



Editorial: Internet Gaming Disorder: A Pathway Towards Assessment Consensus

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Editorial on the Research Topic

Internet Gaming Disorder: A Pathway Towards Assessment Consensus

The use of video-games, either online or offline, has significantly increased, and almost homogeneously, around the globe over the last decades (Anderson et al., 2017). The majority of gamers have benefited from this rapid growth, which has a mostly positive effect on the cognitive, emotional, and social domains, as well as in their general well-being and everyday functioning (Jones et al., 2014).

In this context, the expansion of the video-gaming market has inevitably generated significant profits for the gaming producing industry and even employment opportunities for high-skilled and/or experienced gamers (Zhang and Fung, 2014). Nevertheless, this undoubtedly significant progress in the field of video-gaming has been accompanied by an equally significant downside for a considerable minority of gamers, who appear to have been overly-consumed by their gaming involvement (Stavropoulos et al., 2019a). Social withdrawal, reduced academic and work performance, as well as higher risk for a range of psychopathological behaviors including Depression, Anxiety, Attention Deficit and Hyperactivity and even Antisocial manifestations have been linked to excessive gaming (Stavropoulos et al., 2019b).

These negative outcomes have led to the adoption of various terms and definitions aiming to conceptualize gaming abuse as a modern psychopathological concern (Kuss et al., 2017). Despite the heterogeneity in the terms used to describe the phenomenon, the need to acknowledge the existence of a distinct clinical entity related to disordered gaming became apparent (Petry et al., 2014). Subsequently, the need to accurately define the fine line between disordered and adaptive gaming, so as to avoid pathologizing recreational gaming-engagement, has become pressing (Kardefelt-Winther et al., 2017). In this line, the development of clear diagnostic boundaries between disordered gaming and other clinical entities, that will allow differential diagnosis, emerged as an important goal (Scerri et al., 2019).

The American Psychiatric Association in the 5th edition of the Diagnostic and Statistical Manual for Mental Disorder (DSM-5; American Psychiatric Association, 2013) introduced a provisional classification of Internet Gaming Disorder (IGD), and invited scientists to conduct more research on the topic. Furthermore, the World Health Organization in the 11th edition of the International Classification of Diseases (ICD-11; World Health Organization, 2019) recently added the diagnosis of Gaming Disorder (GD) in its classification system. These developments have significantly contributed to addressing these needs.

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However, the relative agreement in the definition of the construct that has been achieved, which constitutes a necessary requirement for the valid and reliable assessment of disordered gaming behaviors, is not sufficient (Stavropoulos et al., 2019a,b,c). Adequate psychometric properties of the scales utilized, to assess the disordered gaming classifications officially defined, are required for the accurate estimation and the cross-countries comparability of the syndrome's prevalence and incidence rates (Gomez et al., 2018). Hence, the development of valid diagnostic measurements that can inform disordered gaming clinical and prevention practices/protocols across different populations is necessary (Stavropoulos et al., 2018). Interestingly, and despite the ongoing, often chaotic and confusing, debate around the disordered gaming construct, the need of robust measures to psychometrically measure it has been stressed (Stavropoulos et al., 2018). In that line, significant progress has been made in regards to defining, understanding and confirming: (a) The dimensional-structure of the behavior; (b) How different criteria and scores translate (metric and scalar invariance) across populations; (c) Differential diagnostic criterion functioning (through the use of item response theory) and; (d) the psychometric stability of disordered gaming measurement over time (Kuss et al., 2017; De Palo et al., 2018; Gomez et al., 2018; Pontes et al., 2019; Stavropoulos et al., 2019c).

In this context, the goal of the present special topic-issue is to contribute to the ongoing discussions concerning this phenomenon. The studies included utilized culturally and developmentally diverse, normative samples from Iran (Lin et al.), the USA (Sprong et al.), Norway (Finserås et al.), Italy (Vegni et al.), Greece, Cyprus, and Australia (Hu et al.). Online gender specific (Lopez-Fernandez et al.) and face to face data collection procedures (Sprong et al.) were applied, in conjunction with a number of different models and analytical methodologies ranging from Confirmatory Factor Analysis (CFA; Hu et al.), Mokken analysis (Finserås et al.), Rasch analysis (Lin et al.), Classical Test Theory (Hu et al.), Complex Regressions (Lopez-Fernandez et al.), and the PRISMA guidelines for systematic literature reviews (Costa and Kuss). Disordered gaming scales were assessed comparatively (Lin et al.), across genders (Lopez-Fernandez et al.), while the differential functioning of disordered gaming criteria was examined (Lin et al.; Sprong et al.; Finserås et al.).

The findings of this special topic contribute to the extant literature by shedding light to much debated, yet important, aspects of the assessment and measurement of disordered gaming behaviors. Indicatively: (a) the inclusion of gaming motivation as an inherent part of the assessment of disordered gaming behaviors has been supported by Sprong et al.; (b) Cultural values of independence, competitiveness and hierarchy (in the context of vertical-individualism) have been suggested to confound the assessment of the experienced level of absorbance by the gaming activity (online Flow; Hu et al.); (c) the need of particular emphasis on female gamers and their specialized assessment was emphasized (Lopez-Fernandez et al.); (d) a considerable delay in the employment of consistent measurements/ assessment in

studies of clinically diagnosed disordered gamers was illustrated (Costa and Kuss); and (e) analogies with the emergence of gambling behaviors among younger individuals became clearer in the context of the broader literature (Vegni et al.).

However, challenges in the field of disordered gaming assessment still remain. Scholars continue to disagree about the nature of the behavior (Kardefelt-Winther et al., 2017), different instruments hindering international comparability are still employed (Costa and Kuss), while the number of measurement invariance studies, targeting in particular issues of scalar invariance (whether the same scores indicate the same severity) across populations of different genders, cultures, and developmental stages (although increasing) are rare (Stavropoulos et al., 2018, 2019c). The application of modern psychometric methodologies such as network analysis, that would illustrate the nature of the associations between the different criteria, is absent; while there is concurrently a dearth of Item Response Theory invariance studies to better highlight the potential different diagnostic functioning of certain criteria across different populations (Gomez et al., 2018). In this context, our conclusion is two-fold. First, that independently of the establishment or not of consensus around the definition of disordered gaming as a construct (Petry et al., 2014), *assessment and measurement discipline* in regards to the officially introduced definitions of DSM-5 (American Psychiatric Association, 2013) and ICD-11 (World Health Organization, 2019) is essential. Such discipline is expected to ensure higher prevalence and clinical diagnostic accuracy in relation to disordered gaming behaviors presenting globally and to significantly improve their efficient diagnosis. Second, the significant psychometric and cross-cultural progress in the field, especially after the introduction of the IGD definition (American Psychiatric Association, 2013) and the global expansion of the IGD associated scales is imperative to be acknowledged and utilized.

ETHICS STATEMENT

All procedures performed in the study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors. Informed consent was obtained from all individual participants included in the study.

AUTHOR CONTRIBUTIONS

VS and RG contributed to the literature review, the structure, and sequence of theoretical arguments. FM-S contributed to the theoretical consolidation of the current work, revised, and edited the final manuscript.

REFERENCES

- American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders, 5th Edn.* Washington, DC: American Psychiatric Association.
- Anderson, E. L., Steen, E., and Stavropoulos, V. (2017). Internet use and problematic internet use: a systematic review of longitudinal research trends in adolescence and emergent adulthood. *Int. J. Adolesc. Youth* 22, 430–454. doi: 10.1080/02673843.2016.1227716
- De Palo, V., Monacis, L., Sinatra, M., Griffiths, M. D., Pontes, H., Petro, M., et al. (2018). Measurement invariance of the nine-item Internet Gaming Disorder Scale (IGDS9-SF) across Albania, USA, UK, and Italy. *Int. J. Mental Health Addict.* 1–12. doi: 10.1007/s11469-018-9925-5
- Gomez, R., Stavropoulos, V., Beard, C., and Pontes, H. M. (2018). Item response theory analysis of the recoded Internet Gaming Disorder scale-short-form (IGDS9-SF). *Int. J. Mental Health Addict.* 1–21. doi: 10.1007/s11469-018-9890-z.pdf
- Jones, C., Scholes, L., Johnson, D., Katsikitis, M., and Carras, M. C. (2014). Gaming well: links between videogames and flourishing mental health. *Front. Psychol.* 5:260. doi: 10.3389/fpsyg.2014.00260
- Kardefelt-Winther, D., Heeren, A., Schimmenti, A., van Rooij, A., Maurage, P., Carras, M., et al. (2017). How can we conceptualize behavioural addiction without pathologizing common behaviours? *Addiction* 112, 1709–1715. doi: 10.1111/add.13763
- Kuss, D. J., Griffiths, M. D., and Pontes, H. M. (2017). Chaos and confusion in DSM-5 diagnosis of Internet Gaming Disorder: issues, concerns, and recommendations for clarity in the field. *J. Behav. Addict.* 6, 103–109. doi: 10.1556/2006.5.2016.062
- Petry, N. M., Rehbein, F., Gentile, D. A., Lemmens, J. S., Rumpf, H. J., Mößle, T., et al. (2014). An international consensus for assessing internet gaming disorder using the new DSM-5 approach. *Addiction* 109, 1399–1406. doi: 10.1111/add.12457
- Pontes, H. M., Schivinski, B., Sindermann, C., Li, M., Becker, B., Zhou, M., et al. (2019). Measurement and conceptualization of Gaming Disorder according to the World Health Organization framework: the development of the Gaming Disorder Test. *Int. J. Mental Health Addict.* 1–21. doi: 10.1007/s11469-019-00088-z
- Scerri, M., Anderson, A., Stavropoulos, V., and Hu, E. (2019). Need fulfilment and Internet gaming disorder: a preliminary integrative model. *Addict. Behav. Rep.* 9:100144. doi: 10.1016/j.abrep.2018.100144
- Stavropoulos, V., Adams, B. L., Beard, C. L., Dumble, E., Trawley, S., Gomez, R., et al. (2019a). Associations between attention deficit hyperactivity and internet gaming disorder symptoms: is there consistency across types of symptoms, gender and countries? *Addict. Behav. Rep.* 9:100158. doi: 10.1016/j.abrep.2018.100158
- Stavropoulos, V., Anderson, E. E., Beard, C., Latifi, M. Q., Kuss, D., and Griffiths, M. (2019b). A preliminary cross-cultural study of hikikomori and internet gaming disorder: the moderating effects of game-playing time and living with parents. *Addict. Behav. Rep.* 9:001-1. doi: 10.1016/j.abrep.2018.10.001
- Stavropoulos, V., Bamford, L., Beard, C., Gomez, R., and Griffiths, M. D. (2019c). Test-retest measurement invariance of the nine-item internet gaming disorder scale in two countries: a preliminary longitudinal study. *Int. J. Mental Health Addict.* 1–18. doi: 10.1007/s11469-019-00099-w
- Stavropoulos, V., Beard, C., Griffiths, M. D., Buleigh, T., Gomez, R., and Pontes, H. M. (2018). Measurement invariance of the internet gaming disorder scale-short-form (IGDS9-SF) between Australia, the USA, and the UK. *Int. J. Mental Health Addict.* 16, 377–392. doi: 10.1007/s11469-017-9786-3
- World Health Organization (2019). *Gaming Disorder: Online Q & A*. Retrieved from <http://www.who.int/features/qa/gaming-disorder/en/> (accessed May 25, 2019)
- Zhang, L., and Fung, A. Y. (2014). Working as playing? Consumer labor, guild and the secondary industry of online gaming in China. *New Media Soc.* 16, 38–54. doi: 10.1177/1461444813477077

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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