

Internet use and its addiction level in medical students

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Objective: To compare the Internet addiction levels between male and female medical students.

Methods: One hundred medical students (male: 50, female: 50) aged 17–30 years were included in a cross-sectional study. A standardized questionnaire was used to assess their Internet addiction level. Additionally, a self-designed questionnaire was used to identify the various purposes of Internet use among the students. The Internet addiction score (based on the Internet Addiction Test) was compared between male and female students by using the Mann–Whitney *U* test ($p \leq 0.05$). After knowing their addiction level, we interviewed students to know if Internet use had any bad/good impact on their life.

Results: The Internet Addiction Test scores obtained by the students were in the range of 11–70. Out of 100 students, 21 (male: 13, female: 8) were found to be slightly addicted to the Internet. The remaining 79 students were average online users. There was no significant difference between male and female students in the addiction level (score). However, males were more addicted than females. The major use of Internet was to download and watch movies and songs and to communicate with friends and family (76/100). Some students (24/100) used the Internet to assess information that helped them in their educational and learning activities. Some students mentioned that overuse of the Internet lead to insufficient amounts of sleep and affected their concentration levels in the classroom during lectures.

Conclusion: Medical students are experiencing problems due to Internet overuse. They experience poor academic progress and lack of concentration while studying. The main use of the Internet was for entertainment and to communicate with friends and family.

Keywords: addiction, Internet, medical students, entertainment

Introduction

Internet use is a primary necessity for all individuals, and both the old and young use it for their benefit. Nepalese people are frequently using the Internet for many purposes.¹ The main uses of the Internet is to communicate with friends and families, conduct business transactions, entertainment purposes, and search and obtain new information by a single mouse click. Some people indulge in Internet use in such a way that other important work is neglected with people using the Internet for long periods of time, leading to an addiction. Internet addiction is an emerging psychological problem across the globe. One report mentioned that Internet addiction has a direct impact on depression, anxiety, and stress.² Students seem to be the main population of Internet users in Nepal. The prevalence of Internet addiction in Nepalese health sciences students is high.³ Hence, the objectives of this study were to assess and compare the level of Internet addiction between male and female medical students and to assess the various purposes of Internet use among the students. This study may shed some light on

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identifying the emerging cause of poor mental health among the medical students.

Methods

This cross-sectional study included 100 medical students (male: 50, female: 50) from the first- and second-year Bachelor in Medicine and Bachelor in Surgery (MBBS). Out of 134 students, convenient sampling technique was applied in meeting the sample size of the study ($n=100$). Students suffering from previously diagnosed psychological disorders and other systemic illness were excluded from the study.

Ethical statement

Ethical clearance was approved by the institutional ethical committee of Gandaki Medical College, Lekhnath. All the participants signed the informed written consent to partake in the study.

Study parameters and instruments

A standard questionnaire was used to test for Internet addiction among the 100 students. Questionnaires used in this study were the Internet Addiction Test (IAT) scale⁴ (Figure S1) to find the addiction level of the students, and a self designed questionnaire was used to identify the various purposes of Internet use by the students (Figure S2). Additionally, their priority level (first to last) for Internet use among various purposes was also documented.

IAT scale

The IAT scale consists of 20 items that measure mild, moderate, and severe levels of Internet addiction. The responses for each question/item ranged from 0 to 5 on the Likert scale:

0 – does not apply, 1 – rarely, 2 – occasionally, 3 – frequently, 4 – often, and 5 – always. The IAT score was calculated by adding the scores obtained for all 20 items (Figure 1).

Priority level of reasons for using the Internet:

Participants marked their priority level as “no, least, rarely, average, always (most)” while citing the reasons for Internet use.

The following items were included among the various reasons for use of the Internet: playing online games, downloading films and music, watching movies/songs online, chatting with new people (social networking sites), scientific search, educational and learning activities (academic slides, book downloads, search, studying animations from YouTube), communicating with friends and family, checking emails, online shopping, reading news, writing weblogs, learning computer applications (software download, mobile application surfing, increasing computer knowledge, etc.), uploading/downloading exploiting images and videos that harms/abuse others, solicitation (sending false emails (spam) to scam people out of money).

An open-ended question was also included to find the purpose of Internet use other than for the abovementioned items. Additionally, after knowing their addiction level, we interviewed students to know what the impact of Internet use had on their academic progress and day-to-day activities. The mode of using the Internet, ie, by mobile, laptop, or desktop, was also assessed.

Statistical tool

We compared the IAT scores by using Mann–Whitney U test, p -values were considered significant at ≤ 0.05 , and the software SPSS version 11.5 (SPSS Inc., Chicago, IL, USA)

1. How often do you find that you stay online longer than you intended?
2. How often do your grades or school work suffer because of the amount of time you spend online?
3. How often do you lose sleep due to late-night log-ins?
4. How often do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?

The ranking of addiction was based on the score obtained in the IAT as follows:

IAT score	Inference
20–49 points	Average online user
50–79 points	Experiencing occasional or frequent problems because of Internet
80–100 points	Greater level of addiction

Figure 1 IAT scale sample items in questionnaire.

was used. Data are expressed as frequency and range (minimum to maximum IAT score).

Results

Out of the 100 students, 21 students were found to be slightly addicted to using the Internet. The other students (male: 37, female: 42) were found to be average Internet users in the study (Table 1). There were no significant differences between male and female medical students in Internet use and in their addiction level. The maximum IAT score obtained in the study was 70. Here, numbers indicated that males were at higher risk of addiction than females. Both males and females used both mobiles and laptops for surfing the Internet.

Purpose of Internet use

The purpose of Internet use varied among the students. For most of the students, the main priority was for downloading and watching movies and songs. None of the students declared this to be the least important (Table 2). Similarly, none of the students showed accessing educational and learning activities from the Internet and communicating

with friends and family as a last priority. However, checking emails, uploading/downloading exploiting images and videos that harm/abuse others, writing weblogs, and solicitation were the least prioritized. The majority of students showed a second priority for some aspects of Internet use such as learning computer applications, checking emails, and playing online games. Some students mentioned that they had experienced poor academic progress and lack of concentration while studying due to overuse of the Internet at night time.

Expenditure on Internet surfing

Students mentioned that they used the Internet most during the evening and at night after their college hours. They spent a minimum of 3–4 hours daily on the Internet. The expenses on Internet were variable among the students. Only 3 students mentioned that monthly expenditure on using the Internet was at a high to very high level of cost and 52 students mentioned that their expenditure on Internet subscription was of an intermediate level. However, some (17/100) students did not disclose their expenses for using the Internet.

Discussion

Many people such as students, teachers, and administrators use the Internet frequently for many reasons. They use it to access knowledge, disseminate information, keep in contact with their friends and family, spare leisure time, online shopping, etc. However, the disadvantages on overuse of the Internet are high. Therefore, we conducted this study on 100 medical students to assess their Internet addiction levels. In addition, we compared the addiction levels between male and

Table 1 Anthropometric variables and average Internet addiction scores (IAT) in the students

Variables	Male	Female	$p \leq 0.05$
Age-years (min-max)	18–24	17–22	Not significant
IAT score (min-max)	11–70	15–67	Not significant
Average Internet users	37	42	Not significant
Students experiencing occasional or frequent problems due to Internet use	13	8	Not significant
Number of participants	50	50	Not significant

Abbreviation: IAT, Internet Addiction Test.

Table 2 Purpose of Internet use and priority level for its use in 100 students

Variables	First priority (always)	Second priority (average)	Last or no priority (least)
Watching movies/songs online	18	17	None
Educational and learning activities	17	7	None
Downloading film and music	15	12	None
Communicating with friends and families	14	17	None
Reading news	5	3	2
Chatting with new people	5	4	8
Learning computer applications	4	4	7
Playing online games	2	1	3
Online shopping	1	1	7
Scientific search	1	7	2
Checking e-mail	None	7	3
Uploading/downloading exploiting images and videos	None	1	31
Writing weblogs	None	1	4
Solicitation	None	None	14

female students and determined the reasons that the students used the Internet.

We found that 21 students were slightly (50–79 score) addicted to the Internet. Out of the 21 students, 13 were male and 8 were female. We found more male students were addicted to the Internet. Other studies also showed similar results of male students having higher Internet addiction than females, and also higher levels of anxiety.^{5,6} Other students in our study (male: 37, female: 42) were average Internet users, and the addiction levels between male and female students was similar between these users. The prevalence of Internet addiction in Nepalese health sciences students was high.³ Students have poor mental health due to this addiction to the Internet.^{7,8} Other studies mention that Internet addiction decreases academic performance of students.^{5,9} Further, in another study, addiction and overuse of Internet was found to lead to sleep deprivation, academic underachievement, failure to exercise and negative affective states (such as depression, angry, bored, guilty), and decreased ability to concentrate at work and education.¹⁰ We found a similar result, wherein students were unable to obtain sufficient amount of sleep and concentrate on their studies. Therefore, students should decrease the overuse of Internet to get the rid of all the distractions that affect their study time, physical health and mood.

In our study, the majority of students prioritized Internet use for downloading and watching movies and songs and communicating with their friends and family. This may indicate that they are feeling lonely, as was mentioned by a few of the students. To minimize the stress that may have arisen from being far from home, students may indulge in more time spent on the Internet. Thus, the mode of getting rid of stress should be changed. They could be involved in other activities to prevent their Internet addiction and help relieve home sickness. Sporting activities, going out with friends, and sharing their problems with management and colleagues might help them to minimize their stress and Internet addiction. These activities may refresh, relax, and make them physically and mentally fit. Listening to music for a short period also helps relax the mind and heart and relieves stress.¹¹ However, some students (24/100) have mentioned that educational and learning purpose are their main priority for Internet use. These students were not addicted to the Internet. This implies that using the Internet for study purposes is not a marker of Internet addiction. Using the Internet for the purpose of study will help them to better understand the subject and subsequently may reduce their education-related stress. Nevertheless, how learning from the Internet (e.g., Wikipedia, Encyclopedia, Youtube etc) helps students achieve success in the exam needs further study.

Literature studies have shown contradictory findings about the effect of Internet addiction and the academic success of students. A few reports mention that Internet addiction does not affect students' academic performance.¹² Other studies have mentioned that Internet addiction decreases academic performance.^{5,9} This may be due to prolonged Internet use for purposes other than studying. There are other reasons of Internet use which could be harmful to their health. For example, misuse of Internet can lead to cybercrime, bullying, and solicitation.^{13,14} Hence, Internet addiction and the reason for its use may affect the academic performance of the students if they have sleep deprivation leading to poor mental concentration in their studies. The relationship between Internet addiction and academic success needs further study.

The limitations of the study are that the sample size was small and the fact that the major stressor that affects students in hostels was not determined. Nevertheless, this study highlights the emerging psychological problems seen in Nepalese medical students. This type of study provides a platform to management and clinicians to identify the difficulty faced by students due to Internet overuse such as sleep deprivation, negative moods, lack of concentration in class, etc. In addition to this, the study recommends clinicians to provide better remedy/intervention (mental health treatment) for Internet-addicted students.

Conclusion

Medical students are experiencing problems due to their levels of Internet use. They lack proper sleep and therefore, have poor mental concentration. The level of this problem might become even greater, ie, higher addiction level, if not stopped soon. The majority of students use the Internet for entertainment and communication with their family and friends. It was also evident that some students spent more time on the Internet for leisure than for study. Students should be encouraged to use some other mode of recreational activity to help them ease their Internet addiction and take their mind off from being lonely at the hostel. Therefore, it is recommended to make remedial arrangements for those students who are likely to have poor mental health because of the Internet addiction.

Acknowledgments

Authors would like to thank all the participants and Ms Anupa Lamichhane (Technologist) for her help during the collection of data.

Disclosure

The authors report no conflicts of interest in this work.

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Supplementary materials

To begin, answer the following questions by using this scale:

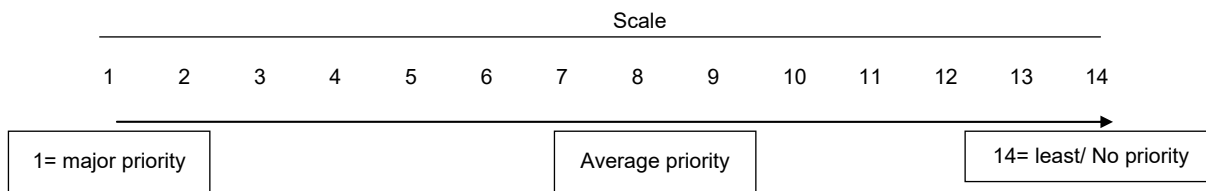
0	Does not apply
1	Rarely
2	Occasionally
3	Frequently
4	Often
5	Always

	Question	Scale					
		1	2	3	4	5	0
1	How often do you find that you stay online longer than you intended?	1	2	3	4	5	0
2	How often do you neglect household chores to spend more time online?	1	2	3	4	5	0
3	How often do you prefer the excitement of the Internet to intimacy with your partner?	1	2	3	4	5	0
4	How often do you form new relationships with fellow online users?	1	2	3	4	5	0
5	How often do others in your life complain to you about the amount of time you spend online?	1	2	3	4	5	0
6	How often do your grades or school work suffer because of the amount of time you spend online?	1	2	3	4	5	0
7	How often do you check your e-mail before something else that you need to do?	1	2	3	4	5	0
8	How often does your job performance or productivity suffer because of the Internet?	1	2	3	4	5	0
9	How often do you become defensive or secretive when anyone asks you what you do online?	1	2	3	4	5	0
10	How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	1	2	3	4	5	0
11	How often do you find yourself anticipating when you will go online again?	1	2	3	4	5	0
12	How often do you fear that life without the Internet would be boring, empty, and joyless?	1	2	3	4	5	0
13	How often do you snap, yell, or act annoyed if someone bothers you while you are online?	1	2	3	4	5	0
14	How often do you lose sleep due to late-night log-ins?	1	2	3	4	5	0
15	How often do you feel preoccupied with the Internet when offline, or fantasize about being online?	1	2	3	4	5	0
16	How often do you find yourself saying "just a few more minutes" when online?	1	2	3	4	5	0
17	How often do you try to cut down the amount of time you spend online and fail?	1	2	3	4	5	0
18	How often do you try to hide how long you've been online?	1	2	3	4	5	0
19	How often do you choose to spend more time online over going out with others?	1	2	3	4	5	0
20	How often do you feel depressed, moody, or nervous when you are offline, which goes away once you are back online?	1	2	3	4	5	0

Figure S1 Internet addiction test by Dr Kimberly Young.

Notes: The Internet Addiction Test is a reliable and valid measure of addictive use of Internet and was developed by Dr Kimberly Young. It consists of 20 items that measure mild, moderate, and severe level of Internet addiction. Total up the scores for each item. The higher the score, the greater level of addiction is. 20–49 points: Average online user. May surf the web a bit too long at times, but have control over usage. 50–79 points: Experiencing occasional or frequent problems because of the Internet. Need to consider full impact on life. 80–100 points: Internet usage is causing significant problems in life. Need to understand the impact of the Internet on life and address the problems directly caused by Internet usage. Prepared & posted by Dayu Internet Overuse Solution, the solution for Internet overuse and online addiction. An online version is available at <http://www.internetoveruse.com/?p=171>.

Among the following items, which one are your first and the last purpose of Internet use? Please number them in sequential order as in the scale.



S.N.	Items	Numbering
1	Playing online games	
2	Downloading film and music	
3	Watching movies/Songs online	
4	Chatting with new people (Facebook/Yahoo/Whats app, Skype etc.)	
5	Scientific search	
6	Educational and Learning activities (examples: academic slides and books downloads, Google search, studying animations from YouTube)	
7	For communicating with friends and families	
8	Checking email	
9	Internet shopping	
10	Reading news	
11	Writing weblogs	
12	Learning computer applications (Software download, mobile application surfing, increasing computer knowledge)	
13	Uploading/downloading exploiting images and videos (preparing MMS and its upload)	
14	Solicitation (offering to purchase goods and services, offering money and house etc.)	

Any other purpose of internet use and its priority level (mention):

Demographic Characteristics

Roll Number:

Name:

MBBS Year:

Sex:

Age:

Predominant time of internet use:

Estimated monthly cost of internet use (encircle any one): very low to low/intermediate/high to very high or amount _____

Figure S2 Various purposes of Internet use

Abbreviations: MBBS, Bachelor in Medicine and Bachelor in Surgery; MMS, multimedia messaging service.

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