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A Cross-Sectional Study on Prevalence of Internet Addiction and Its Associated Factors Among Adults in Selected Area

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Abstract
Background: *In the last decades, the use of internet has increased many folds, and internet addiction has become a severe public health issue around the world. However, sensible usage of internet is strongly suggested by psychologists and educators since over consumption can lead to related medical and psychological disorders. It can be difficult to identify problematic internet use among college students because they use the internet for almost everything in their daily lives, including communication, shopping, business, travel, research, entertainment, and more. It is also difficult to imagine living without the internet.*
Aims and Objectives: *(i) The aims of the study were to estimate the proportion of internet addiction among adults in selected area and (ii) to identify the factors associated with internet addiction.* ***Materials and Methods***: *A cross-sectional questionnaire-based study was carried out among 225 adults. Adult internet addiction test was used to assess the prevalence of internet addiction.* ***Results***: *The mean age of the study was found to be 19.6 ± 1.03 years. Among the 225 students who participated in the study, 16.45% and 4.45% had moderate and severe internet addiction, respectively. It was found that place of residence, internet use per day (hours), monthly data usage, and most common location and time of internet access significantly affects the extent of pathological internet use among medical students.*
Conclusion: *Most of the students showed mild-to-moderate use of the internet. With the availability of high-speed internet on mobile phones, constant monitoring of internet use is essential to prevent severe addiction.*
Keywords: Internet Use; Addiction; Prevalence; Adults

INTRODUCTION

The internet is one of the most accessible media in the world and it is different from other types of media. Reasons for this are: (i) the internet has many activities that its users can engage with; (ii) the internet offers an opportunity to communicate with people all over the world without any limitation. Furthermore adolescents have become an important target of this commercial market. Internet technologies and activities, that are progressing rapidly have attracted adolescents, leading to the over-use of the internet and maladaptive internet behavior called ''Internet addiction'. Many studies have shown the association between internet over-use and syndromes. other psychopathological syndromes.

As internet addiction is becoming increasingly prevalent among medical college students, it is important to understand the potential impact it can have on their academic performance. Several studies have shown a negative correlation between internet addiction and academic performance. For example, a study conducted among medical students in China found that those with internet addiction had lower GPAs compared to their non-addicted peers.

Some of the possible factors addressing the causes of internet addiction among medical college students can be extrapolated from existing studies. These factors include high levels of stress and pressure associated with medical education, easy access to the internet, a lack of awareness about the dangers of internet addiction, and social isolation. Recognizing the prevalence of internet addiction among medical college students is an important step toward addressing this issue. Given the significant prevalence of internet addiction, it is crucial to address this issue effectively to mitigate its consequences on academic performance and mental health. In view of this, this study was conducted to investigate the growing issue of internet addiction among adults by evaluating the prevalence of internet addiction and the factors associated with it in order to develop strategies to reduce the addiction and thus lead to a healthy and productive life.

Objective of the Study

The objectives of the study were:

1)To estimate the proportion of internet addiction among the adults in selected area.
2)To identify the factors associated with internet addiction.

MATERIALS AND METHODS

Study Design: This study was a cross-sectional study.
Study Population: The study was taken by medical college students.
Study Setting: The study was conducted in community area, Chennai. The study duration was 6 months (July–December 2024).
Study Tool: The study used Pretested, semi-structured questionnaire, Young's internet addiction test (IAT) questionnaire.
Estimation of Sample Size: A sample size of 225 was calculated using the formula n = Z2pq/d2 by considering the prevalence of internet addiction of 46.15% (p),[18] Z = 1.96 (95% level of confidence), with an absolute allowable error of 7%, and adding a non-response rate of 15%. Consecutive sampling method was used to recruit the adults for study.
Method of Collection of Data: A cross-sectional study was carried out among adults. A clearance from the institutional ethical committee was taken before starting the study. Participants were informed of the purpose and scope of the study. Confidentiality was ensured, and consent was obtained. To prevent participants from being hesitant to record their responses, anonymity was assured. Participants were encouraged to mark their true answers. A semi-structured questionnaire was utilized to gather data from the adults regarding their socio-demographic characteristics, and the Young's IAT was employed to evaluate the frequency of internet addiction. The internet use test (IAT) consists of 20 items with a 6-point Likert scale, 0–5 for each item, to gauge the extent of self-reported compulsive internet use. Total scores for internet addiction were computed, with a range of 0–100 possible for the sum of 20 items. A score of 0–19 indicated no addiction or regular use of the internet, 20–49 indicated mild addiction, 50–79 indicated moderate addiction, and 80–100 indicated severe addiction.
Statistical Analysis: MS Excel was used to construct and gather the data. The data are shown using descriptive statistics. The data were analyzed using SPSS (Version 26.0). A fixed significance level of 5% ($\alpha = 0.05$) was used. Frequency and percentages are used to represent qualitative factors, while mean and standard deviation are used to convey quantitative data. The categorical variables were analyzed using the Chi-square test.

RESULTS

The mean age of the study participants was found to be 19.6 ± 1.03 years, with the majority being over the age of 19. 72% of the study participants were female. About 45.3% of the study participants had been using the internet for the past 6–10 years. Most of the study participants, 88%, were using the internet for entertainment purposes, 80% were using the internet for educational purposes, and 78.22% were using the internet for social media purposes. About 53.33% were using the internet for shopping purposes, and 40% were using the internet for gaming purposes [Figure 1].
About 44% of the study participants were using the internet for 1–3 h a day, and 16.3% of the study participants were using the internet for more than 6 h a day [Figure 2]. About 16.01% of the study participants were spending more than Rs. 600 per month for internet purposes. About 94.7% of the study participants were using the internet through mobile Figure 1: Purpose of using the internet Figure 2: Internet use per day (hours) phones. About 64.46% of the study participants were using the internet through mobile data, and 28.88% were using the internet through Wi-Fi. 1.8% of the study participants were found to be using the internet during classroom hours. About 52% of the study participants used the internet mostly during evening, and 43.6% used the internet during night.
Among the 225 adults who participated in the study, 16.45% and 4.45% had moderate and severe internet addiction, respectively. When factors related to internet usage were associated with internet addiction (Young's IAT), it was found that study participants from urban areas were found to have frequently problematic use (16.45) and significantly problematic use (3.56) with statistical significance [Table 1 and Figure 3].
About 50% of the study participants who used the internet for more than 12 h were found to have significantly problematic usage with statistical significance. About 100% of the study participants who used the internet mostly during class hours were found to have frequently problematic use with statistical significance. About 33.3% of the study participants who use the internet mostly in the morning and 50%

of the study participants who use the internet mostly in the afternoon were found to have frequently problematic use. About 10.2% of the study participants who use the internet mostly in the night were found to have significantly problematic usage, and these associations were found to be statistically significant (Table 2).

DISCUSSION

The internet has become an integral part of our lives, providing us with a vast amount of information and resources at our fingertips. In recent years, the impact of internet use and addiction among medical students has become a topic of concern. Medical students, like other college students, are especially vulnerable to developing dependence on the internet due to their reliance on it for accessing information, completing assignments, and communicating with colleagues and mentors.

A study conducted at Tanta University in Egypt found that 51.7% of medical students were severely addicted to the internet, compared to only 11.3% of non-medical students who exhibited severe addiction. Hence, this study was done to emphasize the need to further understand the factors associated with it. In the present study, the mean age of the study participants was found to be 19.6 ± 1.03 years, and this is comparable with the studies done by Chaudhuri et.al., Bhave et.al., and Shashiraj et.al. In the present study, 72% of the study participants were female. This is comparable with the studies done by Asokan et al. Aqeel, and Misra Studies done by Bhave et al.and Singh et al. found a male-to-female ratio of 1:1.

In the present study, 95.1% of the study participants were from urban areas, which is comparable to the study done by Chaudhuri et al., In the present study, the majority of the study participants were staying at home and traveled to college daily, which is comparable to the study done by Aqeel and Misra. Contrary findings were found in studies done by Chaudhuriet.al and Asokan et.al., where the majority of them stayed at hostels. In the present study, 88% were using the internet for entertainment purposes, 80% were using the internet for educational purposes, and 78.22% were using the internet for social media purposes.

In a study done by Chaudhuri et.al., where 76% of the students used the internet for social networking purposes. In a study done by Shashiraj et al., the main purpose of the use of internet according to our data is social networking (69.9%), followed by online games (13.84%). These findings are comparable to the findings of the present study. In the present study, 44% of the study participants were using the internet for 1–3 h a day, and 16.3% of the study participants were using the internet for more than 6 h a day. In a study done by Shashiraj et al.,75.38% are using the internet daily for a period of 1–3 h a day. In a study done by Bhave et al.,[21] most of our participants spent up to 4 h a day on the internet. In a study done by Chaudhari et al.,[13] the mean length of internet use was 3.34 ± 1.80 h/day. These findings are comparable to the findings of the present study. In the present study, 16.01% of the study participants were spending more than Rs. 600 per month for internet purposes, which is comparable with the study done by Bhave et.al.

In the present study, 94.7% of the study participants were using the internet through mobile phones. This is comparable with the studies done by Chaudhuri et al., Shashiraj et al., and Jain et al. In the present study, the majority of the study participants were using the internet through mobile data, which is comparable with the studies done by Jain et al. and Bhave et.al.,

In the present study, 16.45% and 4.45% had moderate and severe internet addiction, respectively. In a study done by Singh et al., mild internet addiction was found among 43%, moderate internet addiction was found among 15.2%, and severe internet addiction was found among 0.2% of the study participants. In a study done by Chaudhuri et al., 58.7% of the respondents had mild addiction, and 15% of the students had moderate addiction. In a study done by Asokan et al.,61.4% of the students were found to be addicted to the internet, out of which 63.7% had mild, 35.5% had moderate, and 0.8% had severe internet addiction. In a study done by Chaudhari et al., 58.87% of the students had internet addiction, out of which 51.42% were mild addicts and 7.45% were moderate addicts. In a study done by Aqeel and Misra the prevalence of internet addiction was 61.5%. The level of internet addiction was mild among 41%, moderate among 19.7%, and 0.8% of participants had severe addiction.

In a study done by Jain et al.,70.6% of students had some degree of internet addiction, with 38.4% having mild addiction, 29.6% having moderate addiction, and 2.6% having severe addiction. These findings are comparable with the findings of the present study. In the present study, it was found that study participants place of residence, hours of internet usage per day, place, and time of internet usage were

found to be significantly associated with internet addiction with significance. In a study done by Bhave et.al., it was observed that students of both urban and rural residences had an almost similar level of addiction. Also, usage was more at home or in a hostel than at the university and was higher on weekends as compared to weekdays, with a higher score observed in students using the internet for 5 years or more. In a study done by Jain et.al.,factors statistically associated with internet addiction were gender, place of living, login status, purpose of internet use, average internet use per day, and expenditure on internet usage.

In a study done by Asokan et.al., the purpose of internet use and average time spent on the internet/day were found to be statistically significant and associated with internet addiction. In a study done by Chaudhari et al.,gender, using mobile for internet access, place of residence, monthly expenditure on the internet, and time spent daily on the internet were found to be significantly associated with internet addiction.

In a study done by Aqeel and Misra a high statistically significant association was seen between a greater number of hours of internet use per day and internet addiction. The availability of smartphones with complimentary internet services provides medical students with convenient and uninterrupted access to the internet, which can lead to overuse. Future comprehensive studies can be specifically focused on internet addiction among medical college students, considering factors such as stress levels, access to the internet, awareness about the dangers of internet addiction, and social isolation. Also, the impact of internet addiction on academic performance and mental health among medical college students can be evaluated.

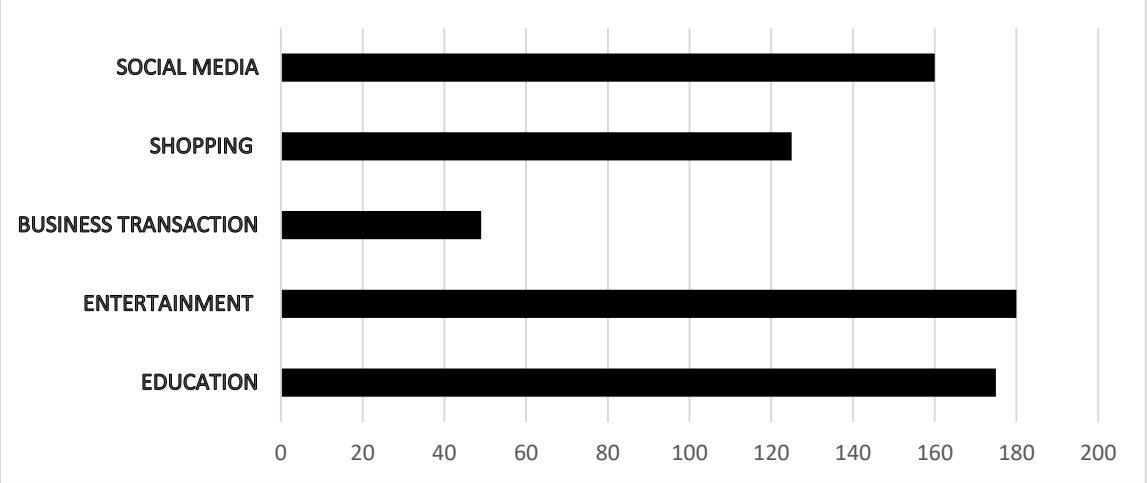

Fig.1: Purpose of Using the Internet

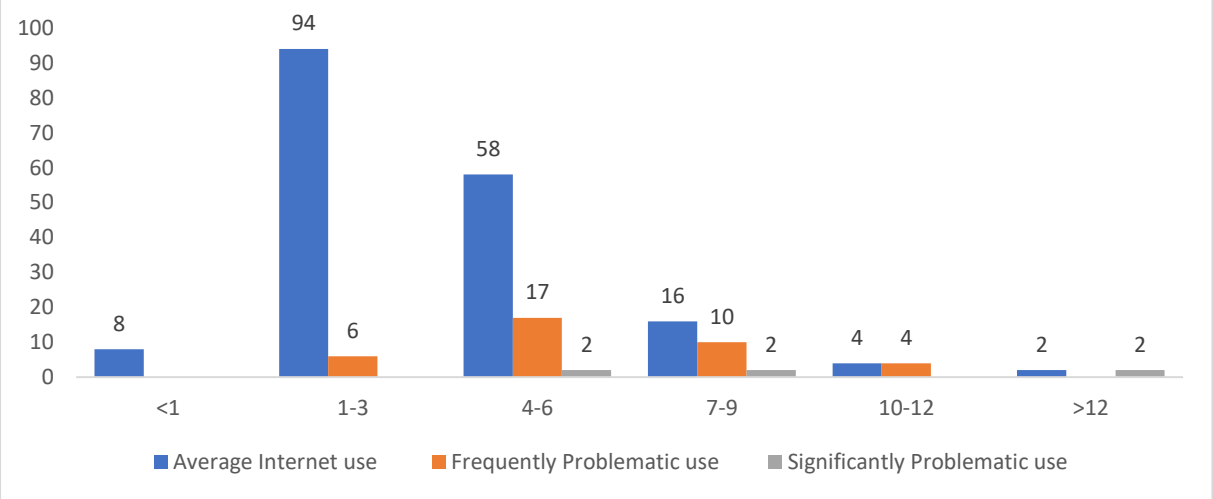

Fig.2: Internet use per day (hours)

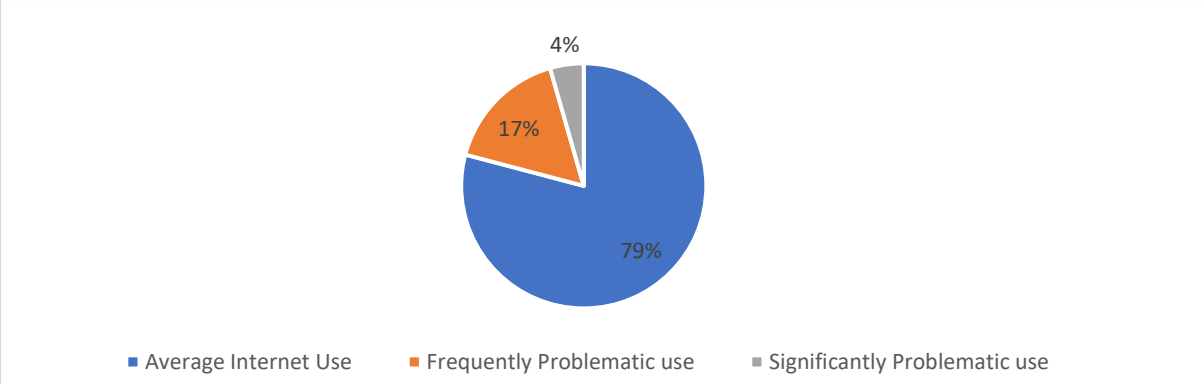

Fig. 3: Prevalence of internet addiction

Table 1: Association of Socio demographic factors with internet addiction

Factors	Internet usage n (%)			χ^2	P-value
	Average internet user 178 (79.11)	Frequently problematic use 37 (16.45)	Significantly problematic use 10 (4.44)		
Age					
19	71 (72.4)	19 (19.4)	8 (8.2)	7.948	0.093
20	103 (83.7)	18 (14.6)	2 (1.6)		
21	4(100)	0	0		
Gender					
Male	51 (81)	10 (15.9)	2 (3.2)	0.372	0.830
Female	127 (78.4)	27 (16.7)	8 (4.9)		

*** p-value < 0.05: statistically significant difference**

Table 2: Association of pattern of internet use with internet addiction

Factors	Internet usage n (%)			χ^2	P-value
	Average internet user 178 (79.11)	Frequently problematic use 37 (16.45)	Significantly problematic use 10 (4.44)		
Years of internet usage					
<1	2(100)	0	0		
1-5	78(80.4)	15(15.5)	4(4.1)	11.75	0.07
6-10	80(78.4)	20(19.6)	2(2)		
11-15	18(75)	2(8.3)	4(16.7)		
Internet use per day (Hours)					
<1	8(66.7)	0	4(33.3)	88.35	0.000*
1-3	93(93.9)	6(6.1)	0		
4-6	58(75.3)	17(22.1)	2(2.6)		
7-9	17(58.6)	10(34.5)	2(6.9)		
10-12	0	4(1.77)	0		
>12	2(50)	0	2(50)		

Expenditure on internet per month					
<Rs.300	97(84.3)	16(13.9)	2(1.7)	6.27	0.18
Rs.300-600	53(71.6)	15(20.3)	6(8.1)		
>Rs.600	28(77.8)	6(16.7)	2(5.6)		
Most used gadget for accessing internet					
Desktop	0	0	0		
Laptop	8(80)	2(20)	0	1.08	0.89
Tablet	2(100)	0	0		
Mobile phone	168(78.9)	35(16.4)	10(4.7)		
Most common mode of Internet access					
Wi-Fi	52(78.8)	10(15.2)	4(6.1)		
Broadband	8(100)	0	0	6.30	0.39
Data card	4(57.1)	3(42.9)	0		
Mobile internet	114(79.2)	24(16.7)	6(4.2)		
Time of day accessing the Internet					
Morning	4(66.7)	2(33.3)	0		
Afternoon	2(50)	2(50)	0	20.13	0.016*
Evening	102(87.2)	15(12.8)	0		
Night	70(71.4)	18(18.4)	10(10.2)		

***p-value < 0.05: statistically significant difference**

CONCLUSION

It is suggested that appropriate interventions and restrictions be implemented to promote rational use of the internet. A comprehensive program can be developed to raise awareness of internet addiction and its detrimental effects on health, as well as to promote a healthy lifestyle through the promotion of activities such as reading, participating in sports, and other leisure activities that can help to reduce the use of smart phones. Faculty must be trained to identify students at risk of developing addiction before it becomes pathological. Those with addiction can be provided with counseling and cognitive behavioral therapy for Internet addiction.

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