

Original Research Article

Prevalence of internet gaming disorder among engineering student of engineering institute of Belagavi City, Karnataka, India

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ABSTRACT

Background: Today internet is reaching every corner of the world. This has created increase in games who play games online. Cases of suicide attempts, suicide death, self-harm allegedly have been reported from all parts of India. To estimate the prevalence of internet gaming disorder (IGD) among engineering students of engineering institute of Belagavi city.

Methods: 262 engineering students studying in Engineering Institute of Belagavi city were enrolled. Information on socio-demographic were collected by using questionnaire DSM-5 IGD-9 standard tools were used to estimate IGD prevalence. Data were analysed using SPSS software.

Results: Out of 262 participants, 77.9% were males and 22.1% were females. Prevalence of internet gaming disorder was 9.1% among engineering students.

Conclusions: Prevalence of internet gaming disorder was high among males, youths, low income class and who spent 3.5hr of time daily in gaming.

Keywords: Internet gaming disorder, Online gaming, Gaming addiction, Game, IGD-9, PUBG

INTRODUCTION

Today internet is reaching every corner of the world. This has created increase in mobile and computer users since past decades. These mobiles with internet has made an easy access to all types of information like movie, social media and game. Online game have become a popular entertainment activity not only for adults but also among children and adolescents. Worldwide most popular games are like: Garena free fire: winterlands, candy crush, call of duty, clash of clans, Pokémon go, and GTA 5. Among these all, play unknown battle ground (PUBG) has become popular game in this year. This game is free to download and play in both mobile and (personal desktop (PC)). The PUBG was launched for Android and IOS mobile on 09 February 2018.¹ It was reported in United States (U. S.) that 73% adolescents were enjoying using mobile games or PC games and similarity around 90% of South Korean

adolescents were playing games using PC and mobile on internet/online.²

Gaming disorder is defined in the 11th Revision of the international classification of diseases (ICD-11) as a pattern of gaming behavior (“digital-gaming” or “video-gaming”) characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences. For gaming disorder to be diagnosed, the behaviour pattern must be of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and would normally have been evident for at least 12 months.³

Broad research has been done to examine the negative effects of internet gaming disorder, especially in association with mental and physical health. In the specific, IGA were correlated with poor academic performance, increased aggression development, social-loneliness and anti-social behaviors or violent and dutifulness, poor psychological well-being. Behavioral addiction symptoms were shown in some heavy gamers, especially in Griffith's six bio psychosocial components model of addiction, along with withdrawal symptoms like alliance, tolerance, mood modification, conflict, and relapse. Prevalence of internet gaming disorder worldwide ranged from 1.2 to 14.6 percent approximately.⁴ In India the prevalence of internet gaming disorder (IGD) was 10% as per the study conducted in Kurnool, Andhra Pradesh, India.⁴

APA, 2013 (DSM-5) has considered Internet gaming disorder encompasses persistent and recurrent use of the internet in playing online games lead to clinically impairment and distress. It does not include problems with general use of internet such as use of social media and online gambling and purpose used of internet other than gaming.⁵ The criteria for a diagnosis of IGD suggested by five or more symptoms in a 12-months period is a criteria to diagnosis IGD. The proposed symptoms include preoccupation with online games, excessive playing games despite know about the psychological problems, withdrawal symptoms, loss of interests in untimely other activities such as entrainment, tolerance, unsuccessful attempts to minimize the play online games, having deceived someone regarding the amount of online gaming, play online games to escape with problem and or make relieve a negative mood, loss of relationship, job, and educational.⁶

Cases of suicide attempts, suicide, death, self-harm allegedly, and psychological disturbances are caused by gaming addiction in Youths. Many states have reported higher number of cases like Punjab, Karnataka, Andhra Pradesh, Gujarat, and West Bengal.⁷⁻¹¹ Most cases were reported after PUBG was banned. The government of India has also banned games PUBG since 02 September 2020, but some players playing PUBG by using a virtual private network (VPN) or alternate version like the Korean version.¹² We have taken up this study with an objective to estimate the prevalence of IGD among engineering students of engineering institute of Belagavi city.

METHODS

In this cross-sectional study a total 262 engineering student in Engineering Institute of Belagavi city were enrolled and were surveyed, and the individuals who played online/offline game last 12 month were interviewed from September 2019–March 2021. The sample size was determined using the formula for infinite population at large developed by Cochran in 1963 which is given below.

$$n = (Z^2pq)/d^2$$

Taking 10% of the sample size as a sampling error the final sample size was 264. Proportionate sampling method in 3 Engineering colleges of Belagavi city. On each college sample selected by snowball technique. Approval of institutional review board was taken. Prior to data collection ethical clearance was obtained from ethical committee of JNMC, KAHER, Belagavi.

Inclusion criteria

Undergraduate Engineering students and those who were using game for last one year.

Exclusion criteria

Students who didn't give informed consent were excluded.

Data collection tools

A pre tested standard questionnaire and consisted questions regarding socio-demographic details.

IGD-S9 are answered using a 5-point Likert scale: 1–strongly disagree, 2–disagree, 3–neither agree or disagree, 4–agree, 5–strongly agree and total scores were ranged from 9 to 45 with higher scores being indicative of higher degrees of gaming disorder.¹³ Minimum cut-off of 36 out of 45 points was used to determine disorder or non-disorder gamer.¹⁴

Data collection procedures

The study was conducted on undergraduate engineering student of engineering institute of Belagavi city. Jain College of Engineering, SG Balekundri Institute of Technology, and KLS Gogte Institute of Technology was taken, these institute conducting offline classes other engineering college was ban offline class they were conducting online classes due to COVID-19 pandemic. After obtaining the permission from the respective college authorities, the participants were briefed about the study. Informed consent was taken from the students.

Statistical analysis

Data collected was tabulated into Microsoft excel 2016 and statistical analysis was done using IBM statistical package for the social sciences (SPSS) software version 22 for Windows (New York, USA) for statistical measures such as frequency and percentage i.e. mean and mean percentage are used.

Ethical approval

Ethical clearance from Institutional Ethics Committee (I.E.C) of JNMC, KLE Academy of Higher Education and Research, Belagavi.

RESULTS

All 262 participants were playing PUBG and participants were using mobile device for play games. Table 1 shows the distribution of 262 Students according to their age in completed years, 87 (33.2%) of them were in age group of adolescents, 175 (66.80%) were in the age group of Youths. Out of 262 students majority 204 (77.66%) were males and 58 (22.1%) were females. Majority 246 (93.90%) were Hindu, 14 (5.3%) were Muslim and 2 (8%) were Christian. Majority 141 (53.8%) were 1 yr students and 121 (46.2%) were 2 yr students. 188 (71.8%) students were from nuclear family, 60 (22.9%) students were from Joint family and 14 (5.3%) students were from Extended family. 156 (59.5%) spent 3-4 hr in games, 61 (23.3%) spent 1-2 hr, and 45 (17.2%) spent 5-6 hr in games. Students spent money monthly on games which ranged from Rs. 100-3000. Majority students (42.7%) spent money on games Rs. 100-1000, and (31.3%) spent money on games Rs. 1000-2000, and (1.5%) spent money on games Rs. 2000 to 3000, and (24.4%) student did not spent money on games. (32.4%) students were drinking alcohol during playing games and 177 (67.6%) didn't drink alcohol while playing games. (69.5%) watched gaming videos on YouTube, (19.8%) watched gaming videos on Facebook and (10.7%) watched gaming videos on Twitch.

Prevalence of internet gaming disorder by DSM IGD-S9 and characteristics

Table 2, shows as per DSM-5, the IGD-S9, 24 (9.1%) students were diagnosed to have IGD. The prevalence of IGD as per IGD-9 was found (9.1%) among students. Prevalence of internet gaming disorder was high majority were males 20 (83.3%) as compared to females 4 (16.7%). Prevalence of IGD was high among youths 15 (62.5%) compared to adolescence 9 (37.5%). IGD was high among those studying in 1st year 13(54.1%) as compared to 2nd year 11 (54.9%). IGD was higher in nuclear 17 (70.8%) as compared to joint family 4(16.7%) and extended 3 (12.5%). IGD was higher in 1st year students 13 (54.1%) as compared to 2nd year students 11(45.9%). IGD higher in low-income class 13 (54.1%) Rs. 5000-35000 - as compared to 9(37.6%) Rs. 35000-75000, 2(8.3%) Rs.75000-100000. IGD higher among those who time spent 3-4 hr of time 14 (58.3%) on playing videos gaming per days as compared to 1-2 hr of time 6 (25%) on playing videos gaming per days and 5-6hr of time 4 (16.7%). IGD higher among those who spent money on games per month Rs. 2000-3000 - 11(45.9%) as compared to 4 (16.%) spent money on games per month Rs. 1000-2000 and 9 (37.5%) no money spent on gaming. IGD higher among those who

did not drink alcohol playing games 18 (75%) as compared to those who drink alcohol during play games 6 (25%). IGD higher among those who watching gaming videos on YouTube 18 (75%) as compared to watching gaming videos on Facebook 4 (16.7%) and watching gaming videos on Twitch 2 (8.3%).

Table 1: Distribution of study participants according to age, gender, religion, year and family.

Variables	Percentage
Age (years)	
Adolescent	87 (33.2)
Youths	177 (66.8)
Gender	
Male	204 (77.6)
Female	58 (22.1)
Religion	
Hindu	246 (93.9)
Muslim	14 (5.3)
Christian	2 (0.8)
Year	
1	141 (53.80)
2	121 (46.2)
Type of family	
Nuclear	188 (72.8)
Joint	60 (22.9)
Extended	14 (5.3)
Family income (monthly)	
5000-35000	180 (68.7)
35000-75000	55 (21.)
75000-100000	21 (8)
100000-200000	6 (2.3)
Time spent on games (hours)	
1-2	61 (23.3)
3-4	156 (59.5)
5-6	45 (17.2)
Money spent on game (monthly) Rs.	
No	64 (24.4)
100-1000	112 (42.7)
1000-2000	82 (31.3)
2000-3000	4 (1.5)
Drink alcohol during game play	
Yes	85 (32.4)
No	177 (67.6)
Watching gaming videos online	
YouTube	69.5
Facebook	19.8
Twitch	10.7

Table 2: Comparison of characteristics of internet gaming disorder group with the non-internet gaming disorder group.

Variables	IGD group (n=24; 9.1%), N (%)	Non-IGD group (n=238; 90.9%), N (%)
Age (years)		
Adolescence	9 (37.5)	78 (32.8)
Youths	15 (62.5)	160 (67.2)

Continued.

Variables	IGD group (n=24; 9.1%), N (%)	Non-IGD group (n=238; 90.9%), N (%)
Gender		
Male	20 (83.3)	184 (77.3)
Female	4 (16.7)	54 (22.7)
Religion		
Hindu	23 (95.9)	223 (93.9)
Muslim	1(4.1)	13 (5.4)
Christian	0	2 (0.9)
Year		
1	13 (54.1)	108 (45.3)
2	11 (45.9)	130 (56.7)
Type of family		
Nuclear	17 (70.8)	171 (71.8)
Joint	4 (16.7)	56 (23.5)
Extended	3 (12.5)	11 (4.7)
Family monthly income		
5000-35000	13 (54.1)	167 (70.1)
35000-75000	9 (37.6)	46 (19.3)
75000-100000	2 (8.3)	19 (8)
100000-200000	0	6 (2.6)
Time spent on video gaming per day (hours)		
1-2	6 (25)	55 (23.1)
3-4	14 (58.3)	142 (59.7)
5-6	4 (16.7)	41 (17.2)
Money spent on games monthly		
No money spent on games	9 (37.5)	54 (22.7)
100-1000	4 (16.6)	108 (45.3)
1000-2000	11 (45.9)	71 (29.9)
2000-3000		5 (2.1)
Drink alcohol during games play		
Yes	6 (25)	78 (32.8)
No	18 (75)	160 (67.2)
Watching gaming videos online		
YouTube	18 (75)	164 (68.9)
Facebook	4 (16.7)	48 (20.1)
Twitch	2 (8.3)	26 (11)

DISCUSSION

In our study, it was found that 175 (66.80%) students were in age group of 20-25 years, 87 (33.2%) in age group of 18-29 years. Majority of the participants were in age group of 20-25 years because study was conducted among under graduate students. In our study, 204 (77.66%) male and 58 (22.1%) females were participated. A similar study was conducted in Kurnool Medical College, Kurnool in March 2019 among 1 year and 2 year, MBBS medical students where their age group were 17-22 years. Mean age of respondents was 18.86 (± 1.08) years. Majority of study participants were males (77.8%) and only 22.2% of the respondents were females.⁴

In our study, the prevalence of IGD as per IGD-9 was found to be 9.1%, among engineering students of engineering institute of Belagavi city which is slightly higher than the prevalence (9%) reported in the study conducted in Christian Medical College and Christian

Dental College, Ludhiana and lesser than the prevalence (10%) reported in Kurnool, Andhra Pradesh, India.^{4,14}

In our study, it was found that 61 (23.3%) students spent time on videos games played 1-2 hours, 156 (59.5%) students played 3-4 hours, and 45 (17.2%) students played 5-6 hours. A similar study was conducted in Kuwait in 2019, among Kuwait adolescents. Majority of study of participants, 167 (67.6%) spent 1-4 hours time on playing online games.⁶

In our study, 69% students were watching gaming videos on YouTube, 19.8% were watching gaming videos on Facebook and 10.7% watching gaming videos on Twitch. A study conducted in Italy revealed that 69.2% participants used internet on regular used for playing online video gaming and 53.1% on social networks.¹⁷

In the present study, it was found that spent money on game (monthly), 64 (24.4%) students did not spent money

on game, 112 (42.7%) students spent Rs. 100-1000, and 82 (31.3%) students spent Rs. 1000-2000, and 4 (1.5%) students spent Rs. 2000-3000. A study conducted in Hong Kong found that 3.6% participants HK\$ 500 (Rs. 4751.9) on games and 9.0% spent money HK\$ 200-500 (Rs. 1900.76-4751.9) each month on game.¹⁹

Limitation

At the time when study was conducted, world was battling with COVID-19 and many students did not attend class/college in fear. So, this study may not be generalized.

CONCLUSION

Our study concludes that overall prevalence of internet gaming disorder was 9.1% among engineering students of engineering institute of Belagavi city. Prevalence of internet gaming disorder was high among males, youths, low income class and who spent 3.5hr of time daily in gaming.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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ANNEXURE

Questionnaire

DSM-5 IGD-S9	Strongly disagree or disagree (%)	Neither agree nor disagree (%)	Agree or strongly agree (%)
Do you feel preoccupied with your gaming behavior?	75 (28.6)	36 (13.7)	151 (57.6)
Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?	70 (26.7)	43 (16.4)	149 (56.8)
Do you feel the need to spend increasing amount of time engaged gaming in order to achieve satisfaction or pleasure?	59 (22.5)	44 (16.8)	159 (60.6)
Do you systematically fail when trying to control or cease your gaming activity?	74 (28.2)	39 (14.9)	149 (56.8)
Have you lost interests in previous hobbies and other entertainment activities as a result of your engagement with the game?	70 (26.7)	36 (13.7)	156 (59.4)
Have you continued your gaming activity despite knowing it was causing problems between you and other people?	46 (17.6)	47 (17.9)	169 (64.5)
Have you deceived any of your family members, therapists or others because the amount of your gaming activity?	53 (20.2)	49 (18.7)	160 (61)
Do you play in order to temporarily escape or relieve a negative mood (e.g. helplessness, guilt, anxiety)?	38 (14.5)	55 (21)	169 (64.5)
Have you jeopardized or lost an important relationship, job or an educational or career opportunity because of your gaming activity?	44 (16.8)	52 (50.4)	166 (63.3)