

Digital Immersion, Social Withdrawal, and Sleep Quality: Dynamics in Dental Undergraduates' Well-being.

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Abstract

Background: College students are susceptible to internet and gaming addictions with serious repercussions. In this research study, we explored the susceptibility of college students, particularly those pursuing dental education, to internet and online gaming addiction, which can lead to severe social withdrawal.

Objectives: This research seeks to assess the frequency of internet and gaming addiction, hikikomori traits, and insomnia among dental students, exploring their connections with diverse determinants.

Methods: From August to October 2023, we researched dental students after getting approval. We handed out a detailed survey to 206 participants, exploring their internet and gaming habits, social withdrawal tendencies, insomnia, and other relevant factors.

Results: Preliminary findings revealed that the dental student population, aged 18 to 25 years, exhibited a notable prevalence of mild internet addiction in 29% of participants, while 69% displayed normal levels of addiction. Intriguingly, none of the participants exhibited severe dependence on internet gaming. Moreover, 16% of individuals experienced a moderate level of clinical insomnia, indicating a noteworthy presence of sleep disturbances. Furthermore, 47% showed hikikomori traits, indicating significant social withdrawal.

Conclusion: This study sheds light on the vulnerability of dental students to milder forms of internet addiction, with a significant portion displaying hikikomori traits. However, it's noteworthy that severe internet gaming addiction was absent in this group. These findings provide valuable insights into the risk factors associated with these addictive behaviors and social withdrawal tendencies among college students, particularly those in dental education.

Keywords: Internet addiction, Gaming addiction, Hikikomori traits, Insomnia severity, Dental undergraduate students, Cross-sectional study.

INTRODUCTION

In the present century of Information and technology, the Internet has become a basic necessity of our society. It's an important tool for social interaction, information and entertainment.¹ Use of the internet by medical students is unavoidable as it has revolutionized medical practice with the increasing use of

telemedicine and evidence-based medicine. Medical students globally use it as another main source of health-related information and means for further academic pursuance.² Globally, internet users have already crossed the three billion mark. Researchers have also shown that the younger population especially college students are more vulnerable because of their psychosocial and environmental characteristics.³ Excessive Internet use has been linked to a variety of sleep-related problems, including poor sleep quality, extended sleep latency, short sleep durations, and sleep disruptions. It has also been shown to increase the use of sleeping pills and have negative effects on everyday functioning.⁴

Internet gaming addiction is also seen commonly among individuals these days. Gaming disorder is characterized by the craving of the person to play video games.⁵ The electronic device employed can be a computer, a gaming device, or a mobile phone. Online role games are considered the most addictive as they can entertain numerous players simultaneously.⁶ This may affect the daily routine activities of the person, along with poor performance in studies, not being able to meet the demands in occupation, other areas of important functioning, and disturbances in family relationships.⁵ Gaming addiction and other types of problematic internet use also appear to have a significant influence on the sleep-wake cycle, leading to insomnia and other sleep disturbances. Sleep quality can be assessed in several domains such as how easy it is for an individual can go to sleep, the number of sleeping hours, and how refreshed individuals feel upon awakening.⁷ In recent years a particularly severe syndrome of social withdrawal which was first identified in Japan, called hikikomori has emerged. Which is defined as "a phenomenon in which persons become recluses in their own homes, avoiding various social situations (e.g., attending school, working, having social interactions outside of the home, etc.) for at least six months". Individuals with hikikomori are frequently reported to have social contact predominantly via the internet and some reports suggest overlap with heavy Internet use.⁸

Given the scarcity of existing literature on the subject, the current study was undertaken to provide insights into the prevalence of internet and gaming addiction, insomnia, and hikikomori traits among dental undergraduate students.

OBJECTIVES

The objective of the study was to study the prevalence of internet addiction, gaming, addiction, and hikikomori trait among dental undergraduates, to assess the grade of insomnia and its relation to internet and gaming addiction, hikikomori trait.

MATERIALS AND METHODS

This cross-sectional study focused on dental undergraduate students at Swami Devi Dayal Dental Hospital and College. Prior to initiation, approval from the Institutional Ethics Committee was obtained. The study, conducted from August to October 2023, employed a simple random sampling technique to determine the sample size. Electronic questionnaires were distributed to consenting participants, resulting in a final sample size of 206.

Data collection involved employing the Internet Addiction Test (IAT) to assess participants for internet addiction. The IAT utilizes a 20-item 5-point Likert scale, gauging the self-reported severity of compulsive internet use. Following Young's criteria, total IAT scores ranging from 20 to 39 indicate average users

with full control, scores from 40 to 69 indicate over-users facing frequent issues, and scores from 70 to 100 indicate internet addicts experiencing significant problems due to their internet use.⁹

We employed the IGDS9-SF (Internet Gaming Disorder Scale Form) to assess online gaming addiction. The American Psychiatric Association recommended this 9-item scale in the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) for evaluating the severity of Internet Gaming Disorder (IGD). Each of the 9 items received scores on a 1 to 5 scale, with higher scores indicating increased severity. The total score, ranging from 9 to 45, reflects the extent of gaming disorder, with higher scores indicating more severe conditions. A participant meeting the endorsement criteria for 5 out of the 9 items (answered very often) is categorized as a disordered gamer.¹⁰

We employed the HQ-25, designed by Teo and colleagues, to evaluate Hikikomori traits, a form of severe social withdrawal. This scale comprises 25 statements on a 5-point Likert scale, with three sub-scales: socialization, isolation, and emotional support. Notably, reverse-scored items 4, 7, 10, 15, 21, and 25 contribute to the overall score ranging from 0 to 100. The socialization sub-scale includes 11 items, isolation has 8 items, and emotional support consists of 6 items.¹¹

We used the Insomnia Severity Index (ISI) to assess insomnia prevalence and severity. The ISI, a common measure for self-perceived insomnia severity, consists of 7 items rated on a 5-point Likert scale. Clinical categorization includes four levels: 0–7 (no significant insomnia), 8–14 (sub-threshold insomnia), 15–21 (moderate insomnia), and 22–28 (clinically severe insomnia).¹²

The Inclusion criteria were dental undergraduate students having a smartphone with an internet connection. Data entry was done in MS Excel and analyzed using Statistical Package for Social Sciences version 26. For statistical analysis, the Chi-square and Fisher exact test were applied for the association test, p -value < 0.05 was considered as a statistically significant association between the variables.

RESULTS

The average age of the participants was 22.3 years with a standard deviation of 1.45. Out of the total subjects, 131(63.5%) were females and 75(37%) were males. Maximum number of participants were interns 86(41.7%), followed by first-year 51(24.7%), third year 27(13.1%), final year 24(11.6%) and second year 18(9%) (Table 1).

Hostel accommodation was the primary residence for the majority of students 100(49%), with the next largest group being students from the local city 96(46%). A smaller percentage lived as paying guests 10(5%)(Table 1).

A mild level of internet addiction was observed in 60(29%) of participants, while 143(69%) displayed normal levels of addiction, 3 of them showed a moderate level of addiction while severe was absent in any of the participants (Figure 2).

Intriguingly, none of the participants exhibited severe dependence on internet gaming.

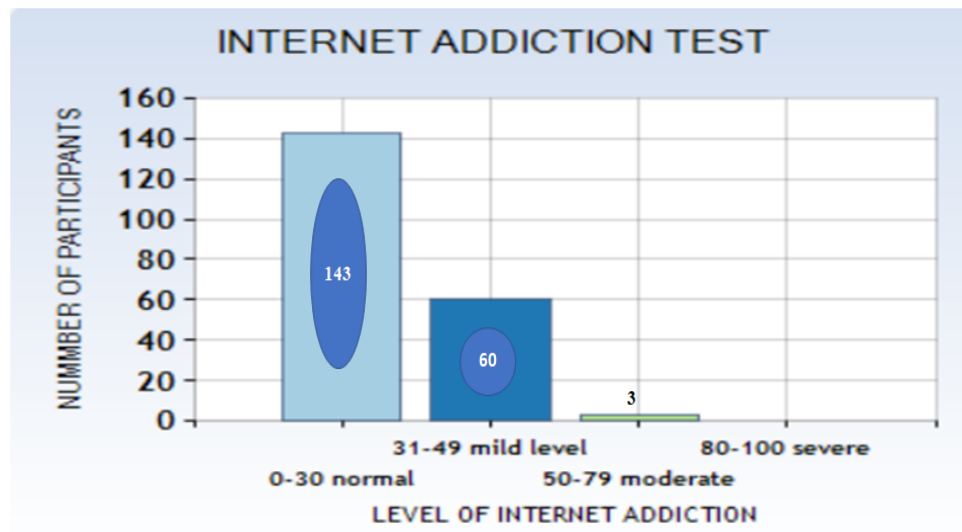
33(16%) of individuals experienced a moderate level of clinical insomnia, indicating a noteworthy presence of sleep disturbances, 138(66.9%) of the participants showed no signs of insomnia. And 35(16.9%) of the participants showed a subthreshold level of insomnia (Figure 3).

Furthermore, 47% showed hikikomori traits, indicating significant social withdrawal (Figure 4). The X^2 for internet addiction and insomnia is 31.6686. $p < 0.05$ therefore there is an association between internet addiction and insomnia severity. The result is significant at $p < .05$. The X^2 for gaming addiction and hikikomori trait is 125.1011. The p-value is < 0.00001 , significant at $p < .05$.

Variables	Subclass	Frequency (%)
Age	<20 years	67 (33)
	≥20 years	139 (67)
Gender	Male	131 (63)
	Female	75 (37)
Year of BDS	First	51 (25)
	Second	18 (9)
	Third	27 (13)
	Fourth	24 (11)
	Intern	86 (42)
Stay	Hostel	100 (49)
	Local	96 (46)
	Paying guest	10 (5)

(Table 1) Demographic details of the participants

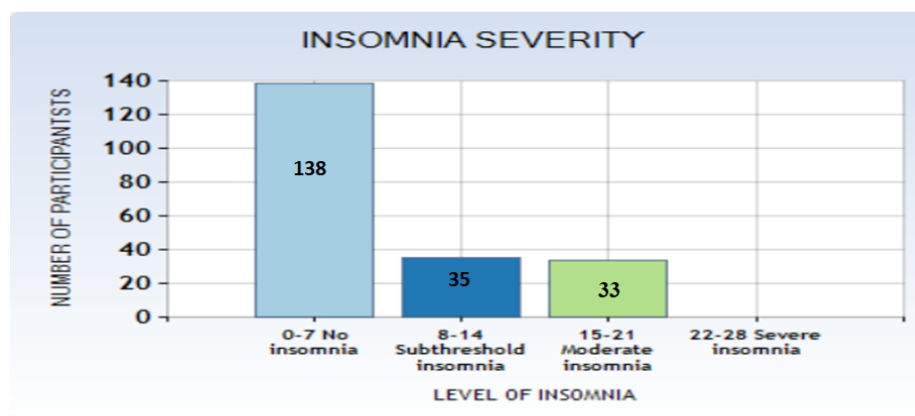
FIGURE SHOWING RESULTS OF YOUNG INTERNET ADDICTION TEST



Dr Kimberly S. Young internet addiction test was used to assess the level of internet addiction in the participants.

(Figure 1)

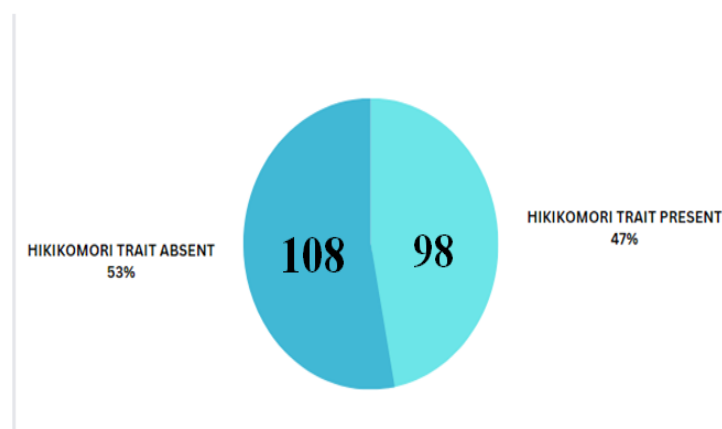
FIGURE SHOWING RESULTS OF M.MORIN INSOMNIA SEVERITY INDEX



Insomnia severity index developed by Charles M. Morin was used to assess the insomnia severity in the participating individuals.

(Figure 2)

FIGURE SHOWING RESULTS OF HQ-25 QUESTIONNAIRE



(FIGURE 3)

DISCUSSION

Participants had a mean age of 22.3 ± 1.45 years. A similar study done among medical undergraduates in one of the cities of western India showed a mean age of 20 ± 1.58 .¹³ The difference could be due to the inclusion of intern doctors in our present study. As per the present study, males were (37%), and females were 63% which is similar to a study conducted among medical undergraduate and dentistry students, in Ludhiana, Punjab (33.7%) of males and (66.2%) of females.¹⁴ It reflects a trend where a larger proportion of dental students are female, which is consistent with broader trends in the field of dentistry where the female-to-male ratio has been shifting, with an increasing number of female students entering dental programs in recent years

29.12% of participants showed a mild level of internet addiction which was similar to the study conducted in Guntur, Andhra Pradesh. No participant showed online gaming addiction. Other studies such as those done in Ludhiana, Punjab showed a 9% prevalence. A study done amongst medical undergraduates in one of the cities of western India showed 32% of the sample population showed online gaming addiction.¹³ The reason for the absence of online gaming addiction in our study population could be the busy schedule of the students during the entire day attending lectures, clinical postings, exam stress.

16.01% showed moderate insomnia which was similar to the study conducted in Kolkata (22.7%).¹⁵ Whereas a study done among medical students in one of the cities of western India showed moderate insomnia in 7.5% of the participants and severe insomnia in 17.8% of students.¹³ This difference may be due to differences in sample size, socio-cultural differences, and technological advancements in recent times. The hikikomori trait was present in 47% of participants in the range of worldwide prevalence¹⁶ (12.64-63.07%). This is attributed to the fact that internet overuse and lack of sleep can cause social withdrawal symptoms. The present study showed a statistically significant association between insomnia and internet addiction ($p < 0.0001$), similar to the study done at one of the cities of western India and a study done at Kolkata ($p = 0.009$). This may be due to excessive mobile usage at bedtime.

CONCLUSION

This research sheds light on the vulnerability of dental undergraduate students to milder forms of internet addiction, emphasizing a substantial prevalence of hikikomori traits and moderate insomnia. A noteworthy observation is the absence of severe internet gaming addiction in this cohort. The findings underscore the imperative for tailored interventions and awareness programs to address addictive behaviors and social withdrawal tendencies among dental students. The prevalence of mild internet addiction in nearly 29% of participants suggests a need for proactive measures to mitigate the impact of excessive internet use. The absence of severe dependence on internet gaming is a positive aspect, possibly indicating a different pattern of online behavior among dental students compared to other populations. The significant presence of hikikomori traits in 47% of participants highlights the social withdrawal tendencies among this group. This emphasizes the importance of considering not only internet-related behaviors but also their broader impact on social interactions and mental health. Moderate insomnia in 16% of individuals signals a need for further investigation into sleep patterns and the factors contributing to sleep disturbances among dental students. The observed associations between internet addiction, gaming addiction, insomnia, and hikikomori traits reinforce the interconnected nature of these issues. Addressing one aspect may positively influence others, necessitating a comprehensive approach to promote the overall well-being of dental students. In conclusion, these findings provide valuable insights into the risk factors associated with internet-related addictive behaviors and social withdrawal among dental undergraduate students. The implementation of preventive measures and support systems can contribute to fostering a healthier digital lifestyle and mental well-being in this academic cohort.

LIMITATIONS

The sample size chosen for this study was small and was limited to Dental undergraduate students from just one dental college. This study did not assess the previous and subsequent status of the participants.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil

CONFLICTS OF INTEREST

There are no conflicts of interest.

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