Internet addiction among students of Teerthanker Mahaveer University, Moradabad - A cross-sectional study

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ABSTRACT

Background: Internet has become a widely used tool in a developing country like India as in the developed world and has shown exponential growth particularly in the past 10 years or so. There has been a growing worry among the intellectuals about what level of use can be termed as "more than desirable" and when should it be termed to be "Addiction." Objectives: The objectives of this study were to find the sociobehavioral correlates and prevalence of internet addiction (IA), study the relationship of IA with internet use profile, and evaluate the risk factors associated with it among university students of TMU, Moradabad. Materials and Methods: A longitudinal cross-sectional survey was executed with sample size of 587 students from medical, nursing, physiotherapy, and engineering courses in the University of TMU after securing permission from their respective college authorities. Semi-structured, pre-designed, and pre-tested survey instrument consisting of "The IATest (Young, 1998)" after instructing them briefly was administered. Results: Of the total of 552 study subjects who took part in the study, 182 (32.97%) were girls and 370 (67.03%) were boys. The mean age of the students was found to be 19.5 years. Majority (64.31%) subjects were only mild users or non-addicts. On application of Young's original criteria, as much as 2.54% of students were found to be addicts. Conclusion: In the modern days, obsession for having "All-knowledge" at fingertips, hype for social media and has variety to entertainment to name the few, the use of internet is but must; apart from the indispensable uses of internet, the college students are highly susceptible to IA that may cause wasting of the precious study time as well as their time for relaxation and recreational activities, ultimately affecting the educational situation unfavorably. Hence, the Universities/Educational Institutes should wake up to the impending problem and extenuate the use of internet mainly for scholastic purposes.

KEY WORDS: Internet addiction; College students; Internet use profile

INTRODUCTION

In the contemporary world of virtual reality, internet is as much of a necessity in our day-to-day life as food and water. Earlier

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people used to access them through computers at homes, schools, colleges, libraries, and internet cafes, but nowadays, smartphones have brought them to bedside. Accessibility can be gained instantaneously with the use of technology. With the advancement in technology, internet can be accessed through "smartphones," or cellular telephones. Making phone calls or texting are the main means of communication now, though other uses of phones are web browsing, e-mailing, GPS tracking, social networking, and downloading music or videos.^[1]

Internet is a double-edged sword, with benefits including reading and writing emails, engaging in chatting with

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friends, online banking transactions, and fulfilling scholastic requirements. On the other hand, its unwarranted use may affect academic performance, family relationships, and emotional development of youngsters adversely. More and more literature is coming up on the adverse effects of excessive internet use too.^[2,3] Kandell defined internet addiction (IA) as "a psychological dependence on the internet, regardless of the type of activity once logged on."^[4] Internationally, there is wide variation in IA prevalence rates. Globally, the prevalence rates are between 1.5% and 8.2%.^[5]

Throughout the world, we are confronting new obstacles. The advantages and the feeling of elation achieved with internet use are causing students becoming dependent onto online activities to appease their needs, rather than facing real world.^[3] An excessive and overzealous use of this phenomenon is known as IA. Ivan Goldberg was the first person to introduce the term IA disorder (IAD), in 1959.^[4] The official diagnosis of the IAD along with more information on IAD and subscription information can be accessed on Ivan Goldberg's website.^[6] IA incorporates an irresistible drive to use the internet, which is quite agonizing, taking too much time, frequently leading to social or functional perplexing condition, and not solely present in hypomanic or manic clinical episodes.^[1] The commonly proposed diagnostic criteria for IA include the presentation of at least five of the six following characteristics: (1) Spending excessive time online, (2) unable to reduce use with associated feelings of anxiety and depression, (3) staying online for prolonged period than they initially wanted, (4) prepared to lose a relationship or other opportunities due to internet use, (5) being deceptive in the extent of internet use, and (6) using the internet to get away from negative feelings.^[2]

IA can also be described as problem in controlling desire characterized by a helplessness to stop internet use despite its harmful or unfavorable effect on major life domains (e.g., interpersonal relations and physical health).^[7] Even though IA is not included in the DSM-5, it is commonly considered as a dysfunction of concern due to the neural abnormalities (e.g., atrophies in dorsolateral prefrontal cortex) and cognitive dysfunctions (e.g., impaired working memory) related with IA which mirror those related to substance and behavioral addiction.^[8] Furthermore, internet gaming disorder has been included in the section of "condition for further study" of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.^[9] Moreover, IA is often found comorbid with mental disorders such as attention deficit hyperactivity disorder and depression.^[7,8,10]

As large as, 34.3% of population of the world is using internet. 27.5% of the population of Asia is using internet.^[11] India is third on the ranking of internet users, just behind China and America with the growth of 14% from the previous years and has 8.33% of world's internet users with online exposure of 19.19%.^[12] The use of mobile phones as a means of access

to internet is fast becoming popular, especially among rural population of the country.^[13] In June 2013, India had 130 million mobile internet users, of this 90 million belonged to urban India and the rest 40 million were from rural India.^[14]

The younger population, especially the college-going students, have been found to be more vulnerable to internet misuse due to their psychosocial and environmental characteristics.^[15-17] Several factors contribute to this vulnerability. First, college students have less parental control and censoring of what they do online. Most of the students have come out of their home for the 1st time. Second, students have unlimited access to internet provided by universities through Wi-Fi as is the case in our university too.^[15] They also have larger proportion of unstructured time when they can use internet. Often, the students are encouraged by the teachers to use internet for academic purposes as some courses are internet dependent, use for their assignments and projects, and to communicate with friends and guides. Third, young students have more peer pressure to remain update on the latest gadgets and technologies as well as the latest application available. Finally, being young and away from home, students have their own developmental needs. These include developing a feeling of distinctiveness and developing meaningfulness and intimacy in relations.[11]

Developing Diagnostic Criteria

Most practitioners are unfamiliar with the internet, making its impact on the afflicted person's life difficult to understand. Many practitioners do not recognize the legitimacy of the disorder.^[18] Hence, this study was planned to review the diagnostic criteria of IA to help clinicians for this issue apart from assessing the prevalence.

Clinically, the best method to detect compulsive use of the internet is to compare it with the already established addictions' criteria. Constant use of internet creates a behavioral dependency on it. Internet deprivation results in feeling unpleasant emotions (such as anxiety, depression.) when the individual does not connect with it. This inability to tolerate and adapt to the effects of internet is considered as impulse control disorder and is comparable to pathological gambling which is referenced in the DSM-IV.^[8] Using pathological gambling as a model, Young^[19] developed eight items of internet dependency that modified the DSM-IV criteria to be used as a screening device for differentiating between "dependent" and "non-dependent" users; if patients answered "yes" to five or more questions, were considered "addicted" in the absence of a manic episode.

Even though the repercussions of IA have been widely researched in recent years, it is still not established how prevalent it is in Moradabad City. To understand the presentday status, this study reviews the prevalence of IA among students and compares it with other studies. The objectives of this study were as follows:

- To find the prevalence of IA among the students of professional courses of TMU, Moradabad.
- To study the relationship of IA with internet use profile.
- To evaluate the sociobehavioral risk factors associated IA among university students.

MATERIALS AND METHODS

The students of professional courses, namely MBBS, Nursing, Physiotherapy, and Bachelor of Engineering between the age group of 15 and 25 years were selected for the study using simple random sampling. A cross-sectional study was conducted between the period of June and November 2016 in Moradabad city of UP, India.

Place of Study

The study was conducted at TMU University, Moradabad.

Sampling Method

This was a simple random sampling method.

Sampling Unit

 $Students \, of M.B.B.S, engineering, nursing, and physiotherapy.$

Study Unit

Student of M.B.B.S, engineering, nursing, and physiotherapy using internet for more than 1 year.

Study Tools

This was a pre-designed, pre-tested, and, semi-structured questionnaire.

Study Period

The study duration was 6 months (June 2016–November 2016).

Inclusion Criteria

The following criteria were included in the study:

- Student of above-mentioned courses.
- Availability at time of the administration of questionnaire.
- Willing to take part in the study.
- History of using internet for 1 year or more.

Exclusion Criteria

The following criteria were excluded from the study:

- Students not using internet.
- Those not given consent for the study.

Ethical Approval

The study was examined and cleared by the Institutional Review Board and Ethical Committee of Teerthanker Mahaveer University.

Sample Size

The required sample size for the study among university students is calculated based on the following formula for sample estimation:

The formula used -

 $n = 4PQ/L^2$

Where,

P = prevalence of IA

Q = (100-p)

L= permissible error 8%

In our study, we presumed maximum variability, hence, P = 0.5

With the above assumption the required sample size at 95% level of confidence with 8% of permissible error in the estimates, the sample size is 625.

156 students from each selected courses who were using internet for at least 1 year were selected as our study subjects using simple random sampling.

All the individual colleges were visited, the selected students were given questionnaire after brief explanation of the study and assuring secrecy. From the 625 participants present, 589 returned filled questionnaires and 37 forms were incomplete. Hence, 552 were finally included in the study. The Institutional Ethical Committee approval was obtained before starting the study.

Data Collection

The survey instrument in the form of semi-structured questionnaire was distributed to the participants in classrooms at a predetermined time after explaining the purpose of the study. Pro forma was later collected on the same day. The questionnaires were anonymous and self-administered. The questionnaire had consisted of three parts. Information was collected on background characteristics such as age, sex, religion, education, type of phone used, and time spent on internet per day. In the next part, information regarding pattern of internet use was collected while the third part was based on the Young's scale of IA developed by Dr. Kimberly Young, 1998.^[19] The IA scores were calculated, with 20 items questionnaire measured on 5-point Likert scale. According to the scoring, subjects were categorized into normal users (0–30), mild (31–49), moderate (50–79), and severe (80–100)

IA groups; the scale has good validity and reliability, with satisfactory internal consistency (Cronbach's alpha = 0.84), hence, can be used effectively to determine the IA.^[15]

The participating students were explained the nature and purpose of the study before presenting the questionnaire, stressing to choose the answer they actually felt. To all the participating students, the anonymity was assured. Written informed consent was taken from all. Health education and adequate counseling were provided to all the students concerned.

Statistical Analysis

The collected data were entered into Microsoft Excel Word data and analyzed using SPSS version 20.0. Mean and standard deviation for age and time on internet was tabulated. Test of significance applied was Chi-square test. The difference was considered statistically significant at P < 0.05.

RESULTS

Of a total of 625 students present, 589 returned filled questionnaires and 37 forms were incomplete. Thus, 552 students finally participated in the survey giving a response rate of 88%. Of 552, 27.9% of students belonged to MBBS course, followed by 26.6% of students pursuing nursing, 25.2% were from physiotherapy, and 23.9% from engineering stream. Majority of students (67.03%) were male; the mean age of the subjects was 19.5 ± 1.4 years; 68% were Hindu; and 81.9% were hostlers.

Of 552 students in our study, the majority, i.e. 494 (89.49%) were at low risk (score ≤ 49), while 58 (10.51%) were at high risk (score \geq 50) for IA. Based on demographic characteristics, of all the students, males were found to be at a higher risk of IA than females (Chi-square = 32.9, df = 3, P = 0.0001) showing significant relationship [Table 1].

In our study using Young's original criteria, 14 (2.54%) participants were found to be severely addicted to internet while 44 (7.97%) had moderate addiction. 355 (64.31%) were found to be average (mild) users while 139 (25.18%) students had used internet for less than average time.

A large number of students (68.11%) acquainted themselves with internet in the recent few years (3-6 years); still, a

major chunk (11%) had prior familiarity with internet even before coming to college (>6 years). Although majority of the students (71.74%) remained online daily, for about 3–6 h, a significant number (9.60%) were using it for more than a quarter of the day.

Most common gadget used to access internet was android phone (76.81%) and 23% of students had continuous logged in status to net [Table 2].

Since our campus has free Wi-Fi accessibility, it was the preferable mode of internet use. Most of the users (37.68%) preferred night time to remain online though it was not very specific in others (27.17%). As most of the students were hostellers, hostel (42.03%) was the preferred site to be using internet while in some it was library (19.02%). Even though mobile phones are not allowed in class, a quarter of students were using it as internet accessing medium during college timings [Table 3].

In spite of educational needs of internet use, major use of the internet was limited to social networking (37.14%) and recreational activities (27.35%) including gaming and watching media files. Few (15.22%) used it mainly for academic purposes and for (11.52%) main purpose was browsing shopping sites while others (7.42%) had disambiguous reasons [Figures 1 and 2].

DISCUSSION

As we can see from the various studies done on internet use, IA is spreading rapidly, but its official recognition as a separate and distinct behavioral addiction has not been established. The symptoms commonly seen with (behavioral) addictions are quite similar with IA, warranting the need to study the subject aggressively in depth.

In the present study, the prevalence of severe and moderate IA was observed to be 2.54% and 7.97%, respectively. It was comparable to the results of the study done by Shoeeb Akram. The study participants mean of age was 20.62 ± 1.463 . More than 38 h/week of internet was used by 32.9% of the internet users. Like our study, the internet users were divided into three categories using YIAT, namely average users, possible addicts, and internet addicts, with prevalence rates of 46.2%, 32.9%, and 4.4%, respectively.^[20]

Score	Pattern	Males (67.03%)	Females (32.97%)	Total (%)
0–20	Normal	66 (17.83)	73 (40.11)	139 (25.18)
21–49	Mild	259 (70.01)	96 (52.75)	355 (64.31)
50-79	Moderate	35 (9.46)	9 (4.94)	44 (7.97)
80-100	Severe/addict	10 (2.70)	4 (2.20)	14 (2.54)
Total		370 (100)	182 (100)	552 (100)

Chi-square=32.9, df=3, P=0.0001

Table 2: Frequency pattern of internet use (n=552)

Variables	n (%)
Exposure to internet (Years)	
<3	115 (20.83)
3–6	376 (68.11)
>6	61 (11.05)
Daily internet usage (h)	
0–3	396 (71.74)
4–7	103 (18.66)
8–12	53 (9.60)
Most commonly used gadget for internet use	
Desktop/laptop	96 (17.39)
Tablet	54 (9.78)
Mobile phone	402 (72.83)
Login status	
Intermittent (Log in and off on need basis)	424 (76.81)
Continuous (Always online)	128 (23.19)
Total	552 (100)

Table 3: Participants distribution according to internet
connectivity, time and place of internet use $(n=552)$

Variables	n (%)
Most common mode of internet access	
Wi-Fi	356 (64.49)
Data card/broadband	38 (6.88)
Mobile internet	158 (28.63)
Most common site of internet access	
House	52 (9.42)
Intercafe	28 (5.07)
Library	106 (19.02)
College/classroom	134 (24.27)
Hostel	232 (42.03)
Preferred log in time	
Morning	23 (4.17)
Afternoon	117 (21.20)
Evening	54 (9.78)
Night	358 (37.68)
Not specific	150 (27.17)
Total	552 (100)

John observed in her study that most of the students were using internet for <1 h (473, 65.4%). On evaluation of the extent of addictive internet use among students, it was found that majority of the students were belonging to average internet user category (86.3%) followed by frequently problematic user (97, 12.3%) and significantly problematic user (11, 1.4%) categories.^[21]

Contrary to our findings, Siomos *et al.*^[22] in a study on Greek students inferred that the prevalence of IA in students was 8.2%. Furthermore, the studies done by Malviya^[23] and Wu^[24]



Figure 1: Internet addiction score



Figure 2: Main reasons of remaining online given by the students

showed comparatively higher degree of severe addiction with 9.5% and 13.5% of students having addiction.

A lot of community and online surveys like by Sulania^[25] in UG students of Delhi had similar findings where the mean of age among students was 20.3 ± 1.4 years; 87% were Hindu; and 61.9% were hostellers much like our study. Majority of students 67.03% were boys with the mean of age being 19.5 \pm 1.4 years; 68% were Hindus; and 81.9% were hostellers. Other studies^[21,23-25] have reported that IA appears to have a male predominance that was mirrored in the present study too. This may be due to the easy accessibility to internet and less regulation of independence in males as well as their own interest in games, etc.

Majority (72.77%) of the collegiates were using smartphones to use the internet which was similar to that reported in a study done in Guntur city^[26] [Table 1]. Similarly, Arvind Sharma in his study on IA found that smartphone users were more often addicted to the internet than those using simple phones ($\chi^2 = 8.550$, P = 0.015), suggesting that as the access to internet becomes easier with respect to time, place, and logistics required the chance of being addicted to the internet gets magnified. It may also extend the time spent on internet ^[15] The daily use of internet by majority (58.12%) of the students in our study was around 1-3 h, but a large number (16.75%) were using it for more than a quarter of the day.

Almost similar findings were seen in a study by Sulania on undergraduate students of professional courses. For the duration of internet use per day, approximately 75% were found using internet for <3 h, while the rest (25%) were using it for at least 3 h, and some even going up to a maximum of 12 h.^[25]

In our study, most of the time, internet use was limited to social networking (37.14%), recreational activities (27.35%), and online shopping (11.52%), only a few (15.22%) used it for academic purposes mainly. Goel *et al.*^[27] in his studies observed similar findings. Rajashree S. Dhok in her study found that the gadget most commonly (92.3%) used for internet access by the medical interns was mobile phone; majority used internet for chatting (74.62%), followed by scholastics (73.84%), entertainment (64.62%), shopping (56.15%), and gaming (24.62%). A small proportion of them used it for pornography, online relationships, and other purposes.^[28]

Sulania surprisingly observed that the maximum use of internet was for educational purpose (98%) followed by for entertainment (95.0%) including watching videos/movies or listening to music and last for accessing social sites (92.5%) such as the Facebook.^[25]

Limitations

The limitation to the present study is - small sample size, universe of the study should be more and students from another curriculum too should be taken into consideration.

CONCLUSION

The overview from this study suggests the impending problem of IA, especially among the college-going age group. Although the prevalence of IA is very low, the majority of participants had one or the other symptoms of problematic addictive behavior, pointing to IA. Hence, it is imperative that we have clear insight into the magnitude of this intricate situation and generate awareness among students to use internet wisely and for scholastic purpose mainly. More extensive research is required to deal with different risk factors responsible for IA such as poor self-esteem and problematic social interaction and the deleterious effects of inappropriate internet use.

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