Cross Sectional Study on Prevalence and Determinants of Internet Addiction among Undergraduate Medical Students

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Abstract:

Background: With improvements in internet's availability and affordability has led to its overuse and addiction. Increased internet usage can lead to habituation, addiction, adverse academic, physical, mental and social effects. It is important to investigate the seriousness of internet addiction in medical students as they are in the field related with the physical and mental wellbeing of human

Aim and Objective: The study was designed to evaluate the prevalence of internet addiction and its determinants among medical students.

Materials and Methods: A cross-sectional study was conducted in 380 undergraduate medical students of Siddhartha Medical college, Vijayawada with the help of semi structured questionnaire consisting of questions related to demographic information, information related to internet use, and Young's internet addiction test.

Results: We found prevalence of internet addiction among medical students to be 24.2% and significantly associated factors with internet addiction being female gender, lesser age, using mobile for internet access, excess time spent on internet, and using internet for studying, downloading and social networking.

Conclusion: In the present study it was found that the internet addiction is highly prevalent in medical students. There is a need for controlling internet addiction by engaging the students in extracurricular activities, providing healthy living environment, and to provide counselling to those with addiction.

Keywords- Determinants, Internet Addiction, Medical Students, Prevalence.

Introduction

There has been an explosive growth in the use of internet not only in India but also worldwide in the last decade. Worldwide China holds first position with 1050 million users whereas India is on second position with 692 million users and United States is on third position with 312 million users until January 2023.[1,2] The internet is an excellent tool for information exchange, communication, entertainment and financial transaction. On the other hand, it can be used by some to indulge in pornography, excessive gaming, chatting for long hours, and even gambling resulting into addictive behaviour and loss of productivity. There have been growing concerns worldwide for what has been labelled as "INTERNET ADDICTION." [3] Young modified the DSM-IV diagnostic criteria for pathological gambling to construct diagnostic criteria for pathological Internet use, which she defined as 5 or more of 8 characteristic symptoms present in the preceding 6 months. Young also found that email, chat, and the web are examples of applications used on the Internet, whose nature has addictive properties. Moreover, interactive 'real-time' services such as lnternet relay chat and multi-user domains proved to be most addictive [4]. A number of studies have been conducted across the world, especially among adolescents with respect to internet addiction. In studies that focus on younger people, prevalence of internet addiction estimates range from 0.9 to 38 %. [5,6] This study is a preliminary step towards understanding the extent of internet addiction among college students in India. By studying the association of internet usage and its effects on psychological health, we can formulate interventions like setting boundaries and detecting early warning signs of underlying psychopathology at the earliest.

Materials and Methods

This is an observational cross-sectional study conducted in medical students of Siddhartha Medical College, Vijayawada. In present study 380 (out of 595) undergraduate students were enrolled from time period from October 2018 to March 2019 after approval from local ethical committee for conducting the study. Purpose of the study was explained to all the participants and written informed consent was obtained from them. Students having access to internet from the past 12 months were interviewed considering the mentioned inclusion and exclusion criteria. Data which can reveal student's identity like name, were

not asked in study to make the study more reliable as well as after filling the required data, filled proforma sheet had to be dropped by student directly into a box.

Method: Initially we planned to administer our proforma to 20 students to find out any problems and if required to modify the proforma based on this experience. The study of these pilot cases revealed that there was no problem in administering the proforma in these 20 students, so we later included them in the main study. A semi-structured proforma was used to record patient's socio-demographic details and details regarding internet use. Internet Addiction Test (self-administered) by Dr. Kimberly Young was used to determine internet addiction severity. Data was obtained with the help of proforma and entered into a master chart. All the collected data was appropriately tabulated and data was analyzed to find out statistical significance. Probability value less than 0.05 was taken as statistically significant. Result is presented and discussed in reference to previous studies.

Inclusion Criteria:

1. Students who have given informed written consent.
2. Students who have internet access and use in past 12 months.

Exclusion Criteria:

1. Students who are not willing to participate in the study.
2. Students who do not use internet or have access in last 12 months.

Results:

Table 1. Level of internet use among medical students (according to internet addiction test score) :medical students (n=380)

Internet Addiction Scale	Gender		Total
	Female	**Male**	
<20 (below average)	51(22%)	28(18.9%)	79(20.8%)
20-49 (average)	133(57.3%)	76(51.4%)	209(55%)
50-79 (moderate)	47(20.3%)	40(27%)	87(22.9%)
80-100 (addict)	1(0.4%)	4(2.7%)	5(1.3%)
Total	232(100%)	148(100%)	380(100%)

Table 1 shows level of internet use in medical students according to internet addiction score.

- Majority of students (55%) were having average internet use (Internet addiction test score of 20 to 49).
- 22.9% students were having moderate use of internet (addiction test score of 50 to 79).
- 1.3% of students were falling in the category of addict with internet addiction test score of 80 to 100.

For further analysis students were divided into two IAT score groups :

✓ Non Problematic Users Of Internet (Below average & Average Internet users)
✓ Problematic Users Of Internet (Moderate Internet users and Internet addicts)

Table 2. Relationship between internet addiction and age of students

Age in years	Internet addiction scale		Total
	Non-Problematic users of Internet	**Problematic users of Internet**	
<20	105(36.5%)	25(27.2%)	130(34.2%)
20-30	180(62.5%)	66(71.7%)	246(64.7%)
>30	3(1%)	1(1.1%)	4(1.1%)
Total	288(100%)	92(100%)	380(100%)

P<0.001**, Significant, Chi-Square Test

Statistically significant association has been found between age of students and internet addiction.

Table 3. Relationship between internet addiction and gender of students

Gender	Internet addiction scale		Total
	Non-Problematic users of Internet	**Problematic users of Internet**	
Female	184(63.9%)	48(52.2%)	232(61.1%)
Male	104(36.1%)	44(47.8%)	148(38.9%)
Total	288(100%)	92(100%)	380(100%)

P=0.045*, Significant, Chi-Square Test

Table 3 shows :

- Out of total 92 students with problematic internet use, 47.8% were male students and 52.2% were female students, which was **statistically significant** (p <0.05).
- Out of 232 female, 48 were problematic user, and out of 148 males 44 were problematic user.

Table4. Relationship between internet addiction and purpose of internet use amongst students

Variables	Internet addiction scale		Total	P value
	Non-Problematic users of Internet	Problematic users of Internet		
Give rank for your usage of internet for chatting purpose	3.58±1.72	4.88±2.12	3.90±1.91	<0.001**
Give rank for your usage of internet for downloading/listening purpose?	4.30±1.82	5.59±1.63	4.61±1.86	<0.001**
Give rank for your usage of internet for studying purpose?	3.56±1.69	3.68±1.86	3.59±1.73	0.557
Give rank for your usage of internet for shopping purpose?	2.51±2.01	3.79±2.18	2.82±2.12	<0.001**
Give rank for your usage of internet for checking mails	2.01±1.85	2.89±2.47	2.22±2.05	<0.001**
Give rank for your usage of internet for business transactions	1.85±2.05	2.72±2.56	2.06±2.21	0.001**
Give rank for your usage of internet for pornography	1.11±1.91	2.53±2.62	1.46±2.19	<0.001**

Table 4 shows:
- In study all students of problematic users reported to use it for chatting, downloading / Listening, studying, shopping, checking mails, business transactions, and pornography purpose.

- **Statistically significant** association was found between internet addiction and purpose of its use in chatting, downloading / listening, shopping, checking mails, business transactions, and pornography.

Table 5. Relationship between internet addiction and per day data consumption

Average data consumption per day	Internet addiction scale		Total	P value
	Non-Problematic users of Internet	Problematic users of Internet		
<2hours	64(22.2%)	3(3.3%)	67(17.6%)	<0.001**
2-4hours	135(46.9%)	26(28.3%)	161(42.4%)	
>4hours	89(30.9%)	63(68.5%)	152(40%)	
Total	288(100%)	92(100%)	380(100%)	

P value < 0.0001**, Significant, Chi-Square Test

Table 5 shows:

- In study, 161 (42.4%) students out of 92 students having problematic internet use, were spending 2-4 hours per day.

- **Statistically significant** association was found between internet addiction and average data consumption per day.

Table 6. Relationship between internet addiction and views on internet usage.

Views on internet usage	Internet addiction scale		Total
	Non-Problematic users of Internet	Problematic users of Internet	
Share emotions and thought	92(31.9%)	24(26.1%)	116(30.5%)
Affects studies	74(25.7%)	29(31.5%)	103(27.1%)
Good source of learning	79(27.4%)	10(10.9%)	89(23.4%)
More friends on social sites	43(14.9%)	29(31.5%)	72(18.9%)
Total	288(100%)	92(100%)	380(100%)

P < 0.001**, Significant, Chi-Square Test

Table 6 shows:

- In study, with problematic internet use 31.5% felt it affects studies, and leads to more friends on social sites, 26.1% use internet to share emotion and thought, 10.9% found internet to be a good source of learning.
- **Statistically significant** association has been found in various views on internet usage and internet addiction.

Discussion:

- In the current study 22.9% students were having moderate use of internet and 1.3% were addicted to internet; both constituting 24.2% of total students, who were falling in category of problematic internet users.

- Similar findings have been reported from studies in India and even from studies from other countries. [7,8,9] Thus, the prevalence of IA in the existing literature varies from 6% to 42%. [10,11] Certain studies have reported prevalence of IA different than present study, which can be attributed to different population groups studied, [12,13] variations in cut offs used for categorizing IA, [14,15] differences in the scales used for measuring IA. [16]

- Study population in Zalavadiya D. et al. [17], Nagori N. et al. [18], Venkata V. G. et al [19] was similar to present study, i.e. medical students. In present study significant association was found between internet addiction and age. Similar findings with respect to age and IA have been reported by certain studies in India [14,15] and even from other countries. [20,21,22,23] In present study, in problematic internet users internet addiction was more frequent in females (52.2%) than in males (47.8%), and in comparison with non-problematic internet users it was found statistically significant. Similar findings were reported in a study conducted outside India by Gholamian et al [24]. This finding was inconsistent to previous studies. [17,18,19,25] Sociocultural norms like male medical students had more access to various other outdoor activities while female medical students had more restrictions on their hostel timings which might have played a role in gender difference with respect to internet access. [26]

- In present study, major use of internet was reported to be studying, downloading and social networking, which was consistent with prior studies. [19,27]. Statistically significant association was found between purpose of internet use and internet addiction.
- In present study majority of students reported to spend 2 – 4 hours per day for internet usage. Statistical significant association was found between internet addiction and data consump-

tion. This finding was similar to other studies. [18,28,29].

- In present study, views on internet usage among problematic internet users showed that were more friends on social sites and affects studies which was found to be statistically significant. Similar findings are found in study conducted by Chauhan V et al. [30]

Conclusion:

We found high prevalence of internet addiction among medical students with 1.3% severe, 22.9% moderate, and 55% mild addiction, which is dark reality requiring timely remedial action. Comprehensive programme should be prepared and implemented to increase awareness of internet addiction among medical students. There should be provision of healthy living environment in medical colleges with promotion of extracurricular activities. Medical students suffering with internet addiction should be offered cognitive behaviour therapy and counselling.

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