ORIGINAL ARTICLE

INTERNET GAMING DISORDER IN STUDENTS OF PESHAWAR: A CROSS SECTIONAL SURVEY

Zahwa Salam, Zainab Sadiq, Urooj Tajamul, Mifrah Rauf Sethi*, Muhammad Irfan*

Undergraduate Student, Peshawar Dental College, *Department of Mental Health, Psychiatry & Behavioural Sciences, Peshawar Medical College, Riphah International University, Islamabad-Pakistan

Background: Internet gaming, though getting popular, is becoming a risk to physical and psychological health, especially in adolescents, as it contributes to sedentary lifestyle. To gauge the extent of the problem in our setup, we decided to find the frequency of internet gaming disorder in students of Peshawar and identify their motives for playing these games. **Methods:** This Cross-sectional survey was conducted from February to December 2018 and included students of Private and Public institutes of Peshawar. They were invited to complete a questionnaire comprising of Internet Gaming Disorder Scale-Short Form (IGDS-SF9), which includes 9 questions, with some additional demographic questions. The data were analysed using SPSS v.25. **Results:** The mean age of the sample (n=2116) was 21.5±2.1 years with the age range of 16-28 years. The cronbach's alpha reliability of IGDS-SF9 in our study was 0.805. Majority of the participants were males (n=1261, 59.6%) and were from Private sector institutes (n=1314, 62.1%). A total of 32 (1.5%) students reported having Internet Gaming disorder. The results of chi square test showed that significantly more male students played games for social motives (p=.032), whereas significantly more female students played games for coping motives (p=.001). Pearson correlation results showed a significant positive correlation between time spent on gaming and internet gaming disorder (p=.000) and between internet gaming disorder with recreation as a motive (p=.027). **Conclusion:** Internet Gaming is getting common in our setup and IGDS-SF9 can be effectively used in our population because of its reliability.

Keywords: Internet Gaming Disorder, Students, Peshawar

Citation: Salam Z, Sadiq Z, Tajamul U, Sethi MR, Irfan M. Internet gaming disorder in students of Peshawar: A cross sectional survey. J Ayub Med Coll Abbottabad 2019;31(4):548–52.

INTRODUCTION

Gaming has become one of the common entertainment sources amongst youth worldwide. Its problematic use is gaining attention by the researchers. Many researches have been carried out to relate the effects of gaming on a person's physical and mental health. Internet Gaming Disorder is a pattern of excessive and prolonged internet gaming that results in a cluster of cognitive and behavioural symptoms and leaving the habit lead to withdrawal symptoms.[1] A study reported that excessive online gaming can lead to social isolation, psychological dependence, avoiding social interaction, preferring to interact online and avoiding physical activities.[2] Griffiths *et al* reported that 80% of online gamers sacrificed sleep, work, education, or socializing with friends and family, to play online games.[3] A study reported that gamers who spend most of their time playing online games developed symptoms of social anxiety and behaviours such as preoccupation, loss of control and interpersonal/ intrapersonal conflicts.[4,5] On the other hand, online role-playing game's avatars may similarly provide socially anxious individuals with a medium to express their selves.[6] In one study, nearly 35% of participants reported feeling more comfortable expressing their selves through their online role-playing game's avatars than face-to-face.[7] Such individuals have fewer supportive relationships in real life but higher in-game social support.[8] It becomes difficult for such individuals to communicate in real life. However, studies have also suggested that online gaming my help to overcome social phobia as it provides more chances to communicate with other people worldwide.[9] A Meta analytic review stated that video game exposure does affect social outcomes in short and long term.[10]

Specific game genre can also influence the physical and psychological health of players. Violent content in video games can have negative effects on players. Studies stated that exposure to violent video games is connected to higher levels of aggressive behaviour, aggressive thoughts, and physiological arousal, with lower levels of prosocial behavior.[11–13] Lee *et al* reported that people who play role playing games show higher internet addiction scores than people who play web, board and sport based games.[14] According to another study problematic online game playing was predominant among action, adventure and role-playing game players.[15] A study conducted on massively multiplayer online role-playing gamers (MMORPG) showed that motivation behind their playing was to escape from reality.[16]

Since the popularity of internet gaming is leading to compromised physical and psychological health and educational progress, therefore, we decided to explore the extent of this problem in the

population under study with the objective to find the frequency of internet gaming disorder and knowing the most common motives for playing these games.

MATERIAL AND METHODS

A cross sectional survey was conducted at various undergraduate educational institutions of Peshawar, Pakistan. The institutions included were Peshawar Medical College, Peshawar Dental College, Khyber Medical College, Kabir Medical College, Sardar Begum Dental College, Rehman Medical College, Pak International Medical College, University of Engineering and Technology Peshawar, Sarhad University, FAST-NUCES, CECOS University, Institute of Management Sciences and Abasyn University Peshawar. The duration of the study was from February to December 2018. We used convenience sampling technique and all the students, available at the time, in their respective institute, of data collection, and consenting to participate were included. The Ethical Review Committee of Prime Foundation approved the study. Each participating institute was approached for permission, before starting data collection. All students who participated in the study were informed about the objectives of the study, and the information about the instruments was explained by the researchers. All the information was kept confidential. The demographic data were collected in addition to Internet Gaming Disorder Scale-Short Form (IGDS-SF9),[17] which covers all 9 criteria for Internet Gaming Disorder mentioned by DSM-5. Students scoring 36–45 on the scale were considered to have Internet Gaming Disorder. They were also asked about the motives of playing these games based on a study by Demetrovics *et al.*[18]

Using SPSS v.25, the analysis of the basic variables was carried out using descriptive statistics. Cronbach's alpha reliability was found to see consistency of the items within the scale. Chi square test was applied to find out the differences between gender and private and public sector institutes. Pearson correlational analyses were employed to find out the correlation between the motives of gaming and time spent on gaming with Internet Gaming Disorder. The results of all the test of significance were considered significant at $p<0.05$ level.

RESULTS

A total of 2160 students were asked to participate in the study. The response rate was 97% (n=2116). The mean age of the sample (n=2116) was 21.5±2.1 years with the age range of 16-28 years. The cronbach's alpha reliability of IGDS-SF9 in our study was 0.805. Majority were male students (n=1261, 59.6%) and were from Private sector institutes (n=1314, 62.1%). Out of 2116 students, 32 (1.5%) students reported Internet Gaming disorder (17 medical and 15 non-medical students [p=0.749]). The motives which student expressed behind gaming were Escape (n=1485, 70.2%), followed by Coping (n=1463, 69.1%) and the most common genre of internet gaming were Adventure (n=1364, 64.5%), and Strategy games (n=1180, 55.8%). Further details are given in table-1.

According to the responses, out of 32 students having Internet Gaming Disorder, majority were males (n=21) and were from Private sector institutes (n=23). The gender wise comparison showed that male students significantly played games for Social motives (p=.032), whereas female students significantly played games for Coping and recreation (p=.001 & .004). Furthermore, female students played more Adventure and Puzzle genres of Internet games (p=.000 & .000), whereas male students used Action, sports and Multiplayer online role-playing genres of internet Gaming (p=.000, .000, .006) respectively. Significantly more private sector students played games for recreation and played action and sport genres of internet games (p=.001, .000, .004). Further details are given in table-2.

Pearson correlation results showed a significant positive correlation between time spent on gaming and internet gaming disorder (p=.000) and between internet gaming disorder with recreation as a motive (p=.027). Details are given in table 3 & 4.

Table-1: Demographic details of the study (n=2116)

Variables		Frequencies (%)
Gender	Male	1261 (59.6)
	Female	855 (40.4)
Institutes	Private	1314 (62.1)
	Public	802 (37.9)
Professional Affiliation	Medical	1183 (55.9)
	Non-Medical	933 (44.1)
Internet Gaming Disorder	Yes	32 (1.5)
	No	2084 (98.5)
Motives*	Social	1220 (57.7)
	Escape	1485 (70.2)
	Competition	1404 (66.4)
	Coping	1463 (69.1)
	Skill Development	1248 (59.0)
	Fantasy	1135 (53.6)
	Recreation	1392 (65.8)
Types*	Action	1179 (55.7)
	Adventure	1364 (64.5)
	Role Playing	1170 (55.3)
	Strategy	1180 (55.8)
	Sports	1079 (51.0)
	Puzzle	1078 (50.9)
	Multiplayer Online Role Playing	863 (40.8)

*More than one options were allowed

Table-2: Chi-Square distribution of internet gaming disorder and its motives and genres among gender and institutions differences (n=2116).

Variables			Gender		*p*-value	Institutions		*p*-value
			Male	Female		Private	Public	
Internet Gaming Disorder		Yes	21 (1.7%)	11 (1.3%)	.484	23 (1.8%)	9 (1.1%)	.251
		No	1240 (98.3%)	844 (98.7%)		1291 (98.2%)	793 (98.9%)	
Motive	Social	Yes	751 (59.6%)	469 (54.9%)	**.032***	774 (58.9%)	446 (55.6%)	.137
		No	510 (40.4%)	386 (45.1%)		540 (41.1%)	356 (44.4%)	
	Escape	Yes	866 (68.7%)	619 (72.4%)	.066	908 (69.1%)	577 (71.9%)	.165
		No	395 (31.3%)	236 (27.6%)		406 (30.9%)	225 (28.1%)	
	Competition	Yes	835 (66.2%)	569 (66.5%)	.874	898 (68.3%)	506 (63.1%)	**.013***
		No	426 (33.8%)	286 (33.5%)		416 (31.7%)	296 (36.9%)	
	Coping	Yes	837 (66.4%)	626 (73.2%)	**.001****	904 (68.8%)	559 (69.7%)	.663
		No	424 (33.6%)	229 (26.8%)		410 (31.2%)	243 (30.3%)	
	Skill Development	Yes	730 (57.9%)	518 (60.6%)	.216	790 (60.1%)	458 (57.1%)	.171
		No	531 (42.1%)	337 (39.4%)		524 (39.9%)	344 (42.9%)	
	Fantasy	Yes	670 (53.1%)	465 (54.4%)	.570	713 (54.3%)	422 (52.6%)	.462
		No	591 (46.9%)	390 (45.6%)		601 (45.7%)	380 (47.4%)	
	Recreation	Yes	799 (63.4%)	593 (69.4%)	**.004***	901 (68.6%)	491 (61.2%)	**.001****
		No	462 (36.6%)	262 (30.6%)		413 (31.4%)	311 (38.8%)	
Genre	Action	Yes	775 (61.5%)	404 (47.3%)	**.000****	781 (59.4%)	398 (49.6%)	**.000****
		No	486 (38.5%)	451 (52.7%)		533 (40.6%)	404 (50.4%)	
	Adventure	Yes	749 (59.4%)	615 (71.9%)	**.000****	840 (63.9%)	524 (65.3%)	.511
		No	512 (40.6%)	240 (28.1%)		474 (36.1%)	278 (34.7%)	
	Role Playing	Yes	697 (55.3%)	473 (55.3%)	.983	704 (53.6%)	466 (58.1%)	**.042***
		No	564 (44.7%)	382 (44.7%)		610 (46.4%)	336 (41.9%)	
	Strategy	Yes	707 (56.1%)	473 (55.3%)	.735	706 (53.7%)	474 (59.1%)	**.016***
		No	554 (43.9%)	382 (44.7%)		608 (46.3%)	328 (40.9%)	
	Sports	Yes	694 (55%)	385 (45%)	**.000****	702 (53.4%)	377 (47%)	**.004****
		No	567 (45%)	470 (55%)		612 (46.6%)	425 (53%)	
	Puzzle	Yes	553 (43.9%)	525 (61.4%)	**.000****	691 (52.6%)	387 (48.3%)	.053
		No	708 (56.1%)	330 (38.6%)		623 (47.4%)	415 (51.7%)	
	Multiplayer Online Role Playing	Yes	545 (43.2%)	318 (37.2%)	**.006****	532 (40.5%)	331 (41.3%)	.722
		No	716 (56.8%)	537 (62.8%)		782 (59.5%)	471 (58.7%)	

Note: **= $p<0.01$, * = $p<0.05$

Table-3: Correlation between internet gaming disorder and time spent on gaming

Variables	I	II
Internet Gaming Disorder	1	
Time Spent Gaming	.236** (.000)	1

*Note: **= $p<0.01$, * = $p<0.05$*

Table-4: Correlation between internet gaming disorder and its motives (n=2116).

Variables	I	II	III	IV	V	VI	VII	VIII
Internet Gaming Disorder	1							
Social	-.088** (.000)	1						
Escape	-.074** (.001)	.140** (.000)	1					
Competition	-.037 (.090)	.305** (.000)	.137** (.000)	1				
Coping	-.009 (.691)	.049* (.025)	.294** (.000)	.146** (.000)	1			
Skill Development	-.003 (.908)	.230** (.000)	.158** (.000)	.350** (.000)	.198** (.000)	1		
Fantasy	-.047* (.029)	.231** (.000)	.281** (.000)	.152** (.000)	.298** (.000)	.298** (.000)	1	
Recreation	.048* (.027)	.132** (.000)	103** (.000)	.153** (.000)	.236** (.000)	.257** (.000)	.176** (.000)	1

*Note: **= $p<0.01$, * = $p<0.05$*

DISCUSSION

The aim of the study was to find the frequency of IGD and the most common motive for playing video games. The Cronbach's Alpha Reliability in this study was slightly lower (0.805) as compared to another study which comprised of three set of samples from three different countries. The reliability for Australia was 0.90, US was 0.91 and UK was 0.89.[19] According to a meta-analysis conducted to find the prevalence of IGD, where the outcome was Internet Gaming Disorder (and not computer games dependence or addiction/ problematic video gaming or game use/ video game dependence or addiction/ pathological video gaming/ problematic online gaming/ video arcade game addiction/ probable game addiction), the reported frequency of IGD in our study was similar to other studies[20] i.e., Rehbein *et al* reported 1.16%; Vadlin *et al* reported 1.3%; a survey conducted on European adolescents reported 1.6%; and King *et al* reported the prevalence to be 3.1%[21–24]. The frequency of IGD in our sample can be attributed to limited opportunities for constructive physical activities.

As compared to our study, where adventure, strategy and action genres were most popular, Donati *et al* reported action (88%), casual (86%) and sports (84%) to be the popular genres.[25] Another study by Na E *et al* showed real time strategy games to be the highest playing genre (30.6%), followed by Multiplayer Online Role Playing (29.9%) and sports (23.3%).[26]

Majority of the students classified with IGD were male in our study, which is similar to the findings of a meta-analysis where it was 6.8% for males and 1.3% for females.[20] Again, this can be linked to lack of opportunities for outdoor games leading to the popularity of video gaming among males in our society.

Similar to our study, Donati *et al* reported a significant positive correlation between time spent on gaming and Internet Gaming Disorder.[25]

In this study escape, followed by coping, competition and recreation were the most frequently reported motives for playing games; and significant positive correlation was found between recreation and IGD. Hilgard *et al* stated that escape and socializing were the most common motives related to pathologic play[27] and Laconi *et al* reported that problematic gamers had higher scores on social, escape, coping and fantasy motives and significantly positive correlation of all the motives with IGD[28]. Šporčić *et al*, in contrast to our study showed positive significance of IGD with all the motives, except recreation.[29] Our study shows that most of gamers either wanted escape from their daily life challenges or something to help them cope with stress while some of them played only for the sake of recreation and competing with friends, which might give them the relaxation amidst busy academic life.

AUTHORS' CONTRIBUTION

ZS & MI conceived the idea. ZS, ZS, UT did data collection and helped in the write-up of the study. MRS did statistical analysis and helped in the write-up of the study. MI planned the study, critically revised the manuscript and supervised the study. All authors contributed significantly to the submitted manuscript.

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Submitted: 15 April, 2019	*Revised: --*	*Accepted: 21 July, 2019*

Address for Correspondence:

Muhammad Irfan, Head, Department of Mental Health, Psychiatry & Behavioral Sciences, Peshawar Medical College, Riphah International University, Islamabad-Pakistan
Email: mirfan78@yahoo.com