbro, & Zajac, 2011; Wood, 2008). On May 1, 2012, the DSM-V Task Force and Work Groups proposed that Internet Use Disorder, which primarily refers to maladaptive video-gaming (or “Internet Gaming”) behavior, should be included in Section 3 of the DSM-V as the subject of further empirical inquiry. This announcement marked the first occasion of video-gaming being formally recognized as a disorder, albeit tentatively, in clinical nomenclature.

The proposed Internet Use Disorder classification contains nine criteria: (1) preoccupation with Internet gaming; (2) withdrawal symptoms when Internet is taken away; (3) tolerance: the need to spend increasing amounts of time engaged in Internet gaming, (4) unsuccessful attempts to control Internet gaming use; (5) continued excessive Internet use despite knowledge of negative psychosocial problems; (6) loss of interests, previous hobbies, entertainment as a result of, and with the exception of Internet gaming use; (7) use of the Internet gaming to escape or relieve a dysphoric mood; (8) has deceived family members, therapists, or others regarding the amount of Internet gaming; and (9) has jeopardized or lost a significant relationship, job, or educational or career opportunity because of Internet gaming use. Recent commentaries by King and Delfabbro (2013) and Starcevic (2013) have highlighted that 7 of the 9 criteria specifically refer to “Internet gaming”, whereas the remaining criteria refer to Internet use more generally. Consequently, although this proposed set of criteria was intended to provide greater clarity to the clinical formulation of Internet-related disorders, the diagnostic category may promote further confusion with its conflation of video-gaming and Internet use for other purposes. For the purpose of this review, the term “Internet Use Disorder” (when used) refers to Internet gaming specifically (i.e., pathological video-gaming), rather than general Internet use behaviors.

Two conceptual definitions of pathological video-gaming preceded the Internet Use Disorder classification. These definitions were based on the underlying components of the DSM-IV-TR classifications for substance dependence and impulse control disorder (see Albrecht, Kirschner, & Grüsser, 2007; Sim et al., 2012; Tables 1 and 2 also present a list of diagnostic features of each classification). However, the specific constituents of these two diagnostic categories that should be prioritized in conceptualizing pathological video-gaming have been debated. For example, Blaszczynski (2006) has argued that impaired control and harmful consequences should be considered fundamentally important criteria for defining pathological video-gaming. Similarly, Charlton and Danforth (2007) have argued that some features of addictive video-gaming, including cognitive salience, tolerance, and euphoria,

may in fact represent peripheral criteria of addiction which may be inappropriate diagnostic features given their overlap with high but otherwise normal engagement with video-gaming activities. Further attempts to classify problematic video-gaming have referred to the amount of time spent in the activity. For example, “excessive” video gaming has been defined by some as more than 5 h of play per day (Messias, Castro, Saini, Usman, & Peeples, 2011), and “dependent” video-gaming as more than 10 h per week (Huang, 2006). However, as Griffiths (2010) has shown using case studies, the time spent engaged in gaming is not necessarily an indicator of problematic play and that context is critical when using time as criterion for addictive gaming.

An alternative model has proposed six features or *components* of addictive behavior (Griffiths, 2005). The criteria include: (1) *salience*, when video-gaming has become the most important activity in a person’s life, dominating thoughts (preoccupation and cognitive distortions), (2) *mood modification*, which refers to changes in a person’s mood state that occur as a result of playing video-games; (3) *tolerance*, which refers to the process whereby increasing amounts of video-game play are required to achieve the former mood-modifying effects, (4) *withdrawal*, which refers to aversive mood states and/or physical effects that occur when video-game play is suddenly discontinued or reduced, (5) *relapse*, which refers to the tendency for the player to revert back to earlier patterns of video-game play, and for even the most extreme patterns, typical of the height of excessive video-game play, to be restored quickly after periods of abstinence or moderation, and (6) *harm*, which refers to the negative consequences of excessive video game play, including personal psychological distress as well as conflicts with other people (family members and friends) and/or other activities (job, school, social life, hobbies and interests).

There has been increasing sophistication in relation to issues concerning assessment and measurement of pathological video-gaming. In the last few years, instruments have been developed that have more robust psychometric properties in terms of reliability and validity. However, there are still some concerns as many of the most widely used screening instruments were adapted from adult screens and much of the video game literature has examined children and adolescents. King, Delfabbro, Griffiths, and Gradisar (2011) assert that, to enable future advances in the development and testing of interventions for video game-related problems, there must be some consensus among clinicians and researchers as to the precise classification of these problems.

Available evidence suggests that, internationally, a significant number of individuals with video-gaming-related problems have received some form of treatment from a mental health or medical service provider (Baer, Bogusz, & Green, 2011; Han et al., 2009). This is particularly evident in South East Asia (e.g., China, Taiwan and South Korea), where the estimated prevalence of technology-related problems among adolescents ranges from .3% to over 10% (King, Delfabbro, & Griffiths, 2012; King, Delfabbro, Griffiths, & Gradisar, 2012). Several clinical trials of psychological and pharmacological treatment have already been conducted; however, meaningful comparison of treatment outcomes has been difficult without standard assessment protocols (King et al., 2011). Therefore, there exists a need for consensus on measurement of pathological video-gaming for consistent assessment treatment outcomes of current and future intervention studies.

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