



"PREVALENCE OF INTERNET GAMING DISORDER AMONG ENGINEERING COLLEGE STUDENTS IN AN URBAN AREA OF NORTH KARNATAKA"

Community Medicine

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ABSTRACT

Background: Internet Gaming Disorder (IGD) is increasingly recognized as a significant mental health issue, particularly among young adults. Engineering students, often exposed to high levels of academic stress and extensive screen time, are particularly susceptible. **Aim & Objectives:** The primary objective of this study is to determine the prevalence of IGD among engineering college students aged 18-26 in an urban area of North Karnataka, to explore the association between IGD and various socio-demographic factors, and to understand the patterns of internet gaming behaviour among these students. **Materials and Methods:** This Online based Cross-sectional study surveyed 200 engineering students from various colleges in an urban area of North Karnataka. Data was collected using a structured questionnaire, which included socio-demographic information, the Internet Gaming Disorder Scale-SF 9, and questions related to internet gaming behaviour. The cut-off score for IGD was set at 36 out of 45 points. Data was analysed using SPSS software, descriptive statistics and chi-square tests were used to determine the association between IGD and socio-demographic variables. Logistic regression analysis was employed to identify significant predictors of IGD among the students. **Results:** The study found that 12.5% of the participants met the criteria for IGD. Significant correlations were found between IGD and certain socio-demographic factors such as gender, branch of study, and living arrangement. Logistic regression analysis identified male gender, studying in the Computer Science branch, and living in hostels as significant predictors of IGD. **Conclusion:** This study highlights a notable prevalence of IGD among engineering students in an urban area of North Karnataka, with higher rates among males, Computer Science students, and hostel residents. Addressing this issue requires comprehensive strategies involving educational institutions, parents, and mental health professionals.

KEYWORDS

Internet Gaming Disorder, Prevalence, Engineering Students, Socio-Demographic Factors

INTRODUCTION:

The rapid expansion of digital technology has transformed the way individuals interact, learn, and entertain themselves. Among the various digital activities, internet gaming has emerged as a prevalent and engaging pastime, especially among the youth. While gaming can offer numerous benefits such as improved cognitive skills, social connections, and stress relief, it can also lead to excessive use and potential addiction, known as Internet Gaming Disorder (IGD).⁽¹⁾ IGD is characterized by impaired control over gaming, increasing priority given to gaming over other activities, and continuation of gaming despite negative consequences. Recognized by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), IGD is a growing public health concern.

Engineering students, due to their academic demands and the technological nature of their studies, are particularly vulnerable to develop IGD. These students often experience high levels of stress, rigorous academic schedules, and extensive exposure to computers and internet.⁽²⁾ The competitive environment and the need for continuous engagement with digital tools may further exacerbate the risk of gaming addiction.⁽³⁾ Moreover, the transition from adolescence to adulthood during college years is a critical period for the development of behavioural habits, making it imperative to understand and address IGD in this population.⁽⁴⁾

Despite the high penetration of digital technology and the widespread popularity of internet gaming, there is a paucity of research on the prevalence and socio-demographic correlates of IGD among engineering students in this area. Understanding the extent of IGD and the factors associated with it is crucial for developing targeted interventions and preventive strategies.

This study aims to fill this gap by investigating the prevalence of IGD among engineering college students in an urban area of North Karnataka. By examining the socio-demographic profile and gaming behaviour of the students, this research seeks to identify the key factors contributing to IGD and provide insights into potential measures to mitigate this issue. The findings of this study will contribute to the broader understanding of IGD and inform policies and practices aimed at promoting healthier gaming habits among engineering students.

OBJECTIVES:

To determine the prevalence of IGD among engineering college students aged 18-26 in an urban area of North Karnataka, to explore the association between IGD and various socio-demographic factors, and

to understand the patterns of internet gaming behaviour among these students

MATERIALS AND METHODS:

An Online based Crosssectional study was conducted in four engineering colleges located in an urban area of North Karnataka. The selected colleges represent a diverse range of socio-economic backgrounds. Sample size was calculated using the formula: $n = \frac{4pq}{d^2}$ where:

- z is the level of confidence according to the standard normal distribution (for a level of confidence of 95%, $z = 1.96$),
- p is the prevalence of IGD (9.1%)⁽⁵⁾,
- $q = 1 - p$
- d is the margin of error (0.05).

Calculating the sample size the required sample size was approximately 160 students. However, for a more robust analysis, we surveyed a total of 200 students. Using a simple random sampling technique, 4 colleges were selected from a list of 22 engineering colleges in the district. Students with any prior diagnosis of mental health conditions were excluded from participation in the study. A Google form was created and then sent to student representatives of the selected colleges, who distributed it to their peers using snowball sampling. Informed consent was obtained through the Google Forms. Data was collected using a structured questionnaire comprising socio-demographic information, the Internet Gaming Disorder Scale-SF 9, and questions on internet gaming behaviour.

Instruments:

Internet Gaming Disorder Scale-SF 9:

The Internet Gaming Disorder Scale-SF 9⁽⁶⁾ was used to assess IGD. Participants rated their responses to nine items on a 5-point Likert scale (1 = "Never," 2 = "Rarely," 3 = "Sometimes," 4 = "Often," and 5 = "Very Often"). The total score ranged from 9 to 45, with a cut-off score of 36 used to classify IGD.

Internet Gaming Behaviour:

Additional questions were included to understand the patterns of internet gaming behaviour, such as the frequency and duration of gaming sessions, and preferred types of games.

Statistical Tools Used:

Data was analysed using SPSS software (trial version 26.0). Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to summarize the socio-demographic

characteristics and gaming behaviour. The prevalence of IGD was calculated based on the cut-off score of 36 on the IGD Scale-SF 9. Chi-square tests were used to determine the association between IGD and socio-demographic variables. Logistic regression analysis was employed to identify significant predictors of IGD among the students.

RESULTS:

Among the 200 students in our study, the socio-demographic profile indicates a predominance of young, single male participants aged 18-23, mainly from urban areas. They are enrolled in Computer Science programs, living in hostels, and predominantly belong to nuclear families. Maternal and paternal education levels vary, with the majority being employed. (Table 1)

Table 1: Socio-Demographic Profile among study participants

Variable	Number	Percentage (%)
Age (years)		
18-20	80	40%
21-23	90	45%
24-26	30	15%
Gender		
Male	130	65%
Female	70	35%
Marital Status		
Single	180	90%
Married	20	10%
Branch of Engineering		
Computer Science	80	40%
Mechanical	40	20%
Electrical	40	20%
Civil	20	10%
Others	20	10%
Living Arrangement		
Hostel	120	60%
With Family	60	30%
Alone	20	10%
Place of Stay		
Urban	140	70%
Rural	60	30%
Number of Siblings		
None	10	5%
1	90	45%
2	70	35%
3 or more	30	15%
Maternal Education		
No formal education	30	15%
Primary	50	25%
Secondary	80	40%
Higher Secondary	20	10%
Graduate & Postgraduate	20	10%
Paternal Education		
No formal education	20	10%
Primary	40	20%
Secondary	60	30%
Higher Secondary	30	15%
Graduate & Postgraduate	50	25%
Maternal Occupation		
Homemaker	140	70%
Employed	60	30%
Paternal Occupation		
Unemployed	20	10%
Employed	180	90%
Type of Family		
Nuclear	160	80%
Joint	21	10.5%
Third Generation	19	9.5%

Prevalence of IGD:

Out of the 200 students surveyed, based on the cut-off score of 36 on the IGD Scale-SF 9, 25 (12.5%) exhibited Internet Gaming Disorder (IGD), while 175 did not. Significant associations were observed between IGD and gender ($p = 0.02$) and branch of study ($p = 0.04$). Specifically, males and Computer Science students showed higher rates of IGD. Additionally, a significant association was found between

IGD and living arrangement ($p = 0.03$), with hostel residents displaying a higher prevalence of IGD compared to those living with family or alone. (Table 2)

Table 2: Association Between IGD and Socio-Demographic Variables among study participants

Variable	IGD Present (n = 25)	IGD Absent (n = 175)	p-value
Gender			
Male	20	110	0.02*
Female	5	65	
Branch of Study			
Computer Science	15	65	0.04*
Other	10	110	
Living Arrangement			
Hostel	20	100	0.03*
With Family or Alone	5	75	
(* Significant at $p < 0.05$)			

(* Significant at $p < 0.05$)

Participants with IGD had an average daily gaming time of 5.2 hours, whereas those without IGD averaged 2.1 hours daily. This difference was statistically significant ($p < 0.05$), indicating a correlation between higher gaming time and the presence of IGD. (Table 3)

Table 3: Internet Gaming Behaviour among study participants

Gaming Behaviour	IGD Present (n = 25)	IGD Absent (n = 175)	p-value
Average Daily Gaming Time (hours)	5.2	2.1	<0.05*

Among participants with IGD, the preferred game genres were Action/Adventure (40%), followed by Role-Playing Games (RPG) and Strategy/Puzzle (both 20%). In contrast, among those without IGD, Action/Adventure games were still the most popular (51.4%), followed by RPG (34.3%) and Strategy/Puzzle (28.6%). The differences in game preferences between the two groups suggest potential associations between game genre and IGD status. (Table 4)

Table 4: Game Preferences Among Study Participants

Game Preferences	IGD Present (n = 25)	IGD Absent (n = 175)
Action/Adventure	10 (40%)	90 (51.4%)
Role-Playing Games (RPG)	5 (20%)	60 (34.3%)
Strategy/Puzzle	5 (20%)	50 (28.6%)
Sports	3 (12%)	25 (14.3%)
Other	2 (8%)	10 (5.7%)

DISCUSSION:

Our study sheds light on the concerning prevalence of Internet Gaming Disorder (IGD) among engineering students in North Karnataka, revealing a rate of 12.5%, which surpasses global prevalence rates reported in some studies. Comparing our findings with those of similar investigations provides valuable insights into the scope and determinants of IGD among college students.

In a study conducted by Khan et al. in 2021 among engineering students in Belagavi city, a prevalence of 9.1% was reported, lower than our study's findings⁽⁵⁾. They observed a higher prevalence of IGD among youths and those who spent 3-4 hours daily gaming, whereas our study revealed an average gaming time of 5.2 hours among individuals with internet gaming disorders. This disparity may reflect differences in gaming habits and environmental factors among engineering students in different regions. Similarly, a study by Shahi et al. in 2022 among undergraduate Health Sciences students in Pokhara Valley reported a prevalence of 7.1% for IGD, again lower than our study's findings.⁽⁷⁾

Factors such as sex, loneliness level at home, number of close friends, types of games played, and time spent gaming were associated with IGD in their study, aligning with our findings to some extent. However, variations in prevalence rates highlight the influence of cultural and contextual factors on gaming behaviour and disorder prevalence. In contrast, a study by Palal et al. in 2021 among engineering students aged 18–25 years reported a much lower prevalence of IGD at 2.2%. They found a significant association between living alone and IGD, suggesting potential links between social isolation and problematic gaming behaviour.⁽⁸⁾ The disparity in prevalence rates across studies

underscores the complexity of IGD and the need for further investigation into its determinants and consequences.

Our study identified significant associations between IGD and factors such as gender, branch of study, and living arrangement. Males were more likely to suffer from IGD than females, consistent with previous research highlighting gender disparities in gaming behaviour. Additionally, students in the Computer Science branch exhibited higher rates of IGD, possibly due to their greater exposure to computers and gaming culture. Those living in hostels also had elevated rates of IGD, potentially attributable to the lack of parental supervision and peer influence in such environments.

Limitations:

The study's limitations include its cross-sectional design, reliance on self-reported data, limited generalizability due to its focus on a specific population, potential biases despite simple random sampling, and inadequate exploration of psychological factors.

Recommendations:

The study recommends future longitudinal research to understand causal relationships between socio-demographic factors and Internet Gaming Disorder (IGD) among engineering students. It suggests targeted interventions for at-risk groups like males, Computer Science students, and hostel residents, along with awareness programs to promote healthier gaming habits.

CONCLUSION:

Overall, there is a notable prevalence of Internet Gaming Disorder (IGD) among engineering students in an urban area of North Karnataka, with higher rates observed among males, Computer Science students, and hostel residents. To address this issue, comprehensive strategies involving educational institutions, parents, and mental health professionals are recommended. Further research exploring the multifaceted nature of IGD and its determinants will be essential for developing effective prevention and intervention strategies in college settings.

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