International Journal of Psychology Sciences

ISSN Print: 2664-8377
ISSN Online: 2664-8385
Impact Factor: RJIF 5.26
IJPS 2023; 5(1): 15-20
www.psychologyjournal.net
Received: 20-02-2023
Accepted: 30-03-2023

Manisha Ranga
Research Scholar, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India

Dr. Vijeta Singh
Assistant Professor, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India

Ancha
Research Scholar, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India

Dr. Suresh Kumar
Associate Professor, Department of Psychology, P.G.G. College, Sector 11, Chandigarh, Haryana, India

Rakesh Kumar Behmani
Professor, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India

Corresponding Author:
Manisha Ranga
Research Scholar, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India

Prevalence of internet gaming disorder in Haryana: Association with temperament and state trait anxiety with internet gaming disorder

Manisha Ranga, Dr. Vijeta Singh, Ancha, Dr. Suresh Kumar and Rakesh Kumar Behmani

DOI: https://doi.org/10.33545/26648377.2023.v5.i1a.30

Abstract
Online gaming initially seems to be a harmless method of entertainment. But it has shown many dreadful physical and mental health consequences. Very few studies have been done on Internet gaming disorder in India. The present study aims to find the prevalence of internet gaming disorder among college going students. This study also attempts to find out the differences in temperament and anxiety among disordered and non-disordered populations. The results confirmed the 12% prevalence of IGD among college going students of Haryana. The results concluded a significant relationship of IGD with temperamental traits and state trait anxiety. Differences were also observed in temperamental traits and state trait anxiety among higher among disordered gamers than non-disordered gamers of college going age students.

Keywords: Internet gaming disorder, temperament, state trait anxiety

Introduction
Internet Gaming is the most popular form of entertainment among children and adolescents in present scenario. According to DSM-5-TR, Internet gaming disorder is a condition for further study. It is not yet officially declared as a disorder (APA, 2013). Internet gaming disorder must cause significant impairment and distress in the day-to-day life to such an extent that the individual is unable to function properly. WHO has also included internet gaming disorder in ICD-11. Since then, lots of research and debates are online to include or exclude IGD from the classification of mental health disorder. Many argue that internet gaming should be classified as disorder fulfilling certain criterion and it can act as a predictor of other mental health disorders. Media reports are also very disturbing stating the consequences of internet gaming. During a debate, it was commented that “Adding video gaming to the list of recognized behavioral addictions could help millions in need. It could also pathologize a normal behavior and create a new stigma." (Zastrow, 2017) [35]. The proposed symptoms of IGD are preoccupation, withdrawal symptoms, tolerance, unsuccessful attempts to stop gaming, reduced recreational activities, psychosocial problems, social withdrawal, deception, used to escape negative mood and risk or loose a job or relationship due to game playing (Przybylski, 2017) [25]. An Indian study reported a prevalence of 6.8% IGD among adolescents with psychiatric symptoms (Archana *et al*., 2019) [3].

IGD and Temperament
When a child is born, he is born with certain traits and qualities. Temperament also refers to the biological-based individual differences which are not affected by learning, values, and attitudes. Temperamental traits are like extraversion, neuroticism, sociability, impulsivity, etc. Rothbart (2007) [26] defines temperament as “individual differences in emotional, motor, and attentional reactivity measured by latency, intensity and recovery of response, and self-regulation processes such as effortful control that modulate reactivity.

According to Adult temperament scale, there are four dimensions of temperament which are extraversion/surgency, negative effect, effortful control, and orienting sensitivity. Individual with high scores on surgency are impulsive, active, social, outgoing, and uninhibited (Dollar & Stiffer, 2012) [11]. Effortful control utilizes the individual's inhibitory control to a major response (Rothbart *et al*., 2003) [27]. Negative affect reflects a tendency of an individual to be depressive, frustrated, and aggressive in every situation (Oldehinkel *et al*., 2004) [22]. However, one of the strongest predictors of psychopathology is negative affect (Mikolajewski *et al*., 2013) [21]. A significant relationship was concluded between temperament, IGD, character and alcohol dependency (Lee *et al*., 2017) [17]. The novelty-seeking temperament is positively correlated with internet gaming disorder (Dalbudak *et al*., 2013; Lee *et al*. 2017) [8, 17]. Cheng (2019) [5] confirmed the positive correlation between demanding parents and motivation, temperament to play the game and internet gaming disorder. Strict parenting style can lead children to various risk factors involving in online gaming activity (Lin & Chen, 2016) [18].

A study the role of genetic variants on internet gaming disorder and its effect on personality and temperament traits suggested that one of the genes, the − 141C polymorphism may play a role in developing the internet gaming disorder via temperament traits and mediating symptoms in the adult male population. But no direct association is found (Paik, 2017) [24]. Korean adolescents (high school students) with internet disorder were evaluated on biogenetic temperament concluded that some of the personality traits make the individual more vulnerable to internet gaming or internet disorder. We should also consider temperament patterns in relation to the problematic internet usage (Cho *et al*., 2008) [6].

Zemestani *et al*. (2021) [36] revealed that internet gaming disorder was strongly connected with all dimensions of temperament. Temperament was a prospective factor of internet gaming preference (Seong *et al*., 2019) [28]. IGD patients show maladaptive personality traits like negative affectivity, and psychoticism and detachment (Laier *et al*. 2018) [15]. Results reported temperament as a potential risk factor that can be associated with gaming preference (Mallorqui *et al*., 2017) [19]. A positive relationship between affective temperament and internet addiction was observed. The study also found more behavioral and emotional problems in addicted users in comparison to non-addicted internet users (Qzturk *et al*., 2013) [23].

IGD and State-Trait Anxiety

Anxiety is a state of uneasiness and unrest within the individual. The individual remains in the state of tension. State anxiety often shows the physiological and psychological reactions to an adverse situation at a given point of time. However, Trait anxiety refers to the personality trait which describes individual differences in relation to present trait anxiety. According to Lazarus (1991) [16], "State Anxiety is defined as an unpleasant emotional arousal in face of threatening demands or dangers. A cognitive appraisal of threat is a prerequisite for the experience of this emotion." According to Lazarus (1991) [16], "Trait anxiety, on the other hand, reflects the existence of stable individual differences in the tendency to respond with state anxiety in the anticipation of threatening situations." Worry and emotionality are very less related to each other and might present in an individual at the same time to some extent. Trait anxiety is also related to the health of an individual.

According to Mehroof & Griffiths (2010) [20], state anxiety and trait anxiety have a significant relationship with online gaming addiction. Adams *et al*. (2019) [1] suggests that high anxiety increases the risk of internet gaming disorder. Young Italian adults show positive anxiety correlation with high internet gaming activity (Pasquale, 2021) [9]. Depression, anxiety, and stress are found to be the mediating factors between interne gaming disorder and insomnia (SaraFazeli, 2020) [12]. Anxiety again was proven as a predictor of internet gaming disorder and if timely assessed and adolescents given training in social skill, there is a remarkable decrease in the incidence of internet gaming disorder (Xia Huang, 2022) [13]. Individuals who are more anxious have difficulties in social situations and are inclined towards online gaming (Cole & Hooley, 2013) [7]. Internet gaming disorder is also characterized by state and trait anxiety. Anxiety is a significant contributor to gaming disorder (Sharma *et al*., 2020) [32]. Sharma *et al*, (2022) [37] documented that there is a positive association among anxiety and internet gaming disorder. State trait anxiety as a predictor of internet gaming activity and addiction (Pasquale *et al*., 2021) [9].

Anxiety is significantly related with IGD, poor sleep pattern and quality of life (Fazeli *et al*., 2020) [12]. Almost 37% of the students, gaming for more than 8 hours a day, scored severe or extreme severe on anxiety levels (Yeşilyurt, 2020) [34]. As the level of gaming activity increases, both state and trait anxiety level also increase (Kim *et al*., 2016) [14]. Anxiety due to internet gaming can be a predictor of depression and internet gaming disorder (Wang *et al*., 2018) [3]. In European and Asian countries, depression and anxiety are again found to be the predictors of problematic internet usage (Balhara, 2018) [4]. Anxiety is a key factor to increase the risk of internet gaming disorder, gamers who report high anxiety tend to have high on the internet gaming disorder scale.

There are very less studies done in India to understand IGD in context of temperament and state trait anxiety. The study tries to find out the prevalence of internet gaming disorder among college-going students of Haryana. The study also attempts to study the association of internet gaming disorder, temperament, and state-trait anxiety. Differences in temperamental and state trait anxiety differences among disordered and non-disordered gamers will also be studied.

Materials and Methods

Hypotheses

1. There would be a positive relationship between internet gaming disorder and temperament.
2. There would be a positive relationship between internet gaming disorder and state-trait anxiety.
3. There would be significant temperamental differences among disordered and non-disordered gamers.
4. There would be significant state-trait anxiety differences among disordered and non-disordered gamers.

Sample

The sample size for the study was 200 college-going students of Haryana in the age group of 17-20 years. Both male and females were included in the study. The data was collected from the colleges of Panchkula and Ambala Districts. Data was collected using self-administrated questionnaires including questions about internet gaming, temperament, and state-trait anxiety. The inclusion criterion consisted of individuals playing games for last one year or above. A cut-off score 32 is found most appropriate to distinguish between disordered and non-disordered gaming (Qin *et al*., 2020) [38]. The researcher also calculates the score using the cut-off value of 32 and above. Those who do don't give their consent are excluded from the study.

Tools

1. Internet gaming Disorder Scale -SF (IGDS9-SF) designed by Dr. Halley Pontes. It is a first brief standardized psychometric toll to assess internet gaming disorder. It has been widely used in research on internet gaming disorder. It is used to assess the severity level of internet gaming disorder. The scale consists of nine items based on diagnostic criterion of internet gaming disorder according to DSM-5. There are nine items to be scored on a 5-point Likert scale that ranges from 1(never) to 5 (very often). Higher scores are an indicative of higher severity of internet gaming disorder.
2. The adult temperament questionnaire (ATQ) designed by Derryberry and Rothbart (1988) [10]. The short form contains 77 items. It included the general construct of Negative Affect, Extraversion/ Surgency, Effortful Control and Orienting Sensitivity. The items are to be scored on 7-point Likert scale that ranges from 1 to 7 and vice versa for reverse items and one item to be scored X if not applicable.
3. State Tait Anxiety Test (STAT) -STAT developed by Dr. Sanjay Vohra. This test contains 40 test questions. The main components are intrinsic (Trait) anxiety and extrinsic (State) anxiety score. Total score should be obtained by adding all the scores. High score indicates high anxiety.

Procedure

The administration of tests was done in one session forming small groups of 15-20 participants. The instructions were read out to the participants in each group. The doubts were cleared. Permission was taken from college authorities before the collection of the data. A verbal informed consent was also taken from the participants. It was ensured that the information will be anonymous, and results will be kept confidential. Convenient sampling method was used. Once all the participants have filled the questionnaire, scoring analysis was done as per the manual. The obtained data was analyzed using SPSS.

Data Analysis

Statistical analysis was done to using SPSS software. A correlational analysis and t-test was done to locate the relationship between internet gaming disorder, temperament, and state-trait anxiety. A t-test was also done to compare the significant differences between low and high IGD group.

Results

The results reveal the prevalence of IGD was 12% among the college-going students of Haryana as shown in figure 1.

Table 1 shows the mean score of negative affection group low on IGD and high on IGD is 106.13 and 124.46 and standard deviation for the same is ± 19.41 and ± 21.01 respectively. The mean score of extraversion/surgency on group low on IGD and high on IGD is 73.7 and 65.3and standard deviation for the same is ± 12.56 and ±12.03 respectively. The mean score of orienting sensitivity on group low on IGD and high on IGD is 75.46 and 80.62and standard deviation for the same is ± 10.85 and ± 14.51 respectively. The mean score of effortful control on group low on IGD and high on IGD is 66.6 and 64.62and standard deviation for the same is ± 12.32 and ± 10.76 respectively. The mean score of state anxiety on group low on IGD and high on IGD is 18.29 and 20.66and standard deviation for the same is ± 4.86 and ±5.31 respectively. The mean score of trait anxiety on group low on IGD and high on IGD is 15.83 and 20.79and standard deviation for the same is ± 3.71 and ±4.96 respectively. A comparison of mean scores reflect that the disordered gamers are high on negative affect and low on extraversion score as compared to non-disordered gamers.

A correlational analysis in Table 2 shows the relationship of temperament and state-trait anxiety with IGD. Internet gaming disorder has statistically significant positive correlation with negative affect ($r = .26$, $p < .01$), and orienting sensitivity ($r = .21$, $p < .01$) and negatively linked with extraversion/surgency ($r = -21$, $p < .01$) which are domains of temperament, but no significant relation revealed with effortful control domain of temperament. A significant affirmative association was found between internet gaming disorder and temperament among college-going students of Haryana. The results also revealed that internet gaming disorder is significantly optimistically correlated with trait anxiety ($r = .42$, $p < .01$) and no significant relationship with state anxiety and trait was found among college-going students of Haryana.

Statistical analysis of t-test was done to compare the temperament and state-trait differences of group low and high on IGD. The result of t-test revealed that the two groups i.e., disordered, and non-disordered gamers significantly differ on the dimension of Negative affect as the F value = 0.83 (df= 52) which is significant at $p < 0.5$ level. A comparison of mean scores reflect that the disordered gamers are high on negative affect. There are significant differences on the dimension of Extraversion/Surgency as the F value = 0.69 (df= 52) which is significant at $p < 0.1$ level. A comparison of mean score reflects that the disordered gamers are low on extraversion score as compared to non-disordered gamers. Therefore, significant temperamental differences on the dimension of negative affect and extraversion/surgency among disordered and non-disordered gamers were observed. The dimensions of state and trait anxiety also significantly differ as the F value = 0.61 (df= 52) which is significant at $p < 0.1$ level and F value = 1.34 (df= 52) which is significant at $p < 0.1$ level respectively. Thus, the study finds significant state-trait anxiety differences among disordered and non-disordered gamers. A mean score comparison show that both state and trait anxiety are found higher among disordered gamers than non-disordered gamers.

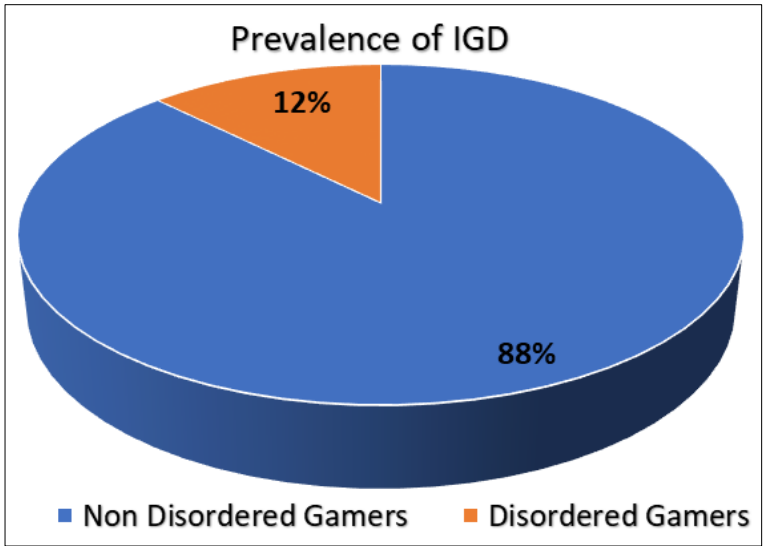

Fig 1: Prevalence of Internet Gaming Disorder among college students of Haryana

Table 1: Mean scores of temperament and anxiety of high and low IGD group

Variables	Group High on IGD		Group Low on IGD	
	M	SD	M	SD
Negative Affect	124.46	21.01	106.13	19.41
Extraversion/Surgency	65.3	12.03	73.7	12.56
Orienting Sensitivity	80.62	14.51	75.46	10.85
Effortful Control	64.62	10.76	66.6	12.32
State Anxiety	20.66	5.31	18.29	4.86
Trait Anxiety	20.79	4.96	15.83	3.71
Anxiety	39.08	6.28	36.5	9.06

Table 2: Intercorrelation between internet gaming disorder, temperament, and state-trait anxiety

Variables	Internet Gaming Disorder	Negative Affect	Extraversion/ Surgency	Orienting Sensitivity	Effortful Control	Temperament	State Anxiety	Trait Anxiety	Anxiety
Internet Gaming Disorder	-	.263**	-.217**	.214**	0.024	.282**	-0.104	.422**	.202**
Negative Affect	-	-	.469**	-0.002	.501**	.828**	-0.101	.237**	0.085
Extraversion/Surgency	-	-	-	-0.026	.341**	.651**	-0.059	241**	0.115
Orienting Sensitivity	-	-	-	-	.208**	.385**	-0.086	-0.034	-0.08
Effortful Control	-	-	-	-	-	.754**	-.148*	-0.006	-0.104
Temperament	-	-	-	-	-	-	-.146*	.185**	0.02
State Anxiety	-	-	-	-	-	-	-	.148*	.771**
Trait Anxiety	-	-	-	-	-	-	-	-	.744**
Anxiety	-	-	-	-	-	-	-	-	-

Correlation is significant at the 0.01 level & *. Correlation is significant at the 0.05 level.

Table 3: T-test results of temperament and anxiety of high and low IGD group

Variables	F	Sig.	Df	Sig. (2-tailed)	Level of significance
Negative Affect	0.83	0.36	52	0.002	0.05
Extraversion/Surgency	0.69	0.4	52	0.016	0.01
Orienting Sensitivity	4.64	0.03	52	0.141	Non-Significant
Effortful Control	0.50	0.47	52	0.539	Non-Significant
State Anxiety	0.61	0.92	52	0.006	0.01
Trait Anxiety	1.34	0.25	52	0.000	0.01
Anxiety	3.47	0.06	52	0.241	Non-Significant

Discussion and conclusion

The current study reports that the prevalence if internet gaming disorder among college-going students of Haryana is 12%. However, gender and locality differences have not been take into consideration. The prevalence of IGD in India show mixed results in different studies. The estimated prevalence of internet gaming disorder among school students is 3.50% and with significant gender differences. Among 13-19 years old students, internet gaming disorder is predicted around 10.6% with a significant gender difference (Singh *et al*., 2021) [30]. The sample of the current study was primarily college-going students of Haryana.

There are significant differences in dimensions of temperament with internet gaming disorder. Negative affect and orienting sensitivity is found to have positive significant relationship with internet gaming disorder. Extraversion/ Surgency is negatively and significantly related with internet gaming disorder. The comparison of groups high and low on IGD with temperament shows that negative affect and extraversion/surgency differ significantly. The result of the study on Iranian students revealed that internet gaming disorder was strongly connected with all dimensions of temperament (Zemestani *et al*. (2021) [36]. IGD Patients show maladaptive personality traits like negative affectivity, and psychoticism and detachment (Laier *et al*. 2018) [15]. Temperament could be a potential risk factor that can be associated with gaming preference. (Mallorqui *et al*., 2017) [19].

The study documents the association of state-trait anxiety with internet gaming disorder. Both state and trait anxiety are positively correlated with internet gaming disorder. Also, the group of participants low on IGD and high on IGD also show significant differences. An Indian study of adolescents quotes the correlation between internet gaming disorder and anxiety (Archana *et al*., 2019) [3]. About 123 college-going students were evaluated for internet gaming addiction and personality traits including anxiety and confirmed that both state and trait anxiety are highly and significantly related with internet gaming disorder (Mehroof & Griffiths, 2010) [20]. The review of literature specifies that state-trait anxiety is linked with internet gaming disorder. This study also confirms the role of state-trait anxiety in internet gaming disorder in college going students.

The current trend clearly indicates that number of gamers are likely to be increased in near future. Therefore, there is an urgent need to understand what are the psychological correlated which make an individual more vulnerable towards gaming addiction. Age differences, gender differences, family structure and environmental factors should also be considered for future studies. Identification of pathological gaming at early stage, its assessment and what should be the best treatment strategy should be clearly defined. Since negative affect and state-trait anxiety can be a risk factor for the development of internet gaming disorder. Early intervention can help us to control the deteriorating condition of the individuals indulged in online gaming and it negative effects. Gaming can become a base for further negative health conditions. Future studies can be done in prevention and intervention. Therefore, by raising the awareness of the alarming condition and probable side effects, we can make one step forward towards prevention. Parents can play a much-needed role in protecting children from becoming IGD addicts as a warm parental environment deters mental health issues and makes them strong to cope with situation which children deem to be difficult (Singh *et al*., 2018, Singh *et al*., 2021) [29-30]. There are few positive sides of gaming also, which should not be ignored. Gaming can be designed in a more constructive rather than addictive way. This will help individuals in a balanced way without hampering their mental and physical health.

References

1. Adams BL, Stavropoulos V, Burleigh TL, Liew LW, Beard CL, Griffiths MD. Internet gaming disorder behaviors in emergent adulthood: A pilot study examining the interplay between anxiety and family cohesion. International Journal of Mental Health and Addiction. 2019;17:828-844. https://doi.org/10.1007/s11469-018-9873-0
2. American Psychiatric Association D., & American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5 Washington, DC: American psychiatric association. 2013;5(5).
3. Archana R, Sharma MK, Kumar KJ, Marimuthu P. Internet gaming disorder and psychiatric symptoms in Bengaluru, India: Treatment implication for promotion of user mental health. Indian Journal of Social Psychiatry. 2019;35(2):135-136. https://doi.org/10.4103/ijsp.ijsp_42_18
4. Balhara YPS, Garg H, Kumar S, Bhargava R. Gaming disorder as a consequence of attempt at self-medication: Empirical support to the hypothesis. Asian Journal of Psychiatry. 2018;31:98-99. https://doi.org/10.1016/j.ajp.2018.02.013
5. Cheng YH. The mediating effects of motivation for playing Pokémon Go on internet gaming disorder and well–being. The American Journal of Family Therapy. 2019;47(1):19-36. http://doi:10.1080/01926187.2019.1583614
6. Cho S-C, Kim J, Kim B-N, Lee J-H, Kim E-H. Biogenetic Temperament and Character Profiles and Attention Deficit Hyperactivity Disorder Symptoms in Korean Adolescents with Problematic Internet Use. Cyber Psychology& Behavior. 2008;11(6):735-737. http://doi:10.1089/cpb.2007.0285
7. Cole SH, Hooley JM. Clinical and personality correlates of MMO gaming: Anxiety and absorption in problematic Internet use. Social Science Computer Review. 2013;31(4):424-436. https://doi.org/10.1177/0894439312475280
8. Dalbudak E, Evren C, Aldemir S, Coskun KS, Ugurlu H, Yildirim FG. Relationship of internet addiction severity with depression, anxiety, and alexithymia, temperament and character in university students. Cyberpsychology, behavior and social networking. 2013;16(4):272-278. https://doi.org/10.1089/cyber.2012.0390
9. De Pasquale C, Pistorio ML, Sciacca F, Hichy Z. Relationships Between Anxiety, Perceived Vulnerability to Disease, and Smartphone Use During Coronavirus Disease 2019 Pandemic in a Sample of Italian College Students. Frontiers in psychology. 2021;12:692503. https://doi.org/10.3389/fpsyg.2021.692503
10. Derryberry D, Rothbart MK. Arousal, affect, and attention as components of temperament. Journal of Personality and Social Psychology. 1988;55(6):958. https://doi.org/10.1037//0022-3514.55.6.958
11. Dollar JM, Stifter CA. Temperamental surgency and emotion regulation as predictors of childhood social competence. Journal of Experimental Child Psychology. 2012;112(2):178-194. https://doi.org/10.1016/j.jecp.2012.02.004
12. Fazeli S, Mohammadi Zeidi I, Lin CY, Namdar P, Griffiths MD, Ahorsu DK, *et al*. Depression, anxiety, and stress mediate the associations between internet gaming disorder, insomnia, and quality of life during the COVID-19 outbreak. Addictive behaviors reports. 2020;12:100307. https://doi.org/10.1016/j.abrep.2020.100307
13. Huang X, Shi HX, Li HQ, Guo WJ, Luo D, Xu JJ. Differential Effects of Anxiety on Internet Gaming Disorder: A Large-Scale Cross-Sectional Survey. Frontiers in Psychiatry. 2022;12:802513. https://doi.org/10.3389/fpsyt.2021.802513
14. Kim NR, Hwang SS, Choi JS, Kim DJ, Demetrovics Z, Király O, *et al*. Characteristics and Psychiatric Symptoms of Internet Gaming Disorder among Adults Using Self-Reported DSM-5 Criteria. Psychiatry Investigation. 2016;13(1):58-66. https://doi.org/10.4306/pi.2016.13.1.58
15. Laier C, Wegmann E, Brand M. Personality and cognition in gamers: Avoidance expectancies mediate the relationship between maladaptive personality traits and symptoms of Internet-gaming disorder. Frontiers in

Psychiatry. 2018;9:304. https://doi.org/10.3389/fpsyt.2018.00304
16. Lazarus RS. Progress on a cognitive-motivational-relational theory of emotion. American Psychologist. 1991;46(8):819-834. https://doi.org/10.1037/0003-066X.46.8.819
17. Lee YS, Son JH, Park JH, Kim SM, Kee BS, Han DH. The comparison of temperament and character between patients with internet gaming disorder and those with alcohol dependence. Journal of Mental Health (Abingdon, England). 2017;26(3):242-247. https://doi.org/10.1080/09638237.2016.1276530
18. Lin HT, Chen HJ. Relationships between parental internet intervention, school engagement, and risky online behaviors among adolescents: The moderating role of family cohesion. Journal of Research in Education Sciences. 2016;61(4):205-242. https://doi.org/10.6209/JORIES.2016.61(4).08
19. Mallorquí-Bagué N, Fernández-Aranda F, Lozano-Madrid M, Granero R, Mestre-Bach G, Baño M, *et al*. Internet gaming disorder and online gambling disorder: Clinical and personality correlates. Journal of Behavioral Addictions. 2017;6(4):669-677. https://doi.org /10.1556/2006.6.2017.078
20. Mehroof M, Griffiths MD. Online gaming addiction: the role of sensation seeking, self-control, neuroticism, aggression, state anxiety, and trait anxiety. Cyberpsychology, behavior and social networking. 2010;13(3):313-316. https://doi.org/10.1089/cyber.2009.0229
21. Mikolajewski AJ, Allan NP, Hart SA, Lonigan CJ, Taylor J. Negative affect shares genetic and environmental influences with symptoms of childhood internalizing and externalizing disorders. Journal of Abnormal Child Psychology. 2013;41(3):411-423. https://doi.org/10.1007/s10802-012-9681-0
22. Oldehinkel AJ, Hartman CA, De Winter AF, Veenstra R, Ormel J. Temperament profiles associated with internalizing and externalizing problems in preadolescence. Development and Psychopathology. 2004;16(2):421-440. https://doi.org/10.1017/S0954579404044591
23. Ozturk FO, Ekinci M, Ozturk O, Canan F. The relationship of affective temperament and emotional-behavioural difficulties to internet addiction in Turkish teenagers. International Scholarly Research Notices; c2013.https://doi.org/10.1155/2013/961734
24. Paik SH, Choi MR, Kwak SM, Bang SH, Chun JW, Kim JY, *et al*. An association study of Taq1A ANKK1 and C957T and - 141C DRD2 polymorphisms in adults with internet gaming disorder: a pilot study. Annals of General Psychiatry. 2017;16:45. https://doi.org/10.1186/s12991-017-0168-9
25. Przybylski AK, Weinstein N, Murayama K. Internet Gaming Disorder: Investigating the Clinical Relevance of a New Phenomenon. The American Journal of Psychiatry. 2017;174(3):230-236. https://doi.org/10.1176/appi.ajp.2016.16020224
26. Rothbart MK. Temperament, Development, and Personality. Current Directions in Psychological Science. 2007;16(4):207-212.
27. Rothbart MK, Ellis LK, Rueda MR, Posner MI. Developing mechanisms of temperamental effortful control. Journal of personality. 2003;71(6):1113-1143. https://doi.org/10.1111/1467-6494.7106009
28. Seong W, Hong JS, Kim S, Kim SM, Han DH. Personality and psychological factors of problematic internet gamers seeking hospital treatment. Frontiers in Psychiatry. 2019;10:583. https://doi.org/10.3389/fpsyt.2019.00583
29. Singh V, Behmani RK, Kumar S. Role of Parenting Style in Mental Health and Coping Style of the Adolescents. Remarking An Analisation. 2018;3(8):32-38.
30. Singh V, Gera T, Behmani RK. Parenting Styles and Mental Health of Adolescents. Journal of Psychology and Behavior Studies. 2021;1(1):41-46. 10.32996/jpbs.2021.1.1.6
31. Singh YM, Prakash J, Chatterjee K, Khadka B, Shah A, Chauhan VS. Prevalence and risk factors associated with Internet gaming disorder: A cross-sectional study. Industrial Psychiatry Journal. 2021;30(1):S172.
32. Sharma MK, Anand N, Marimuthu P, Suma N, Murthy KD, Thakur PC, *et al*. Anxiety as a predictor of gaming disorder among young adults. Indian Journal of Social Psychiatry. 2020;36(3):254-257. https://doi.org/10.4103/ijsp.ijsp_129_19
33. Wang HR, Cho H, Kim DJ. Prevalence and correlates of comorbid depression in a nonclinical online sample with DSM-5 internet gaming disorder. Journal of affective disorders. 2018;226:1-5. https://doi.org/10.1016/j.jad.2017.08.005
34. Yesilyurt F. Internet gaming disorder: Remarks of psychiatrists. World Journal on Educational Technology: Current Issues. 2020;12(2):098-106 https://doi.org/10.18844/wjet.v12i2.4813
35. Zastrow M. Is video game addiction really an addiction. Proceedings of the National Academy of Sciences. 2017;114(17):4268-4272. DOI: 10.1073/pnas.1705077114.
36. Zemestani M, Niakan F, Shafeizadeh K, Griffiths MD. The relationship between psychobiological dimensions of personality and internet gaming disorder: The role of positive and negative affects. Current Psychology; c2021. p. 1-10. https://doi.org/10.1007/s12144-021-01839-9
37. Sharma M, Luthra S, Joshi S, Kumar A. Developing a framework for enhancing survivability of sustainable supply chains during and post-COVID-19 pandemic. International Journal of Logistics Research and Applications. 2022 May 4;25(4-5):433-453.
38. Qin C, Zhou L, Hu Z, Zhang S, Yang S, Tao Y, *et al*. Dysregulation of immune response in patients with coronavirus 2019 (COVID-19) in Wuhan, China. Clinical infectious diseases. 2020 Jul 28;71(15):762-768.