



BEYOND SCREENS: A PSYCHO-THERAPEUTIC INTERVENTION FOR ADOLESCENTS SUFFERING FROM INTERNET GAMING ADDICTION

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ABSTRACT

The Diagnostic and Statistical Manual of Mental Disorders (DSM 5) has now included Internet Gaming disorder in section III as the condition that warrants more clinical research. Internet or Online gaming has become one of the most popular sources of entertainment among children and adolescents, representing the fastest-growing segment leading to hazards as well. Thus, there is a requirement for a psycho-therapeutic intervention module to help in overall psychological well-being of the adolescents suffering from Internet Gaming Disorder (IGD). A total of 8 adolescents suffering from IGD were treated with scientifically prepared psycho-therapeutic module in total of 12 group sessions. The eclectic approach to treatment is proven to be effective for adolescents yielding significant improvement in the clinical condition and promotes wise engagement in gaming.

Keywords: Internet gaming disorder, systematic review, psychological management, psychotherapy, intervention.

INTRODUCTION

Studies of Internet gaming disorder emerged in the 2000s, highlighting the negative effects of excessive gaming, its prevalence, and associated risk factors. Online games also gained popularity.

The Internet is unquestionably an amazing innovation with great technological value in research, communication, information, leisure activities, business transactions, and learning when used correctly and with good intentions. However, new technologies always have challenges. In the case of the Internet, the idea that it can become an addiction is new and still under investigation (Sachdeva et al, 2015). Gaming and the use of the internet may provide an escape into a virtual world where stress can be relieved (Kuss et al., 2014).

The existing literature on Internet Gaming Disorder indicates that there are a few psycho-social factors that undermine addiction prognosis and determine negative outcomes among affected individuals (Sugaya, N., et al., 2019). Motives and game preferences can

explain gender differences, given, for example, that women are more prone to game for building intimacy while men preferred competition (Yee, 2006). However, among Massively Multiplayer Online Role-Playing Games (MMORPG) gamers, almost one third of gamers played to relieve stress and annoyances of the real world (Hussain & Griffiths, 2009). Other authors highlight the importance of social motives among MMORPG gamers (Cole & Griffiths, 2007). It is still unclear whether motives play a role on the development of IGD (Internet Gaming Disorder), but online gaming appears as a dysfunctional coping strategy to reduce psychological distress and to escape reality (Kardefelt-Winther, 2014; Schimmenti, Guglielmucci, Barbasio, & Granieri, 2012).

Addiction leads to significant harm or distress among adolescents (Toumbourou, et al, 2007) World Health Organization (WHO) and American Psychological Association (APA) have also acknowledged Internet Gaming Addiction Disorder and count it as a behavioural addictive disorder.

Mental health conditions are on the rise in India, considering the substantial amount of existing evidence regarding the negative consequences of excessive gaming on the physical, psychological, and social well-being of individuals (Singh, 2019). The latest Indian-based intervention research aimed to improve individuals with IGD's overall quality of life, including their psychological, physical, and environmental issues, as well as reduce the salience, preoccupation, and conflict associated with gaming. At post-assessment, the intervention program showed that the IGD scores had changed significantly. This initial evaluation of the intervention program suggests that it has been successful in bringing about a significant change thanks to its incorporation of techniques from family therapy, cognitive behavior therapy, motivational enhancement therapy, and behavioural therapy (Sharma et al., 2022).

A study design is needed to generate better quality of evidence base for the prevalence and correlates of IGD among the Indian population to guide the development of effective preventive and management strategies for IGD. Also, there is a need to bring in focus and create awareness among students, teachers, medical colleges, and concerned authorities about the harm associated with excessive gaming and the various risk and protective factors for the development of IGD. Thus, the current need is to provide a psycho-therapeutic intervention program to be the effective source, which may then help in overall psychological well-being of the adolescents suffering from Internet Gaming Disorder. Similar to, substance abuse prevention and intervention, programs aimed at individuals suffering from addiction and specialized training can educate adolescents about the warning signs of online addiction, in order to contribute to the early detection of this disorder.

A need-based program fully based on the implying predictive and risk-based psychological factor will be beneficial for psycho-therapeutic management of the adolescents.

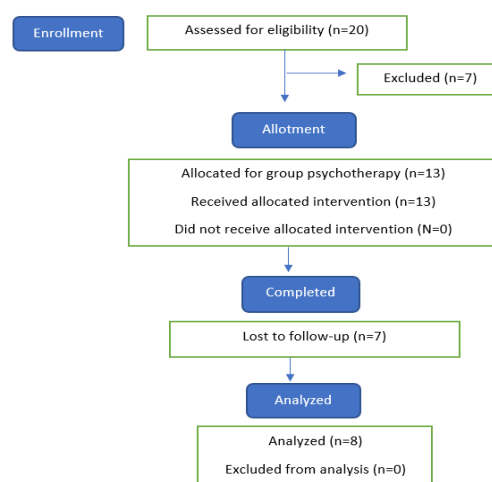
The current study aimed to assess the effect of the psycho-therapeutic intervention-based program on internet gaming disorder among adolescents in India to study the impact of psycho-therapeutic intervention on the impulsivity, life satisfaction, self-esteem, social

support, and loneliness of adolescents suffering from Internet gaming disorder. This study examines the effectiveness of the psycho-therapeutic intervention module on adolescents suffering from Internet gaming disorder. It hypothesized that there will be no impact of the psycho-therapeutic intervention module on adolescents suffering from Internet gaming disorder. The Ethics Clearance/ Approval from Research Conduct and Ethics Committee (RCEC) for this research is duly taken from Centre of Research Christ.

METHOD

Participants

Subjects with a primary DSM-V diagnosis of IGD were recruited by clinical referral and through local advertising. Signed written informed consent was taken. Exclusion criteria were substance abuse/dependence in the past 6 months, history of psychotic symptoms, unstable medical conditions, and concurrent psychotherapy. Of approximately 250 telephone-screened callers from schools as notified by school counselor, 13 were eligible for study evaluation. After the completion a total of 8 participants were treated of IGD using the formulated psycho-therapeutic module.



Flow chart 1: Modified CONSORT flow diagram for pilot study

Source: Author(s) compilation

Measures

Internet Gaming Disorder Scale (IGDS9-SF): The Internet Gaming Disorder Scale--9-Item Short Form (IGDS-SF9, IGDS9-SF; Pontes & Griffiths, 2017) is a 9-item, likert scaled measure of

Internet Gaming Disorder (IGS). This short psychometric tool is an adaptation of the 9 core criteria that define IGD according to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013). The aim of this instrument is to assess the severity of IGD and its detrimental effects by examining both online and/or offline gaming activities occurring over a 12-month period.

Barratt Impulsiveness Scale Revised (BIS-R-21): Ernest Barratt developed the Barratt Impulsiveness Scale Test in 1995 to measure a person's level of impulsiveness. This is a revised test incorporated to help identify and be aware of ways in which to react and think (Kapitány et al., 2020).

Satisfaction with Life Scale (SWLS): The Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent's life. This 7-point scale that ranges from 7 strongly agree to 1 strongly disagree was developed by Diener et al. in 1985 assesses satisfaction of the respondent of their life. The total score increases as the life satisfaction of the respondent increases.

Rosenberg Self-Esteem Scale (RSES): Morris Rosenberg developed the scale in 1965. A 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale generally has high reliability. (Rosenberg, M., 1965)

UCLA Loneliness Scale Version 3: Developed by psychologist Daniel Russell (1996), a 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. The measure is highly reliable, both in terms of internal consistency and test-retest reliability over a 1-year period (Russell, D. (1996).

Multi-dimensional Scale of Perceived Social Support (MSPSS): The scale was developed by Zimet et al. in 2016 to measure perceptions of support from 3 sources: family, friends, and a significant other. This self-report questionnaire contains twelve items rated on a seven-point Likert-type scale. The factorial validity confirmed the three-factor structure of the scale (Family, Friends, and Significant Others) which met all the criteria of parameter indices and provided evidence of high internal consistency reliability.

Psycho-social and Risk factors

Assessing the risk and protective factors that contribute to disorders helps practitioners select appropriate interventions. Many factors influence a person's chance of developing a mental and/addiction disorder. Risk factors are characteristics at the biological, psychological, family, community, or cultural level that precede and are associated with a higher likelihood of negative outcomes. After the literature review the major psycho-social factors (predictive factors) which determine the prognosis of Internet gaming disorder are impulsivity (Şalvarlı et al., 2019), loneliness (Tras 2019), life satisfaction (Bargerón et al., 2017), self-esteem (Beard et al., 2017) and social support (Teng, et al., 2020). The mentioned factors along with the factors such as awareness, preoccupation, withdrawal symptoms, unsuccessful attempts to control, loss of interest, psycho-social problem, and escape from negative mood, as per ICD-11 were targeted to overcome as part of psycho-therapeutic intervention.

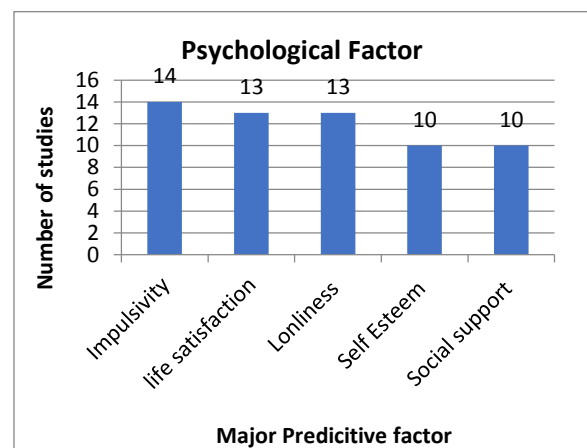


Fig 1: Major predictive Psychological Factors Associated with IGA

Source: Author(s) calculations

Therapy Module

The current study's treatment was designed using an eclectic approach and is a therapeutic strategy that places emphasis on each participant. Thus, an application-based, short, complete psycho-therapeutic module for effective and economical therapy is essential. The already existing therapies were reviewed and incorporated by clinical psychologists in the intervention module which have proven effective for the targeted symptoms or psychological factors.

Table 1: Relationship between therapeutic techniques & target areas

Techniques/Target areas	A	P	WS	UCA	LI	PP	ENM	L	I	SE	LS	SS
Psycho-education	Y											
Motivational process				Y	Y							
Self-monitoring Training		Y	Y	Y								
Addiction stimulus control		Y	Y	Y								
Self-esteem and identity						Y		Y		Y	Y	Y
Problem solving						Y	Y		Y	Y	Y	
Emotional Regulation	Y						Y		Y			
Assertive training						Y		Y	Y	Y		Y
Relapse prevention	Y			Y								

Source: Author(s) calculations

A- Awareness, P- Preoccupation, WS- Withdrawal Symptoms, UCA- Unsuccessful attempts to control, LS- Loss of interest, PP- Psycho-social Problem, ENM- Escape Negative Mood, L-Loneliness, I- Impulsivity, SE- Self Esteem, LS- Life Satisfaction, SS- Social support

Note: The illustrated table highlights the therapeutic measures and the target areas it tend to resolve which formulated the base of the psychotherapy module.

The Psychotherapy module was sent along with the objectives to four clinical psychology experts for comments and suggestions. All four experts are recognized by Rehabilitation Council of India and have work history in the field of psychotherapy and research.

Every week total of 12 psychotherapy session were originally conducted in a group constituted of 8 adolescents suffering from IGD by clinical psychologist. It also includes 2 sessions with families, which are psycho-educative session and relapse prevention.

A brief interaction with parent was done to resolve doubts and queries.

This was to provide better clarity concerning the goals being focused in each activity and to aid better in doing the activities that are to be done at home.

Procedure

The intervention started with screening of the participants, considering the inclusion and exclusion criteria along with the screening tool. Once the eligible candidates were selected for intervention, written consent from the parents was taken as per ethics in the case of adolescents, preceded with filling of pre intervention questionnaire. The intervention module of 12 sessions, with various therapies and techniques was conducted in group. The family was actively involved during the process. Lastly in post intervention phase, the questionnaire was again applied to observe the effect of the psychotherapy.

Table 2: Phases of intervention

Pre intervention Phase	Intervention Phase	Post Intervention Phase
Screening through Internet Gaming Disorder Scale (IGDS9-SF), Considering Inclusion and exclusion criteria Consent form (by the parent)	Session 1 Psychoeducation	Questionnaire- • Internet Gaming Disorder Scale (IGDS9-SF)
Questionnaire- • Socio-demographic details including excess to the internet, time spent, etc. • Barratt Impulsiveness Scale Revised 21 • Satisfaction with Life Scale • Rosenberg Self-Esteem Scale • UCLA Loneliness Scale • Multi-dimensional Scale of Perceived Social Support Rapport Formation	Session 2 & 3 Motivational process	• Barratt Impulsiveness Scale Revised- 21
	Session 4 Self-monitoring Addiction stimulus control/ withdrawal regulation techniques	• Satisfaction with Life Scale
	Sessions 5 & 6 Emotional Regulation	• Rosenberg Self-Esteem Scale
	Sessions 7 & 8 Problem-solving	• UCLA Loneliness Scale
	Session 9 Assertive training	• Multi-dimensional Scale of Perceived Social Support
	Sessions 10 & 11 Self-esteem and identity	• Feedback form
	Session 12 Relapse Prevention	Family session Feedback

Source: Author(s) compilation

RESULTS

The current study was conducted to determine the effectiveness of a psycho-therapeutic group intervention for adolescents suffering from IGD, and the outcome was measured before and after (Pre and posttest design) the intervention.

Table 3: Socio-demographic Characteristics of Participants at Baseline

Baseline characteristic	scores	
	<i>n</i>	%
Gender		
Female	0	0
Male	8	100
Age		
12-13	1	12.50
14-15	4	50
16-17	2	25
18	1	12.50

Source: Derived from SPSS 16 and computed by author(s)

Screening was conducted on both the genders but after meeting inclusion criteria the participants were all male with score of mean age is 15.12 playing online gaming. The prevalence of IGD was higher among males' students (8.8%) than among female students (0.8%) (Undavalli, et al., 2020). Due to limited number of participants in the present study the female candidates were not part of the study.

SF9, IGDS9-SF; Pontes & Griffiths, 2017) and, the absence of addictive features, thus significant improvement is present. Overall on other factors related to gaming, the trend suggests improvement. As a result, the values of variables measured prior to and after psycho-therapeutic sessions differ significantly.

DISCUSSION

This study aims to evaluate the effects of the psycho-therapeutic intervention-based program on internet gaming disorder among Indian adolescents. Thus, the objectives are to examine the effects of psycho-therapeutic intervention on the Impulsivity, life satisfaction, self-esteem, social support, and loneliness of adolescents suffering from Internet gaming disorder. This study's goal is to examine the effectiveness of the psycho-therapeutic intervention module on adolescents suffering from Internet gaming disorder. Playing internet and video games has become one of the most popular leisure activities regardless of culture, age and gender (Király et al., 2014; Kuss, 2013).

The tendency and time of engaging in internet games have reduced after the psycho-therapeutic intervention i.e. the mean score of Internet gaming disorder scale has reduced to 15.00 from 36.87. Thus, awareness regarding gaming related behavior has improved, and a significant reduction in preoccupation with

Table 4: Showing Wilcoxon Signed Rank Test results of Internet Gaming addiction, impulsivity, loneliness, life satisfaction, social support, and self-esteem

Variable/Scale	Mean		SD		z Value	p Value
	PRE	POST	PRE	POST		
Internet Gaming	36.8750	15.0000	1.95941	1.19523	-2.527	.012
Impulsivity	63.2500	35.1250	3.28416	2.53194	-2.524	.012
Loneliness	60.8750	36.0000	3.28416	2.90012	-2.527	.012
Life satisfaction	15.7500	23.7500	2.49285	2.05287	-2.521	.012
Social support	3.0375	5.7675	.65145	.30807	-2.536	.011
Self-esteem	21.3750	33.8750	2.82527	2.53194	-2.521	.012

Note. Mean rating scale scores before and after intervention with Paired-samples Wilcoxon signed rank test.

The result indicates the measures of variables studied under a pre and post therapeutic intervention design. After the psycho-therapeutic session, the inclination and time spent playing internet games decreased, resulting in a mean score of 15.00 on the Internet gaming addiction scale, down from 36.87 previously, and increased awareness of gaming-related behavior. The score below 25 on IGDS9-SF scale signifies the wise use of gaming (IGDS-

games as well, by the method of parent and child psychoeducation. Reviews summarized regarding the efficacy of psycho-education and relaxation intervention on people with mental disorders (Shah, et al., 2014). Withdrawal Symptoms and unsuccessful attempts to control engagement in gaming were managed by monitoring self, and by self-control over the urge to engage in gaming behavior. Withdrawal regulation techniques and motivational

interview enhanced the withdrawal process and stimulate control on self.

The major psycho-social factors (predictive factors) that determine the prognosis of Internet gaming addiction are analyzed as pre and post factor variables. One of the associated factors is impulsivity among the users. It is known fact that high impulsivity is associated with IGD (Cao et al., 2007). Considering the impact of impulsivity among addicted adolescents, it is important to reduce it with psycho-therapeutic method. Thus, the mean score of 63.25 has reduced to 35.12 after the intervention. To reduce it, the first step was to identify the impulsive behaviours that are likely to change. Next, was to use strategy of conducting a chain analysis when one notices an urge to engage in impulsive behaviors. Conducting a chain analysis technique of psychotherapy allowed the participants of IGD to identify the impulsive behavior, what happened prior to the behavior, evaluate the thoughts and feelings, and consider the consequences. Emotional regulation also had significantly reduced impulsivity and increased the ability to think and reflect before acting as stated in pre and post analysis of this psychological factor.

Life satisfaction is another factor that can affect the risk of developing IGD symptoms. Thus, is an important aspect which require psycho-therapeutic management. Cross-sectional studies investigated this relationship and concluded that there is a correlation between life satisfaction and IGD (Gurp, F. 2017), because adolescents use online games to escape from their unsatisfying life. As mentioned above, life satisfaction may lead to more time spent gaming and may lead directly to a higher prevalence of IGD. It is also possible that life satisfaction may indirectly influence IGD, via time spent gaming. With the intervention, the mean score of 15.75 increased to 23.75 suggesting improved satisfaction in an individual's life. Thus, this research presents that improvement in life satisfaction, decreases the expectancy of engaging in irresponsible engagement in internet gaming. Thus, problem solving, and assertiveness techniques help the adolescents to end up in a negative spiral where they spend much time on online games to escape their problems, while their problems are solved adequately, and thus they do not addict to these games.

Psycho-social factors such as low self-esteem, loneliness, depression, high anxiety, and stress appear to be common behavioural addictions (Griffiths, 2015). Individuals who manifest social skill problems such as less partner attention would appear to provide fewer social rewards to their conversational partners. This may lead to rejection or at least disinterest by others, thereby resulting in the experience of loneliness (Jones et al., 1982). Thus, assertiveness and social skill training have effectively reduced loneliness of participants by 60.87 total mean score to 36.00.

Additionally, these psychotherapies have resulted in improved self-esteem and identity of an individual suffering from IGD. Self-esteem and identity image of the adolescents have enhanced and improved from total mean score of 21.37 to 33.87 after the intervention. Various techniques such as of behavioral activation, in which by deliberately practicing certain behaviours, the participants activated a positive emotional state of self. Also, showing kindness toward oneself is one of the effective measures in which participants attempted to forgive one's faults or mistakes, especially in times of failure or pain thus bringing in self-acceptance.

In Reinecke's (2009) study, social support attenuated the relationship between work-related fatigue and frequency of online gaming during and after stressful situations. Thus, in the mentioned psychotherapy module, the enhanced perceived social support by 3.03 mean to 5.76 among affected adolescents to reduce the negative impact of stress on IGD.

Since the prevalence estimates of IGD was 3.50% (Undavalli, et al., 2020) among the school children, equivalent to which the current study's number of participants is the limitation. It can pave way for research based on large number of participants suffering from IGD

CONCLUSION

Internet gaming has become one of the fastest growing segments of media consumption among children and adolescents, which comes along with a huge possibility of addiction hazard. Thus, the study examined the issue and developed a psycho-therapeutic intervention module to help in the overall psychological well-being of adolescents suffering from Internet gaming disorder (IGD). The result represented the positive impact of the psycho-

therapeutic interventions on the overall well-being with a significant difference between the scores collected during pre- and post-study.

In conclusion, while the research has provided useful insights into the researched phenomenon, it is essential to recognize the limitations imposed by the small sample size used in this study. The small number of participants may limit the generalization of our findings and the external validity of the results. Future research should prioritize increasing the sample size to improve the robustness and duplicability of the findings.

These considerations highlight the need for ongoing research efforts that build on the current study, emphasizing the importance of replicating and extending our findings in a wider range of samples to further develop the scientific comprehension of the nature of online gaming disorders, as well as the importance to create a system of assistance of psycho-therapeutic modules as a mandatory facility.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: American Psychiatric Publishing.
- A. H., & Holmes, J. M. (2017). Psychosocial correlates of internet gaming disorder: Psychopathology, life satisfaction, and impulsivity. *Computers in Human Behavior*, *68*, 388-394.
- Barnett, Jane; Coulson, Mark (2010). *Virtually real: A psychological perspective on massively multiplayer online games.. Review of General Psychology*, *14*(2), 167-179. doi:10.1037/a0019442
- Brand, M., Young, K. S., Laier, C., Wölfling, K., & Potenza, M. N. (2016). Integrating psychological and neurobiological considerations regarding the development and maintenance of specific internet-use disorders: An interaction of person-affect-cognition-execution (I-PACE) model. *Neuroscience & Biobehavioral Reviews*, *71*, 252-266.
- Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: A neurocognitive perspective. *Nature Neuroscience*, *8*(11), 1458-1463.
- Beard, C. L., Haas, A. L., Wickham, R. E., & Stavropoulos, V. (2017). Age of initiation and internet gaming disorder: The role of self-esteem. *Cyberpsychology, Behavior, and Social Networking*, *20*(6), 397-401.
- Cao, F., Su, L., Liu, T., & Gao, X. (2007). The relationship between impulsivity and internet addiction in a sample of Chinese adolescents. *European Psychiatry*, *22*, 466-471.
- Choi, S. W., Kim, H., Kim, G. Y., Jeon, Y., Park, S., Lee, J. Y., Jung, H., Sohn, B., Choi, J. S., & Kim, D. J. (2014). Similarities and differences among internet gaming disorder, gambling disorder and alcohol use disorder: A focus on impulsivity and compulsivity. *Journal of Behavioral Addictions*, *3*, 246-253.
- Cole, H., & Griffiths, M. D. (2007). Social interactions in massively multiplayer online role-playing gamers. *CyberPsychology & Behavior*, *10*, 575-583. <http://dx.doi.org/10.1089/cpb.2007.9988>
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in human behavior*, *17*(2), 187-195.
- Ed Diener, Robert A. Emmons, Randy J. Larsen & Sharon Griffin (1985) The Satisfaction With Life Scale, *Journal of Personality Assessment*, *49*:1, 71-75
- Griffiths MD (2015). Gaming addiction and internet gaming disorder. In *The Video Game Debate* pp. 82-101. Routledge.
- Gurp, F. V. (2017). *The influence of game genre and life satisfaction on Internet Gaming Disorder among Dutch adolescents: A three-year longitudinal study* (Master's thesis).
- Hussain, Z., & Griffiths, M. D. (2009). The attitudes, feelings, and experiences of online gamers: A qualitative analysis. *Cyberpsychology & behavior*, *12*(6), 747-753.
- Jones, W. H., Hobbs, S. A., & Hockenbury, D. (1982). Loneliness and social skill deficits. *Journal of personality and social psychology*, *42*(4), 682.
- Kapitány-Fövényi, M., Urbán, R., Varga, G., Potenza, M. N., Griffiths, M. D., Székely, A., ... & Demetrovics, Z. (2020). The 21-item Barratt impulsiveness scale revised (BIS-R-21): An alternative three-factor model. *Journal of Behavioral Addictions*, *9*(2), 225-246.
- Kardefelt-Winther, D. (2014). A critical account of DSM-5 criteria for internet gaming

- disorder. *Addiction Research and Theory*. doi: 10.3109/16066359.2014.935350
- Király O, Nagygyörgy K, Griffiths MD, Demetrovics Z (2014). Problematic online gaming. In: K. P. Rosenberg & L. C. Feder (Eds.), *Behavioral addictions: Criteria, evidence, and treatment*. London: Elsevier pp. 61-95
- King DL, Haagsma MC, Delfabbro PH, Gradisar M, Griffiths MD (2013). Toward a consensus definition of pathological video-gaming: A systematic review of psychometric assessment tools. *Clinical Psychology Review* 33(3):331-342.
- Kuss, D. J., Griffiths, M. D., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, 20(25), 4026-4052. doi:10.2174/13816128113199990617
- Lortie CL, Guitton MJ (2013). Internet addiction assessment tools: Dimensional structure and methodological status. *Addiction* 108:1207-1216.
- Pontes, H. M., Stavropoulos, V., & Griffiths, M. D. (2017). Measurement invariance of the internet gaming disorder scale-short-form (IGDS9-SF) between the United States of America, India and the United Kingdom. *Psychiatry research*, 257, 472-478.
- PC Gaming Alliance. PC Gaming Alliance releases two member exclusive reports covering all aspects of the still-dominant PC gaming industry. 2013. Available from: <http://pcgamingalliance.org/press/entry/pc-gaming-alliance-releases-two-member-exclusive-reports-covering-pc-gaming>. Accessed July 31, 2013.
- Reinecke, L. (2009). Games and recovery: The use of video and computer games to recuperate from stress and strain. *Journal of Media Psychology*, 21(3), 126-142. <https://doi.org/10.1027/1864-1105.21.3.126>
- Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures package*, 61(52), 18.
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of personality assessment*, 66(1), 20-40.
- Sachdeva, A., & Verma, R. (2015). Internet Gaming Addiction: A Technological Hazard. *International Journal of High Risk Behaviors & Addiction*, 4(4).
- Şalvarlı, Ş. İ., & Griffiths, M. D. (2019). The association between internet gaming disorder and impulsivity: A systematic review of literature. *International Journal of Mental Health and Addiction*, 1-27.
- Schimmenti A, Guglielmucci F, Barbasio C, Granieri A. Attachment disorganization and dissociation in virtual worlds: a study on problematic Internet use among players of online role playing games. *Clin Neuropsychiatry*. 2012;9(5):195-202
- Shah, L. B. I., Klainin-Yobas, P., Torres, S., & Kannusamy, P. (2014). Efficacy of psychoeducation and relaxation interventions on stress-related variables in people with mental disorders: a literature review. *Archives of psychiatric nursing*, 28(2), 94-101.
- Sharma, M. K., Anand, N., Tadpatrikar, A., Marimuthu, P., & Narayanan, G. (2022). Effectiveness of multimodal psychotherapeutic intervention for internet gaming disorder. *Psychiatry Research*, 314, 114633.
- Singh, S., Dahiya, N., Singh, A. B., Kumar, R., & Balhara, Y. P. S. (2019). Gaming disorder among medical college students from India: Exploring the pattern and correlates. *Industrial psychiatry journal*, 28(1), 107.
- Steinberg, L., Albert, D., Cauman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: evidence for a dual systems model. *Developmental Psychology*, 44, 1764-1778.
- Sugaya, N., Shirasaka, T., Takahashi, K., & Kanda, H. (2019). Bio-psychosocial factors of children and adolescents with internet gaming disorder: a systematic review. *BioPsychoSocial medicine*, 13(1), 1-16.
- Toumbourou, J. W., Stockwell, T., Neighbors, C., Marlatt, G. A., Sturge, J., & Rehm, J. (2007). Interventions to reduce harm associated with adolescent substance use. *The Lancet*, 369(9570), 1391-1401.

- Teng, Z., Pontes, H. M., Nie, Q., Xiang, G., Griffiths, M. D., & Guo, C. (2020). Internet gaming disorder and psychosocial well-being: A longitudinal study of older-aged adolescents and emerging adults. *Addictive Behaviors, 110*, 106530.
- Tras, Z. (2019). Internet Addiction and Loneliness as Predictors of Internet Gaming Disorder in Adolescents. *Educational Research and Reviews, 14*(13), 465-473.
- Undavalli, V. K., Rani, G. S., & Kumar, J. R. (2020). Prevalence of internet gaming disorder in India: a technological hazard among adolescents.
- Viswesvaran, C., Sanchez, J. I., & Fisher, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior, 54*(2), 314-334.
- Yee, N. (2006). The psychology of MMORPGs: Emotional investment, motivations, relationship formation, and problematic usage. In R. Schroeder & A. Axelsson (Eds.). *Avatars at Work and Play: Collaboration and Interaction in Shared Virtual Environments* (pp. 187-207). London: Springer-Verlag.
- Yu, S., Mao, S., & Wu, A. M. (2018). The interplay among stress, frustration tolerance, mindfulness, and social support in Internet gaming disorder symptoms among Chinese working adults. *Asia-Pacific Psychiatry, 10*(4), e12319.
