

Prevalence and risk factors of Internet addiction in medical students

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Received: October 11, 2017; **Accepted:** November 01, 2017

ABSTRACT


Background: Technology has a high influence on our lifestyle. Due to this technology, the virtual life of Internet has taken away the real-life experiences. This has significant bearing on both the physical and mental health of an individual. Students too spend a significant amount of time on the Internet. Studies have demonstrated that this overindulgence can be problematic. Internet addiction has an adverse effect on several lifestyle-related factors. **Objectives:** The objective of this study was to assess the Internet addiction and associated risk factors among medical students. **Materials and Methods:** A cross-sectional questionnaire-based study was carried out on undergraduate medical students. Two questionnaires were administered to the students. One was a general questionnaire, which was subjective in nature. The second was the Young's Internet Addiction Test. **Results:** Majority of the students were using internet for <1 h (473, 65.4%). On analysis of the extent of pathological Internet use among students, it was found that majority of the students were belonging to average Internet user category (682, 86.3%) followed by frequently problematic user (97, 12.3%) and significantly problematic user (11, 1.4%) categories. It was found that gender, purpose, place, and time of accessing Internet significantly affect the extent of pathological Internet use among students. Family composition, parents' addiction, and students' addiction also play a significant role in determining the extent of pathological Internet use among students. **Conclusion:** Internet addiction among high school students in Kerala was mostly seen in families with broken family ties as in divorce. Hence, environmental stressors and family issues have shown contribution to severe addiction among few students. The remaining students showed normal-to-moderate dependence. However, the students need timely monitoring to prevent severe addiction.

KEY WORDS: Internet; Addiction; Medical Students; Risk Factors; Young's Internet Addiction Test

INTRODUCTION

The present generation's kids are influenced by technology. This virtual life of Internet has taken away the real-life experiences. Due to overindulgence in Internet and Internet addiction, there has been effect on both the physical and mental health of an individual. Especially college students spend a significant amount of time on the Internet. Studies

have demonstrated that this overindulgence can occasionally be problematic, with some students conforming to Internet addiction, with symptoms such as heavy preoccupation with the Internet, excessive online time, compulsive behavior, and time management problems.^[1] Kandell stated that college students as a group appear more vulnerable to developing dependence on the Internet than any other segment of society, probably because college students have strong drives to develop firm senses of identity and to develop meaningful and intimate relationships.^[2] Internet addiction has been shown to propel students toward sedentary lifestyles as they spend more hours on the Internet. Some cross-sectional studies have shown that Internet addiction has an adverse effect on several lifestyle-related factors; it can result in irregular dietary habits, extended periods of

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2018.1029501112017	

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time spent on the Internet,^[3] physical inactivity, and short duration of sleep.^[4,5]

A study conducted in China on college students have revealed that, when compared to normal Internet users, Internet addicts reported more stressful life events, pointing to the role of environmental stress to addictive Internet use.^[6] This is in accordance with theories of addiction, which define environmental stress as an important factor to both substance use and Internet addiction.^[7] In addition, the academic stress faced by medical students can compound the risk of Internet dependence. The Internet provides a wealth of information in relation to diseases, therapeutic procedures, and pharmaceutical products, thus medical students are a particularly vulnerable group, considering that technology is incorporated into their education.^[8] Besides, with a significant proportion of medical students residing in hostels and leading independent lives, the predilection for Internet dependence may be higher.

Previous studies that focused on the general pattern of the internet usage among students in tertiary education found that students tend to use the internet less for academic purposes. For example, a study by Pew on Internet and American life^[9] found that college students use the Internet more for social activities such as communicating with friends than for academic-related tasks. At the local front, Ismawati^[10] investigated computer usage and perceptions among accounting students in the University of Malaya. This study also sought information on the usage of Internet for communication, online purchasing, doing assignments, personal activities, and searching academic resources. She also found that students use internet highly for social and entertainment purposes compared to academic activities. Based on the descriptive scenario above, concerns are raised on why students use the internet less for academic activities and more for social purposes. Such phenomenon is unfortunate because it may affect the students' academic performance and hence their future career.

MATERIALS AND METHODS

A cross-sectional questionnaire-based study was carried out on undergraduate medical students belonging to 1st phase MBBS to final MBBS part 2, pursuing MBBS in one of the medical colleges in Kerala affiliated to Kerala University of Health Sciences. Both male and female undergraduate medical students in the age group of 18–24 years, conforming to internet use for the last 6 months or more, were enrolled into the study.

A total of 726 students voluntarily consented to fill the questionnaire, of which 384 (52.9%) were boys and 342 (47.1%) were girls and the study was done as convenient sampling method.

The study was approved by the research ethics committee. The participants were briefed about the nature and purpose of the study. Confidentiality was assured and informed consent was taken. Two questionnaires were administered to the students. One was a general questionnaire, which was subjective in nature. The parameters assessed were impact of the internet on hobbies, sleep, exercise, and dietary patterns. Duration of internet usage and stressors in life were also recorded. Stressors were defined as any stress that caused significant physical or mental distress for a period of at least 1 month. The second was the Young's Internet Addiction Test. This includes 20 questions with a scoring of 0–5 for each question and a total maximum score of 100. Based on the scoring, the participants were classified into normal users (<20), mild average internet use (20–49), moderate (frequently problematic use) (50–79), and severe (significantly problematic use) (>79) internet addiction groups.

Statistical Analysis

Statistical analysis was done using the SPSS version 16. Mean and standard deviation were calculated for the continuous variables and frequencies and percentages were computed for the discontinuous variables. Comparison of groups for determination of statistically significant difference in the study parameters was done using the Chi-square test.

RESULTS

In the present study, males and females participated in almost equal numbers [Figure 1]. The most common purpose of using internet was for education (625, 79.1%) followed by entertainment (444, 56.2%) [Table 1]. Students had spent an average of more than 500 rupees per month for internet [Table 2]. Students have accessed the internet predominantly from their home (621, 78.6%) [Table 3]. Students were found to accessing internet mostly in the evening (487, 61.6%) and night (171, 21.6%) [Table 4]. Majority of the students were

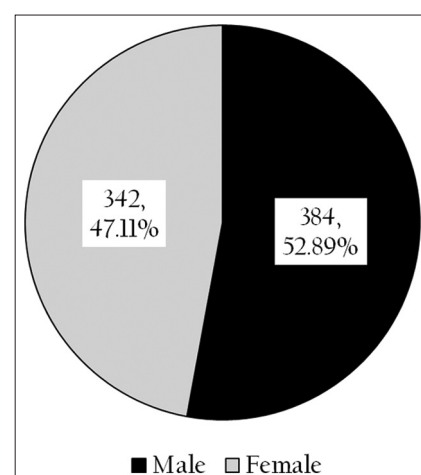


Figure 1: Distribution of the sample according to gender

Table 1: Distribution of the sample according to purpose of using the Internet

Purpose of using the Internet	n (%)
Education	625 (79.1)
Entertainment	444 (56.2)
Business transactions	26 (3.3)
Shopping	35 (4.4)
Social media	154 (19.5)
Others	302 (38.2)

Table 2: Distribution of the sample according to money spent on the Internet per month

Money spent on the Internet	n (%)
≤100	127 (34.1)
101–300	65 (17.5)
301–500	63 (16.9)
>500	117 (31.5)
Mean ± SD	503.9±877.9

Table 3: Distribution of the sample according to the place of access of the Internet

Place of access of the Internet	n (%)
Mobile	228 (28.9)
Home	621 (78.6)
Cyber cafe	55 (7.0)
Others	23 (2.9)

using internet for <1 h (473, 65.4%) [Table 5]. On analysis of the extent of pathological internet use among students [Table 6], it was found that majority of the students were belonging to average internet user category (682, 86.3%) followed by frequently problematic user (97, 12.3%) and significantly problematic user (11, 1.4%) categories. It was found that gender, purpose, and place and time of accessing the internet significantly affect the extent of pathological internet use among students. Family composition, parents' addiction, and students' addiction also play a significant role in determining the extent of pathological internet use among students [Table 7].

DISCUSSION

In the present study, the risk for internet addiction in adolescents was investigated by looking at the interplay between different factors and the usage of internet. In the present study, male students were more addicted to the Internet compared with their female students. Different studies also suggest that internet addiction appears to have a male preponderance.^[11-13] The reason behind the gender difference may be males' high interest in online games, pornography, and gambling activities.^[13]

Table 4: Distribution of the sample according to the time of day accessing the Internet the most

Time of day accessing the Internet the most	n (%)
Morning	69 (8.7)
Afternoon	112 (14.2)
Evening	487 (61.6)
Night	171 (21.6)

Table 5: Distribution of the sample according to average duration of Internet usage per day

Average duration of internet usage per day	n (%)
<1 h	473 (65.4)
1–2 h	188 (26.0)
2 h	62 (8.6)

Table 6: The extent of pathological Internet use among students

Internet use	n (%)
Average Internet use	682 (86.3)
Frequently problematic use	97 (12.3)
Significantly problematic use	11 (1.4)

The most common purpose of using internet was for education followed by entertainment and social media in our study. Similar patterns were observed in a study done by Grover *et al.*^[14] In that study, the most common purpose of use was educational for two-thirds of the study population. Other common purposes of usage were chatting, recreational activities, and e-mailing. Students can easily use the Internet to find sources of information, download necessary files and pictures, and so on. Moreover, students can use e-dictionaries, e-encyclopedias, and translation tools to help them write their homework and do their projects. Students can also use social websites to share knowledge and discuss about subjects.^[15]

In the present study, a majority of the students were belonging to average internet user category followed by frequently problematic user and significantly problematic user (addicted) categories. The prevalence of significantly problematic user (internet addiction) was 3.8% in the study done by Grover *et al.*^[14] Various studies have estimated the prevalence of internet addiction from 0.9% to 38% depending on the used criteria and the study population.^[12,16]

Family composition, parents' addiction, and students' addiction play a significant role in determining the extent of pathological internet use among adolescents in our study. The children of the divorced parents were found to be more internet addicted as compared to children of intact family. Chinese Academy of Science and Hong Kong Polytechnic University found that living in a divorced family was highly predictive of internet addiction in young people. They found that the prevalence of internet addiction is lower in children living in intact families as compared

Table 7: Association between the extent of pathological Internet use and associated factors

Factors	n (%)			χ^2	P
	Average internet use	Frequently problematic use	Significantly problematic use		
Gender					
Male	319 (83.1)	62 (16.1)	3 (0.8)	10.26**	0.006
Female	308 (90.1)	29 (8.5)	5 (1.5)		
Purpose of using internet					
Education					
No	119 (72.1)	41 (24.8)	5 (3)	35.73**	0.000
Yes	563 (90.1)	56 (9)	6 (1)		
Entertainment					
No	312 (90.2)	27 (7.8)	7 (2)	12.85**	0.002
Yes	370 (83.3)	70 (15.8)	4 (0.9)		
Business transactions					
No	664 (86.9)	92 (12)	8 (1)	21.85**	0.000
Yes	18 (69.2)	5 (19.2)	3 (11.5)		
Shopping					
No	660 (87.4)	85 (11.3)	10 (1.3)	17.35**	0.000
Yes	22 (62.9)	12 (34.3)	1 (2.9)		
Social media					
No	567 (89.2)	60 (9.4)	9 (1.4)	24.52**	0.000
Yes	115 (74.7)	37 (24)	2 (1.3)		
Others					
No	447 (91.6)	33 (6.8)	8 (1.6)	36.3**	0.000
Yes	235 (77.8)	64 (21.2)	3 (1)		
Money spent on the Internet per month					
≤100	115 (90.6)	12 (9.4)	0 (0)	11	0.088
101–300	57 (87.7)	8 (12.3)	0 (0)		
301–500	51 (81)	12 (19)	0 (0)		
>500	90 (76.9)	26 (22.2)	1 (0.9)		
Place of access of the Internet					
Mobile					
No	510 (90.7)	44 (7.8)	8 (1.4)	35.81**	0.000
Yes	172 (75.4)	53 (23.2)	3 (1.3)		
Home					
No	138 (81.7)	24 (14.2)	7 (4.1)	12.86**	0.002
Yes	544 (87.6)	73 (11.8)	4 (0.6)		
Cyber cafe					
No	644 (87.6)	84 (11.4)	7 (1)	22.93**	0.000
Yes	38 (69.1)	13 (23.6)	4 (7.3)		
Others					
No	669 (87.2)	88 (11.5)	10 (1.3)	17.84**	0.000
Yes	13 (56.5)	9 (39.1)	1 (4.3)		
Time of day accessing the Internet the most					
Morning					
No	634 (87.9)	80 (11.1)	7 (1)	22.4**	0.000
Yes	48 (69.6)	17 (24.6)	4 (5.8)		

(Contd...)

Table 7: (Continued)

Factors	n (%)			χ^2	P
	Average internet use	Frequently problematic use	Significantly problematic use		
Afternoon					
No	585 (86.3)	83 (12.2)	10 (1.5)	0.24	0.887
Yes	97 (86.6)	14 (12.5)	1 (0.9)		
Evening					
No	257 (84.8)	41 (13.5)	5 (1.7)	0.99	0.609
Yes	425 (87.3)	56 (11.5)	6 (1.2)		
Night					
No	571 (92.2)	45 (7.3)	3 (0.5)	86.95**	0.000
Yes	111 (64.9)	52 (30.4)	8 (4.7)		
Average duration of Internet use					
<1 h	449 (94.9)	23 (4.9)	1 (0.2)	118.75**	0.000
1–2 h	146 (77.7)	40 (21.3)	2 (1.1)		
2 h	32 (51.6)	25 (40.3)	5 (8.1)		
Family composition					
Staying together	575 (86.5)	87 (13.1)	3 (0.5)	134.01**	0.000
Divorced	11 (55)	3 (15)	6 (30)		
Single parent	11 (91.7)	1 (8.3)	0 (0)		
Parents have a history of addiction					
Yes	73 (76.8)	17 (17.9)	5 (5.3)	26.46**	0.000
No	580 (88.7)	72 (11)	2 (0.3)		
If yes					
Smoking					
No	655 (87.1)	88 (11.7)	9 (1.2)	9.6**	0.008
Yes	27 (71.1)	9 (23.7)	2 (5.3)		
Alcohol					
No	652 (87.6)	84 (11.3)	8 (1.1)	21.91**	0.000
Yes	30 (65.2)	13 (28.3)	3 (6.5)		
Cannabis					
No	679 (86.8)	94 (12)	9 (1.2)	38.77**	0.000
Yes	3 (37.5)	3 (37.5)	2 (25)		
Hans					
No	682 (86.8)	94 (12)	10 (1.3)	32.44**	0.000
Yes	0 (0)	3 (75)	1 (25)		
Others					
No	678 (86.8)	92 (11.8)	11 (1.4)	15.86**	0.000
Yes	4 (44.4)	5 (55.6)	0 (0)		
History of substance use					
Smoking					
No	667 (87.5)	88 (11.5)	7 (0.9)	47.59**	0.000
Yes	15 (53.6)	9 (32.1)	4 (14.3)		
Alcohol					
No	671 (87.8)	86 (11.3)	7 (0.9)	63.58**	0.000
Yes	11 (42.3)	11 (42.3)	4 (15.4)		

(Contd...)

Table 7: (Continued)

Factors	n (%)			χ^2	P
	Average internet use	Frequently problematic use	Significantly problematic use		
Cannabis					
No	677 (86.9)	93 (11.9)	9 (1.2)	30.01**	0.000
Yes	5 (45.5)	4 (36.4)	2 (18.2)		
Hans					
No	676 (87.1)	93 (12)	7 (0.9)	81.81**	0.000
Yes	6 (42.9)	4 (28.6)	4 (28.6)		
Others					
No	670 (87.2)	88 (11.5)	10 (1.3)	19.37**	0.000
Yes	12 (54.5)	9 (40.9)	1 (4.5)		

**Significant difference with $P < 0.01$

to children of a family in which the parents are divorced.^[17] Lam also suggested that there was a significant relationship between parental mental health and the internet addiction status of their children.^[18] Various literatures are available which support that internet addiction is highly associated with other substance abuse, depression, anxiety, and attention-deficit hyperactivity disorder.^[19] Management of the condition includes identifying and treating these comorbid factors.

CONCLUSION

Internet addiction among medical students in Kerala was mostly observed in families with broken family ties as in divorce. Hence, environmental stressors and family issues have shown contribution to severe addiction among few students. The remaining students showed normal-to-moderate dependence. However, the students need timely monitoring to prevent severe addiction.

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How to cite this article: John S, Kavitarati D. Prevalence and risk factors of Internet addiction in medical students. *Int J Med Sci Public Health* 2018;7:595-600.

Source of Support: Nil, **Conflict of Interest:** None declared.