Original Research Article

Prevalence of internet gaming disorder in India: a technological hazard among adolescents

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ABSTRACT

Background: Internet gaming disorder (IGD) refers to the problematic use of on-line or off-line video games. Presently the prevalence of IGD among the adolescent group was between 1.3% to 19.9% and males reported more prevalence than females. Aims of this study was to know the prevalence and the various factors associated with the development IGD among adolescents.
Methods: Settings and Design was to a cross sectional study was conducted among students of High schools for a period of 3 months from July 2018 - September 2018. Four hundred adolescent students were included in the study. English version of the DSM–5 short (9-item) dichotomous scale with cut-off point of five or more criteria was used for diagnosing the IGD.Statistical analysis used descriptive statistics were represented with frequencies and percentages. Chi-square and Fisher Exact tests were applied to find significance difference. P<0.05 was considered as statistically significant.
Results: An overall prevalence estimate of IGD was 3.50% among the school children and it is higher among male students (8.8%) than female students (0.8%) and it was found statistically significant with a p value of <0.001.
Conclusions: The prevalence differences between Age groups, gender, class of the student and availability of smart phone with internet facility act as an important risk factors for the occurrence of IGD among adolescents.

Keywords: Adolescents, High school students, American psychiatric association, Diagnostic and statistical manual of mental disorders, Internet gaming disorder

INTRODUCTION

According to world health organization out of 7.2 billion people worldwide, over 3 billion are younger than 25 year, making up 42% of the world population. Around 1.2 billion of these young people are adolescents aged between 10 and 19 years.[1] The most active adopters of the Internet and modern technologies have been adolescents and young adults, reflecting the fact that they have grown up in an environment with a well-developed Internet. The Diagnostic and Statistical Manual for Mental Disordersintroduced the concept of internet gaming disorder for the first time in its fifth revision (DSM-5) in 2013.

Internet gaming disorder (IGD) refers to the problematic use of on-line or off-line video games. It is defined as persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress as indicated by five (or more) of the nine criteria in a 12-month period.[2] Presently the prevalence of IGD among the adolescent group was between 1.3% and 19.9% and males reported more prevalence than females.[3] IGD is 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. It was found a strong association between problematic gaming and decreased psychosocial well-being and low school performance.[4] There is a paucity of knowledge regarding the prevalence of IGD in India and usage of internet is exponentially increasing day by day our country. Successful prevention depends on the knowledge of the cause and identification of risk factors and risk groups. So present study was conducted to know the prevalence and the various factors associated with the development IGD among adolescent.

METHODS

Ethical considerations

Ethical clearance was obtained from institutional ethical committee prior to the start of study. Permission from the school authorities was taken after explaining the importance of the study. Data was collected after obtaining the written consent form the parents of the study participants.

Type of study: Type of study was observational study.

Study design: Study design was cross sectional.

Study setting: Study was conducted in the field practice area under the Department of Community Medicine, Dr. Pinnamaneni SIMS&RF, Andhra Pradesh for a period of 3 months from July 2018 - September 2018.

Study population: Study population were adolescents.[5] World Health Organization (WHO) defined adolescent as a person aged 10-19 years. Young adolescent refers to 10-14 year olds, while older adolescent refers to 15-19 year olds. In the present study, school children studying 6th to 10th class in the high schools were included in the study.

Sample size: Sample size data was obtained from a convenient sample of 400 high school children.

Selection criteria

Step 1 - Selection of schools: Among 4 High schools present in the field practice area were selected by simple random sampling method.

Step 2 - Deciding number of students from each school: From each school 100 students were included in the study.

Step 3 - Selection of children from each class: From each class 20 students were selected by systematic random sampling.

Exclusion criteria: Parents of the students who were not willing to give consent for the study were excluded.

Data collection procedure and instruments used

After brief introduction regarding the study and questionnaire, students are invited to complete the questionnaire for diagnosing the IGD developed by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), 2013 which was a self-administered questionnaire.[2]

Questionnaire contains two parts

- *Part A:* Socio-demographic details of the participants like age, gender, year of study, parent's education and occupation.
- *Part B:* The English version of the DSM–5 short (9-item) dichotomous scale.[2,6]

Diagnosis of IGD:[2]

The DSM-5 cut off point of five or more criteria was used.

Confidentiality

Questionnaire does not contain any identification details of the student and confidentiality will be maintained throughout the study.

Statistical tools

Data were entered in MS - Excel and analyzed by using SPSS software V 16.0. Descriptive statistics were represented with frequencies and percentages. Chi-square and Fisher Exact tests were applied to find significance. P<0.05 was considered as statistically significant.

RESULTS

In the present study prevalence of IGD was 3.50% among the school children. Table:2 shows the socio-demographic characteristics of study participants, IGD was identified more among male students (8.8%) and higher grade students (7.5%).which is statistically significant with a p value of <0.05.
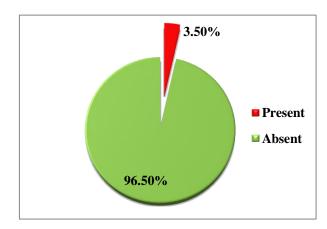

Figure 1: Prevalence of IGD.

Table 1: Twelve-month prevalence estimates of DSM-5 IGD.

Variables	Prevalence of IGD	Percentage (%)	95% CI
Gender	Female	0.8	0.2%-2.7%
	Male	8.8	5.1 %-14.7%
Residence	Rural	2.2	0.6%-7.7%
	Urban	3.9	2.2%-6.7%
Class	VI	0	0%
	VII	1.30	0.2%-6.8%
	VIII	2.50	0.7%-8.9%
	IX	6.30	2.9%-14.9%
	X	7.50	3.8%-16.6%

Table 2: Differences in demographic characteristics of students based on IGD status.

Variables	Category	IGD-Yes		IGD-No		Chi-square	P value
		Count	%	Count	%		
Class	VI	0	0	80	100	13.06	0.005
	VII	1	1.3	79	98.7		
	VIII	2	2.5	78	97.5		
	IX	5	6.3	75	93.7		
	X	6	7.5	74	92.5		
Residence	Rural	2	2.2	89	97.8	-	0.75
	Urban	12	3.9	297	96.1		
Age in years	11	0	0.0	78	100.0	11.1	0.03
	12	1	1.3	79	98.8		
	13	2	2.5	78	97.5		
	14	4	4.9	77	95.1		
	15	7	8.6	74	91.4		
Gender	Female	2	0.8	261	99.2	-	<0.001
	Male	12	8.8	125	91.2		

DISCUSSION

Prevalence of IGD

This study found that overall 12-month prevalence estimates of internet gaming disorder (IGD) was 3.50% among the school children. Various studies in the last decade demonstrated prevalence of IGD among adolescents using various questionnaires between 1.3% - 19.9%.[3]

Similar results were published by Strittmatter et al (3.6%), Pápay et al (4.6%), Desai et al (4.9%) and Lemmens et al (5.4%). In contrast higher prevalence rates were reported by Lopez-Fernandez et al (14.6%) and Király et al (11%).[8-12]

When compared with developed countries even though computers and phones available, usage internet facility is less and it is gradually increasing in our country, low prevalence in the present study might be attributed to this.

Prevalence by factor

Age

Prevalence of IGD was more among higher grade students (7.5%). The prevalence differences between age groups was found statistically significant with p value 0.03. In the study done by Lemmens JS et al, the prevalence of gaming disorder among young adults was higher than the prevalence of IGD among adolescents but this was not statistically significant.[13]

But Johansson et al Mentzoni et al and Wittek et al in their studies they found that younger age were associated with an increased prevalence of IGD.[14-16]

Increasing age has an impact on IGD as with age comes the knowledge regarding different genres of games and internet usage.

Table 3: Differences in demographic characteristics of students based on IGD status.

Variable	Category	IGD status				Chi-square	P value
		Yes		No			
		Count	%	Count	%		
Religion	Christian	2	8.0	23	92.0	1.98	0.37
	Hindu	12	3.3	351	96.7		
	Muslim	0	0	12	100.0		
Father education	Primary	0	0	25	100.0	3.43	0.49
	Secondary	2	5.6	34	94.4		
	Inter	0	0	48	100.0		
	UG	6	4.2	137	95.8		
	PG	6	4.1	142	95.9		
Mothers education	Primary	0	0	34	100.0	1.91	0.75
	Secondary	2	3.8	51	96.2		
	Inter	3	3.4	84	96.6		
	UG	6	4.8	120	95.2		
	PG	3	3.0	97	97.0		
Fathers occupation	Agriculture	1	2.3	42	97.7	0.38	0.83
	Business	6	4.1	139	95.9		
	Employee	7	3.3	205	96.7		
Mothers occupation	Agriculture	0	0	1	100.0	3.15	0.37
	Business	1	11.1	8	88.9		
	Employee	1	1.2	85	98.8		
	Home maker	12	3.9	292	96.1		
Availability of computer	No	8	4.0	193	96.0	-	0.79
	Yes	6	3.0	193	97.0		
Availability of smart phone	No	2	25.0	6	75.0	-	0.03
	Yes	12	3.1	380	96.9		

Gender

The prevalence of IGD was higher among males' students (8.8%) than among female students (0.8%) and found statistically significant with a p value of <0.001. All most majority of the studies reported similar finding of high male prevalence like Lemmens et al (6.8%), Müller et al (3.1%), Rasmussen et al (3.9%), Vadlin et al (2.9%). Dreier et al (5.7%), Desai et al (5.8%).[9,10,17-20] For female prevalence similar results were shown by Johansson et al (1.1%), Rehbein et al (0.3%), Rasmussen et al (1.7%).[14,18,21]

From the studies it is evident that gender act as an important non modifiable risk factor for IGD. Males tend to play more games than females as video games are marketed more towards boys than females, there are not many games that attract girls.

Along with that the interests of girls are more varied they have multitude of hobbies and indulge in household activities.

Class

In the present study it was found that Internet gaming disorder was more in the higher classes when compared to lower classes. This result was statistically significant with p value <0.005. As the students promoted to higher classes along with age comes the knowledge, understanding and curiosity to unveil the newer things might be responsible.

Residence

Residence of majority of the study participants with IGD was from urban area i.e., 86% whereas the rest 2 (14%) were from rural area.[12]

This result was not statistically significant. The psychosocial environment of has a great impact over the lifestyles of children, urban children because of geographical constraints tend to stay more at home and involved in multimedia, on the other hand the chances of outdoor gaming is more among rural children.

Religion

Internet gaming disorder was found to be high among those who belong to Hindu religion followed by Christian religion. This might be due to presence of large proportion of Hindu (90.7%) students in the study. But this was not statistically significant p value 0.37

Parent's education

Higher education among parents was observed as a factor among children with IGD.[12] Same was observed with regard to mother's education where 12 (85.71%) out of 14 with internet gaming disorder their mother's education was beyond intermediate. This result was not statistically significant. The chances of using modern technology and gadgets increases with increased literacy this might be the reason for this finding.

Parent's occupation

Among 14 students who presented with internet gaming disorder, 7 (50%) and 6 (42.86%), their father's occupation was employee and business respectively. Amount of time spent with children, supervising the activities of children will be difficult for working parents and those involved in business. In contrary to this, among the majority with internet gaming disorder their mothers were home maker 12 (85.71%). This finding was not statistically significant with p<0.005

Availability of computer with internet

Those with internet gaming disorder, majority of them did not possess a computer at home whereas 6 (42.86%) have computer at home. This result was not statistically significant.

Availability of smart phone with internet

12 (85.71%) out of 14 with internet gaming disorder possess a smart phone. This result was statistically significant with p<0.05. Smart phones are the great gadgets for making the kids busy and quiet.

Parents use it to make kids behave, sit quietly, for eating food and even go in to potty. Availability of smart phones at younger age has definitely affect the health and development of children.

Limitations of the study was to sample was restricted to adolescent students in the age group of 11-15 years only.

Data regarding some of the variables like academic performance, social competence and types of games were not studied.

CONCLUSION

This study found that overall 12-month prevalence estimates of IGD was 3.50% among the school children.

This finding was supported by the various studies. When compared with developed countries usage of internet facility is less and it is gradually increasing in our country, low prevalence in the present study might be attributed to this. From this study it is evident that the prevalence differences between age groups, gender, class of the student and availability of smart phone with internet facility were found statistically significant with a p<0.005. They act as an important risk factors for the occurrence of IGD among adolescents. For other factors like place residence, religion, parent's education, parent's occupation and availability of computer with internet the differences among the two groups was not statistically significant.

This study explains the possibility of detection of IGD early by using DSM-5 scale. Active screening must be done for early diagnosis and treatment. Behaviour change communication and education must be provided to prevent the occurrence of IGD.

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