Studying The Factors Contributing Towards of Internet Gaming Disorder Among College Students

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Abstract

Now-a-days, Internet Gaming Disorder (IGD) has become an important research area. Several risk factors associated with IGD have been identified; however a lack of consensus regarding what factors contribute the most still exists. The present study investigated the role of all factors in IGD and to identify the most contributing factors to IGD. College students (N=328) aged 17-20 years; 160 males and 168 females provided data on a booklet measuring personal, psychological, social, and internet-related factors. On analysis, the findings of the study demonstrated the meaningful predictors for diagnosis of IGD under DSM-5 diagnostic criteria. Findings have proved the significant role of cluster of factors in IGD establishment. All the factors played significant role in predicting IGD; however psychological and social factors predicted IGD the most. Aggression, loneliness and pro-social behaviour from social factors caused IGD rapidly than other risk factors. Findings could have the implications for the psychiatrists and psychologists by working on psychological and social factors for prevention of IGD.

Keywords: *Internet Gaming Disorder, Aggression, Loneliness, Pro-social Behaviour, Impulsivity, Life Satisfaction*

Introduction

The advent and use of internet and its related applications have seemingly brought about a revolution in the society **(**Hussain, Cakir & Ozdemir, *2020)* by leaving an impact on and/ or in the lives of the individuals **(**Hussain & Sajjad, 2020). Amongst others, internet games have attracted the youth and adolescents; particularly the college aged students **(**Bansal & Kranti, 2022). They seem to use them excessively which adversely affects their physical as well as mental health leading towards what we say *"internet gaming disorder"* **(**Feng, Ramo, Chan & Bourgeois, 2017). the most prevailing factors which appear to contribute towards internet gaming disorder including stressful life situations without coping or managing the same, company of friends or social circles, availability of computers in rooms and distressed environment (Young, 2009; Wood & Griffiths, 2007).

Internet Gaming Disorder (IGD) is becoming more popular in the world and thus prevailing as a key topic for research and social issues to be addressed. The reason behind this phenomenon is the greater increase in the rate of gaming hours among both adolescents and adults (Kuss, 2013). Consequently, IGD has been now recognized as a major social issue and therefore is now a significant problem that should be explored consistently. Hence World Health Organization has also identified Gaming Disorder in International Classification of Diseases (ICD-11) (Aarseth, et al., 2017).

The prediction, assessment, and management of IGD is vital for its prevention. For the sake of its better prevention, all the antecedents of IGD must be fully apprehended and identified. Symptoms of addiction and numerous psycho-social impairments have been found in recurrent internet gamers. Several factors related to personal attributes, internet gaming characteristics, psychological and social components contribute to the IGD. Nevertheless its conceptualization and evaluation needs to be explored more.

Review of Literature

Internet Gaming Characteristic and Factors

The characteristics of internet gaming for example amount of internet usage, expenditures of gaming, place being used for it and kind of devices too (Rho, Jeong, Chun, Cho, Jung, Choi & Kim, 2016) connected with IGD should be the focus of investigation for researchers. Researchers have been working on characteristics, diagnose and identification of the negatives aspects of

addictive gaming. The quality research work in this area is contributing in management and prediction of IGD.

However, psychological factors are the main concern of the researchers (Caplan, 2006; Hyun, Han, Lee, Kang, Yoo, Chung & Renshaw, 2015). Gentile et al., (2011) deduced that depressed people usually show social avoidance and tend to play games in order to replace their social activities and avoid the things associated with these activities. As a result, with the passage of time they become addict of playing games and then experience more depression, anxiety, and stress. The more time spent in playing internet games increased the chances of depression by 24% (Loton, 2012). Some researches strengthen the concept that video games help to reduce depression by providing a controlled virtual environment, power, tasks, and reinforcements to the people that let them show their anger in violence based games and provide a chance to overcome the distressing and stressed environment. However, it is more consensuses that games are making teenagers more and more isolated and making them prone to be depressed (Tiwari & Ruhela, 2012).

Internet gaming is playing a part in developing social phobia and anxiety in game addicted children as well (Gordon, 2011). According to Loton's work, adolescents and adults spending more than 33 hours in a week for playing games are more likely to have anxiety 15% more as compared to those spending 21 hours per week. The pathological state of gamers made them socially isolated which led them towards social phobia and anxiety associated with this phobia (Gentile et al, 2011).

Rosenberg, Schooler & Schoenbach (1989) characterizes the concept of self-esteem as a person's views about his own self that are mainly reliant on replicated assessments, social judgements and self-acknowledgement. Ko, Yen, Chen, Chen and Yen (2005) stated that male gamers with low self-esteem have greater tendency to become game addict than female gamers. Moreover several studies have provided evidences for the negative relationship between self-esteem and IGD irrespective of gender differences (Lemmens, Valkenburg, & Peter, 2011b; Schmit, Chauchard, Chabrol, & Sejourne, 2011).

A person who is able to use cognitive assessment for his/her wellbeing and betterment is considered as satisfied with life. There are many who appear to be dissatisfied with and/ or in their lives; this situation leads them towards video gaming. Frequent use of video games makes them addictive of them (Ko, et al, 2005; Lemmens, Valkenburg & Peter, 2009, 2003). They get

relief of/ from the life problems (Chiou & Wan, 2007). It is indicative of IGD having a negative relationship with life satisfaction. Likewise, low self-control, anxiety and setting unattainable goals are often associated with IGD (Rho, Lee, Lee, Cho, Jung, Kim & Choi, 2017).

Generally, a relationship between loneliness and gaming is observed. Kim, LaRose, & Peng (2009) and Lemmens, Valkenburg & Peter (2011b) observed a reciprocal relationship between loneliness and online gaming among students. Students are too involved in online games to live in their physical environment. They seem to take these games as alternate(s) of the real [world] relationships and it negatively affects their social lives.

Volunteerism or working for others demonstrates pro-social behaviour of students. Early researchers in this area like Eisenberg and Miller (1987), and Ladd and Profilet (1996) found a negative relationship between pro-social behaviour and video gaming. Similarly, a significant relationship between aggression and internet gaming was demonstrated by Grüsser, Thalemann, and Griffiths (2007), Kim, Namkoong, Ku and Kim (2008), and Lemmens, et al., (2009).

Rationale of the Study

Observably, conclusive internet gaming is becoming a leisure time activity not only among adolescents but adults also. The above discussion shows that IGD is more associated with psychological backdrop than any other factor. There appear different factors including personal, internet related, psychological, and social to cause internet gaming. Therefore the present study was designed to investigate the role of such factors in IGD and to identify the most contributing to IGD.

Method

The study was delimited to the public sector colleges in South Punjab. A total of 328 college students of age 17-20 years participated in the study on volunteer basis of which 160 were male and 168 were female students belonging to more or less same socio-economic class. The researchers used inventory for the individual characteristics like gender and age of the participants; Internet Gaming Constructs -five constructs; Depression, Anxiety and Stress Scale (DASS-21) developed by Lovibond and Lovibond (1995); Self-Esteem Scale of the Rosenberg, Schooler & Schoenbach (1989) and Satisfaction with Life Scale developed by the Diener, Emmons, Larsen, & Griffin (1985) to measure the Psychological Factors; Aggression Questionnaire prepared by the Buss and Perry (1992) and a short form Loneliness Scale of the Russell, Peplau & Cutrona (1980) and pro-socialness Scale developed by the Caprara, Steca,

Zelli & Capanna (2005) for eliciting Social Factors**;** and the Internet Gaming Disorder Scale (IGDS) developed by Lemmens, Valkenburg and Gentile (2015) was also used.

The researchers obtained informed consent of the respondents after their college permission. They were explained about the study and how to respond to the items on the scales. They were provided booklets of the tools after briefing by the researchers. All the ethical considerations were observed during the entire process of data collection.

Results of the Study

Zero-order correlation was calculated (Table1) for getting the *"inter-correlation matrix"* of the variables. A series of Ordinary Least Squares (OLS) regression analyses was done (Table2) to calculate the expected prediction of Internet Gaming Disorder from the psychosocial factors.

Table 1
Correlations of the Study Variables

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Individual factors																			
1	Gender	--	--	1															
2	Age	18.1	2.0	-.11	1														
Internet Gaming																			
3	Weekday Time	3.13	1.94	.33**	.17*	1													
4	Weekend Time	4.52	6.42	.54**	.38**	.21*	.1												
5	Gaming Venue	--	--	.23*	.08	.26*	.35**	1											
6	Game Device	--	--	.31**	.04	.13	.38**	.09	1										
7	Membership	--	--	.33**	.02	.11	.27*	.03	.04	1									
Psychological Factors																			
8	Depression	16.15	4.25	.14*	.15*	.17*	.26*	.03	.06	.14*	1								
9	Anxiety	15.17	4.06	.17*	.27*	.19*	.29*	.06	.06	.18*	.49**	1							
10	Stress	17.43	3.18	.22*	.29*	.19*	.26*	.18*	.12*	.19*	.46**	.44**	1						
11	Self-esteem	15.74	5.72	.21*	.19*	.21*	.22*	.09	.10	.13*	-.51**	-.39**	-.33**	1					
12	Impulsivity	48.76	8.16	.20*	.10	.27*	.31**	,07	.03	.31**	.47**	.38**	.37**	-.24*	1				
13	Life Satisfaction	14.91	5.67	.26*	.22*	.25*	.28*	.08	.09	.21*	-.43**	-.36**	-.41**	.38**		1			
Social Factors																			
14	Aggression	112.6	8.25	.43**	.24*	.24*	.34**	.07	.19*	.21*	.53**	.34**	.37**	-.28*	-.27*	-.22*	1		
15	Loneliness	11.37	3.75	.32**	.07	.18*	.37**	.19*	.18*	.29*	.41**	.37**	.42**	-.22*	.41**	-.33**	.35**	1	
16	Pro-social	35.84	9.93	.22*	.06	.16*	.33**	.11*	.05	.32**	-.32**	-.21**	-.23*	.37**	.31**	.45**	-.23*	-.24*	1
17	**Internet Gaming Disorder**	6.35	2.51	.17**	.22*	.22**	.28**	.23**	.02	.33**	.47**	.43**	.33**	-.34**	.36**	-.33*	-.59**	.57**	-.51*

*p>.05, **p>.001

Table 1 indicates the means, standard deviations, and inter-correlations of all risk factors of IGD. Descriptive findings showed the higher IGD among students (M = 6.35, SD = 2.51). Correlation coefficients indicated the significant positive relationships of internet related factors with IGD. Psychological and social factors have also been found significantly correlated with IGD.

Table 2
Regression Results for Prediction of Internet Gaming Disorder from Four Groups of Factors

Predictors	Predictors of Internet Gaming Disorder			
	Model 1	Model 2	Model 3	Model 4
Personal Factors				
Gender	.17*	.16*	.13*	.11*
Age	.22**	.20**	.16*	.13*
Internet Factors				
Weekday Time		.22**	.20**	.17*
Weekend Time		.28**	.23**	.19*
Gaming Venue		.15*	.09	.04
Game Device		.08	.05	.02
Membership		.11*	.09	.07
Psychological Factors				
Depression			.38**	.33**
Anxiety			.35**	.31**
Stress			.29**	.23**
Self-esteem			-31**	-.25**
Impulsivity			.24**	.22**
Life Satisfaction			-.27**	-.24**
Social Factors				
Aggression				.40**
Loneliness				.47**
Pro-social				-.44**
R^2	.15*	.21**	.43**	.56**
Adjusted R^2	.14	.20	.41	.55
F-statistics	13.32**	11.64**	22.3**	31.04**
ΔR^2		.07	.19	.25

*p< = 0.05, **p< = 0.01

Results presented in Table 2 explain *"a series of ordinary least squares (OLS) regression"* analyses. Model summary presents analyses for different risk factors regarding personal, psychological, social, and internet related factors for IGD. To do these analyses, four

categories of risk factors associated with IGD were entered one by one into four models. Model 1 containing personal risk factors (gender and age) entered into the regression pan reported 15% of variance in IGD as whole. Model 2 containing second set of internet related factors increased the *R*-square by .21 that demonstrated a change in IGD by increasing 21% of variance. Model 3 entering psychological risk factors also increase the variance in IGD from 21% to 43%. Model 4 presenting fourth group of social risk factors predicted IGD more by increasing the R-square .56 and social factors altogether explained the 56% of variance in IGD.

Discussion

The current study examined the risk factors of IGD in college students. The results of the study provided considerable empirical evidences to determine IGD. A detailed examination of the relationships of factors associated with internet gaming disorder has been presented in Table 1. The findings affirmed strong and significant relationship of factors with IGD. According to the statistical analysis, the internet gaming characteristics, psychological and social factors are associated with IGD.

Regression analyses provided in Table 2 explained the model fit to the contributions of all groups of factors to IGD. Personal factors such as gender and age were included in model 1 that explained the 15% of variance in IGD. Internet gaming characteristics were entered in model 2. Characteristics of internet gaming are important contributors for raising IGD according to the present findings that explain the 21% variance in IGD. Psychological factors; depression, anxiety, stress, self-esteem, impulsivity, and life satisfaction were entered in model 3. Psychological factors have been found significant predictors of IGD because of greater variance 43% in IGD. Similarly, social factors of loneliness, pro-social behaviour, and aggression were studied in model4. Social factors of IGD were proved the strongest causes of IGD by showing the 56% variance in IGD.

The findings are consistent with the literature reviewed in the present study. Findings of the present study have affirmed the significant role of psychological factors in developing IGD and supported the comments of many previous researches. Studies conducted in last decades have proposed that people who remain socially unskilled in the society feel attraction in online gaming and through this way fulfil their desire for sociability in their offline lives. In fact they experience anxiety and feel difficulty while establishing interpersonal relationships in real life (Chak & Leung, 2004; Chiu, Lee & Huang, 2004). Findings pertaining to the impulsivity showed a strong consistent pattern with many latest investigations exploring

impulsivity to be positively correlated with excessive internet usage in general and excessive online gaming in particular (Cao, 2007).

Many risk factors like loss of control, the interest level in social activities, stress, irritability, deficit relationships and health- related problems are linked to IGD. The problems need to be addressed by using follow up studies. There are numerous computer gamers that play computer games for the sake of enjoyment. The problem arises when the individual starts using games as an alternate of their life problems which results in loneliness and lack of social activities. Hence the literature showed that impulsivity, depression and interpersonal relationships are positively associated with internet gaming. Anxiety, pursuit of desire appetitive goals, and the amount of time and money spent on gaming are also significantly associated to IGD. This strengthen the need to work on the factors that are involved in internet gaming so that consequences can be handle in a better way by characterizing and managing these menaces.

Findings pertaining to social factors of IGD are significant and indicated that loneliness and aggression have negative influence on IGD. The people reporting higher loneliness and high aggression experienced symptoms of IGD. Lemmens, Valkenburg, & Peter, 2011a; 2011b) have proposed that loneliness and aggressive behaviour are considerable causes of IGD and therefore are in main concern for further investigation because these two social components are considered as core causal elements of prolonged pathological involvement with games. Moreover, excessive usage of internet games develops the high aggressive behaviour in internet users (Anderson, 2004). Carnagey and Anderson (2005) also examined that violent behaviour that are reinforced develop aggression, negative emotions, and violent thinking. According to some authors if the school activities like homework are dislodged could be the reason for parents' conflicts and school problems. The efforts to change this addictive gaming behaviour may lead to aggression and irritability in the students (e.g., Young, 2009).

Pro-social behaviour has also been found correlated with IGD in present study. Findings are very much supported by many other studies who demonstrated that video games are attracted for those who are unable to achieve their social live needs and relationships in real life (Chak & Leung, 2004; Chiu, Lee & Huang, 2004). Pathological gaming led to the less social competence (Lemmens, Valkenburg & Peter, 2011b).

Conclusion

The findings of the study demonstrated the meaningful predictors for diagnosis of IGD under DSM-5 diagnostic criteria. Findings have proved the significant role of cluster of factors in

IGD establishment. These factors have been found associated with excessive use of video games. Time spent on gaming, venue, and memberships of cafe are the main factors of IGD. Further, higher degree of depression, anxiety, stress, impulsivity, and low level of self-esteem and reduced life satisfaction are the predictors of IGD too. Internet Gaming Disorder is also predicted by social factors of high loneliness, aggression, and low pro-social behavior. Among all the factors, the cluster of social factors has been found more strongly connected with IGD.

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