Original Research Article

An era of digital slavery: a study on internet addiction among professional college students of Hassan, Karnataka

Subhashini K. J., Praveen G.*

Department of Community Medicine, Hassan Institute of Medical sciences, Hassan, Karnataka, India

Received: 11 April 2018
Revised: 25 May 2018
Accepted: 26 May 2018

*Correspondence:
Dr. Praveen G.,
E-mail: drgpraveen@gmail.com

ABSTRACT

Background: The spectacular growth of technology has made Internet use, the most popular recreational and academic activity for the college students. With the rise of new-generation gadgets, the risk of "internet addiction" is a significant issue of concern. Internet addiction leads to social and psychological problems such as depression, loneliness, low self-esteem and life satisfaction and other mental health problems and a greater impact on their academics. The objective of the study was to determine the association between internet addiction and depression and to know the effect of gender on internet addiction.

Methods: A cross-sectional study was carried out on the professional course students from Hassan Institute of Medical Sciences (Government Medical College) and Government Engineering College. A total of 300 students were assessed for internet addiction using Young's internet addiction test and depression was assessed using Beck's depression inventory-II.

Results: Out of the 300 professional college students, 173 (57.7%) were found to be internet addicted and 67 (38.7%) among them were found to be depressed and a statistically significant association (p<0.05, OR 3.6, 95% CI 2.02–6.39) was found. Males were found to be more addicted than females and it was statistical significant.

Conclusions: Internet Addiction is common among the college students and adequate steps have to be taken to prevent the students from falling into addiction which is considered as a mental health issue. Knowledge regarding the safe use of internet has to be provided to students.

Keywords: Internet addiction, Young's internet addiction test, Depression, Beck's depression inventory-II, Professional courses

INTRODUCTION

Internet in the recent times, has emerged as a double-edged sword, beneficial in acquiring knowledge on one hand and addiction and habituation on the other hand that has serious effects on physical, mental and social wellbeing and also adversely affects the academic performance of the learning population.[1] The internet allows people to establish social connections with strangers without any fear, to express their thoughts and feelings freely without any inhibition and are able to access useful information, just with a single 'click'.[2]

According to a report 'Internet in India 2017', published jointly by the Internet and Mobile Association of India & Kantar IMRB, the number of internet users is expected to reach 500 million by June 2018 and the overall internet penetration is 35% of total population. The number of Internet users in India was estimated to be 481 million in December 2017, a growth of 11.34% over December

2016 estimated figures and the internet user market is still a male preserve in India.[3] Even other Studies have demonstrated that internet addiction was much commoner among males than in females.[4-6]

Digital literacy is a key to ensure everyone stays informed about the current affairs, and do their work online in a protected and safer way.[3] But the abundant use of internet has definitely changed the way we work, we communicate and we live.[7] With the easy accessibility of internet globally and with the rise of new-generation gadgets, the risk of "internet addiction" is a compelling behavioural pandemic to be tackled worldwide.[6]

The term internet addiction was proposed by Dr. Ivan Goldberg in 1995 for pathological compulsive internet use.[8] It is known by different terms such as pathological internet use, Problematic internet use, compulsive internet use and internet overuse in the literature.[7] Diagnostic and statistical manual of mental disorders fifth edition defines "internet addiction disorder as a pattern of excessive and prolonged Internet gaming that results in a cluster of cognitive and behavioural symptoms, including progressive loss of control over gaming, tolerance, and withdrawal symptoms, analogous to the symptoms of substance use disorders".[9] Similar to other addictions, those suffering from internet addiction use the delusionary world to communicate with real people through the Internet, as a substitution for real-life human connection, which they are unable to achieve normally.[10]

According to a report 'Internet in India 2017', published jointly by the Internet and Mobile Association of India & Kantar IMRB, internet is the preserve for youngsters, with Students and youngsters accounting for around 60% of all internet users in India.[3] Psychological and environmental factors in the lives of college students may leave them disproportionately vulnerable to Internet addiction.[11]

Research on internet addiction have shown that overuse of the internet is associated with social and psychological issues such as depression, loneliness, lower self-esteem and life satisfaction, poor mental health, low family function and academic failures.[12] When compared to other psychiatric comorbidities, depression also showed the strongest correlation with pathological Internet use.[13] Comorbid social media addiction and depression are a major clinical challenge as the outcomes of both conditions are worsened by the other.[14]

Identifying problematic Internet use among college students is challenging because the Internet can serve as a tool in nearly every aspect of their daily living such as for communication, shopping, business, travel, research, entertainment, and more and it is hard to imagine a world without internet.[15] As the college students are more vulnerable to addiction that may cause psychological problems and that in turn may lead to academic failures,

the study was undertaken among the professional course students.

Objectives

- To estimate the prevalence of internet addiction among undergraduate students of professional colleges of Hassan, Karnataka.
- To determine the association between internet addiction and depression.
- To evaluate the association between internet addiction and gender.

METHODS

This cross-sectional study was carried out on the professional course students of MBBS and Bachelor of Engineering (B.E) from Hassan Institute of Medical Sciences and Government Engineering College of Hassan, Karnataka respectively during the period of June 2017 to August 2017. The undergraduate students from both the colleges were the study subjects.

Sample size

By the formula,

$$n = Z^2 pq/d^2$$

where Z= 1.96 at 95% confidence level

p= prevalence of internet addiction assumed as 43% (According to study conducted in Bangalore by Krishnamurthy, Chetlapalli)[6]

$$q = 1-p = 57\%$$

d= allowable error= 15% of p=6.45

$$n = \frac{1.96 \times 1.96 \times 43 \times 57}{6.45 \times 6.45}$$

n= 236.

To compensate for non-response rate, 10% of n is added to the calculated sample size to get final sample size. Sample size thus yielded was 260 which was rounded off to 300.

Inclusion criteria

Students who were willing to participate and gave consent for the study.

Exclusion criteria

Students who have not used internet and students who were absent on the day of data collection.

Sampling procedure

This study was conducted after obtaining Institutional Ethical Clearance approval. After getting permission from the Head of the Institutions and written consent from the students, the students were subjected for the study. The first and second year undergraduates were selected as study subjects. The sample size of 300 was equally divided between the Government Medical college and Government Engineering college. Then the students fulfilling the inclusion and exclusion criteria were selected from Government Medical College and Government Engineering College by simple random sampling till the required sample was obtained. Then the proforma was given to the students and the students were asked to fill it after a brief explanation about the questionnaire.

The following two instruments were administered to the students for assessment of Internet Addiction and depression respectively.

1. Young's Internet Addiction Test (Young's IAT)
2. Beck's Depression Inventory II (BDI-II)

Young's Internet Addiction Test

It is a 20-item scale developed by Dr. Kimberly S. Young, the first psychologist to document internet addiction. The IAT is designed for the experienced Internet user who utilizes this technology on a frequent basis. The 20-item questionnaire measures characteristics and behaviours associated with compulsive use of the Internet that include compulsivity, escapism, and dependency. Questions also assess problems related to addictive use in personal, occupational, and social functioning. Questions are randomized and each statement is weighted along a Likert-scale continuum that ranges from 0 to 5 indicating 0= Does not apply, 1= Rarely, 2= Occasionally, 3= Frequently, 4= Often, 5= Always. The IAT total score ranges, with the higher the score representing the higher level of severity of Internet compulsivity and addiction. Total scores that range from 0 to 30 points are considered to reflect a normal level of Internet usage; scores of 31 to 49 indicate the presence of a mild level of Internet addiction; 50 to 79 reflect the presence of a moderate level; and scores of 80 to 100 indicate a severe dependence upon the Internet.[16]

Beck's Depression Inventory II (BDI)

It is a self-administered questionnaire to measure the intensity and severity of depression. It consists of 21 items with multiple choice answers with score from 0 to 3. Maximum score was 63. A score of 0-16 was considered as normal, 17-20 as mild/borderline depression, 21-30 as moderate depression, >30 as severe depression.[17]

Statistical analysis

Data was entered in Microsoft Excel spread sheet and analyzed using SPSS 16 and interpreted using Descriptive statistics. Chi square test of significance was used to find out the association between Internet addiction and depression. Independent t test was used to determine if a difference existed between the Mean scores of Boys and Girls on Internet Addiction Scale.

RESULTS

Out of the total 300 professional course students participated, 150 students were from medical college and 150 students from engineering college. Among the study subjects, 107 (35.7%) were males and 193 (64.3%) were females.

Table 1: Distribution of study subjects with internet addiction on Young's IAT.

Level of internet addiction	IAT scores	Frequency (n=300)
Normal users	0-30	127 (42.3)
Mild addiction	31-49	98 (32.7)
Moderate addiction	50-79	72 (24.0)
Severe addiction	80-100	3 (1.0)

Note: Figures in parenthesis indicate percentages.

Among the study subjects, 173 students (57.7%) were found to be addicted to internet on Young's internet addiction test (Young's IAT) (Table 1).
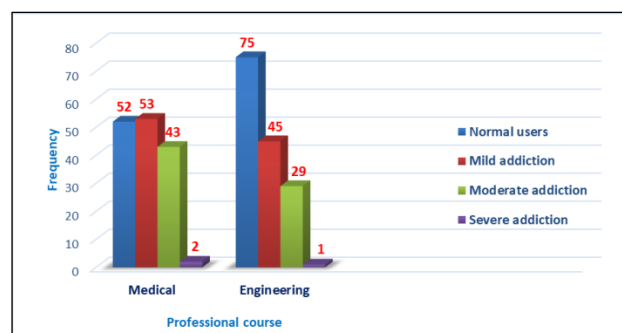

Figure 1: Proportion of study subjects with internet addiction on Young's IAT between medical and engineering college students.

On determining the number of students with Internet Addiction between Medical and engineering college students, Medical students (65.3%) were found to be more addicted to internet than engineering students (50%). Among them, 2 Medical students and 1 Engineering student had severe internet addiction indicating a severe dependence upon the Internet that would cause significant problems in their life (Figure 1).

On assessing, if a difference between professional course and Internet addiction truly existed, Chi–square test of

significance was applied and a statistically significant association was present which indicated that medical students were more addicted than the Engineering students (p<0.05) (Table 2).

Table 2: Proportion of study subjects with internet addiction on Young's IAT between professional college students.

Profession	Internet addiction		Chi square	P value
	Non-addicted	Addicted		
Medical	52 (34.7)	98 (65.3)	7.223	0.007*
Engineering	75 (50)	76 (50)		
Total	127 (42.3)	173 (57.7)		

Note: Figures in parenthesis indicate percentages.

Table 3: Proportion of study subjects with depression on BDI-II.

Severity of depression	BDI scores	Frequency (n=300)
Normal	0-16	214 (71.3)
Mild depression	17-20	26 (8.7)
Moderate depression	21-30	42 (14)
Severe depression	31-63	18 (6)

Note: Figures in parenthesis indicate percentages.

Table 4: Association between internet addiction and depression among professional course students.

Internet addiction	Depression on BDI-II		Chi square	OR (95% CI)	P value
	Non-depressed	Depressed			
Non addicted	107 (85.0)	20 (15.0)	19. 396	3.5 (1.97–6.23)	0.000*
Addiction	107 (61.3)	66 (38.7)			
total	214	86			

Note: Figures in parenthesis indicate percentages, *p<0.05= significant.

Table 5: Mean scores of males and females on internet addiction scale.

Gender	Mean IAT score	SD	t value	df	P value
Males	44.38	16.030	6.826	263.475	0.000*
Females	29.84	20.315			

*p<0.05= significant.

On Beck's depression inventory (BDI)-II scale, 86 (28.7%) students were found to be depressed, where mild level of depression was seen in 26 (8.7%) students, moderate level of depression seen in 42 (14%) students and severe level of depression seen in 18 (6%) students.

On assessing the association between internet addiction and depression among professional course students, 66 students (38.7%) among 173 students with Internet addiction were also found to be depressed. A statistically significant association was found between internet addiction and depression with p<0.05. The Internet addicted subjects were 3.5 times more at the risk of developing depression when compared with the non-addicted individuals (OR =3.5,95% CI,1.97-6.23) (Table 4).

Figure 2 shows the percentage of internet addict among males and females. The number of internet addicts among males was 87 (81.3%) and number of internet addicts among females was 86 (44.6%). It is very obvious from the graph males were more internet addicted than females.
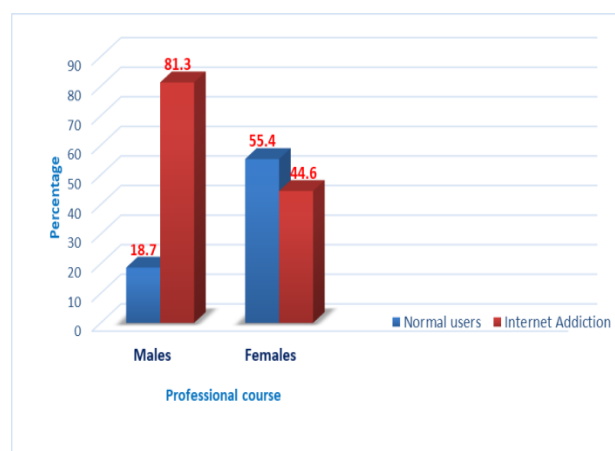

Figure 2: Prevalence of internet addiction among males and females.

Independent t test was conducted to determine if a difference existed between the mean IAT scores of males and females who were enrolled for the study. There was a statistically significant difference between the mean IAT scores of males (n=107, M=44.38, SD=16.030) and Females (n=193, M=29.84, SD=20.315), t=6.826 with p<0.05. So it was apparent that the mean score of boys were high as compared to their girls' counterpart. So, it can be said that gender plays a role in internet addiction (Table 5).

DISCUSSION

In the new generation, the Internet has become an important tool for education, entertainment, communication, and information-sharing. Easy access and social networking are two of the several aspects of the internet fostering addictive behaviour.[6] Most of the college students use the internet for social interaction and communication as well as for their education.[15] The uninterrupted access without proper guidance might result in over use of the internet which eventually leads to addiction. Internet addiction like other forms of addiction has many negative consequences for the users, their family and the friends.[18]

This study reveals significant amount of Internet addiction among the professional course students. The prevalence of Internet addiction was found to be 57.7% which is consistent with the with the study by Chaudhari et al and Mashaei et al which showed prevalence of internet addiction as 58.7% and 57.6% respectively.[19,20] Prevalence rates ranging from 20% to 65% were reported in many studies done in various parts of the world.[2,6-8,11,13,15,19] Possible reasons for this are: (a) students have huge blocks of unstructured time, (b) First time away from parental control without anyone monitoring or censoring what they say or do online, (d) young students experience new problems of adapting to college life and finding new friends, and often end up seeking a companionship by using different applications of the Internet, (e) students desire to escape university sources of stress resulting from their obligations to pass exams, and complete their degrees in the prescribed time with reasonable marks, all of which make Internet overuse a significant cause of concern for parents and faculty.[11]

Among the study subjects, 32.7% students reported mild addiction, 24% students reported moderate addiction and 1% reported severe addition. Mild addiction indicates that those students are average on-line users but they have to control over their usage. Moderate addiction indicates that those students are experiencing occasional or frequent problems because of the internet. Severe addiction indicates that internet usage is causing significant problems in their life.[16]

In this study, medical students (65.3%) were found to be more addicted to internet than engineering students (50%). A study carried out among medical students in Mangalore and Andhra Pradesh by Chathoth et al and Subhaprada et al respectively showed a higher magnitude of internet addiction of 76% each compared to our study.[21,1] Similar studies showed that the magnitude of Internet Addiction ranges between 20% to 40% which is less when compared to our study.[1,2,22-24] A study carried out among Engineering students in Tamil Nadu by Deepa Sankar et al showed a magnitude of internet addiction of 35% which is less compared to our study.[25] There is a statistically significant association between professional course and Internet addiction which indicated that medical students were more addicted than the engineering students.

Depression is the leading cause of disability worldwide and University students are a special group of people that are enduring a critical transitory period in which they are going from adolescence to adulthood and making many major life decisions.[26] During this period, the mental health of university youth constitutes one of the important components of social health.[27] In our study, 28.7% of the college students were found to be depressed which is almost in line with study done by Bayram et al reported that depression were found in 27.1%.[27] Another study by Sarokhani et al showed a prevalence of 33%.[28] This variation has been explained to be due to cultural differences, different measurement tools, different methods, and different appraisal standards.[28]

Studies suggest that increased levels of depression are associated with those who become addicted to the internet. It is plausible that depressives are drawn to electronic communication because of the anonymous cover granted to them which helps them overcome real-life interpersonal difficulties.[29] The disappearance of facial expression, voice inflection, and eye contact makes electronic communication less threatening, thereby helping the depressive to overcome the initial awkwardness and intimidation in meeting and speaking with others.[17] In our study, a significant association is seen between internet addiction and depression, which is consistent with those of other studies that have found a positive relationship between depression and internet addiction.[13,14,17,29-31] In addition, supportive data can be found in the studies of depressed individuals, who are more likely to engage in Internet use. Therefore, it appears that if individuals can reduce their internet addiction, they may reduce their depression level.[12]

In our study, rate of Internet Addiction was significantly higher in male males (81.3%) than in females (44.6%) and comparing the mean IAT scores of males and females, mean IAT scores of males were more than the Females that indicated gender plays a role in internet addiction. This was consistent with those of most of the previous studies.[1,5,6,11,17,21,23] It also seems that male students are more likely to become Internet dependent because they are more experienced in using the Internet, receive less parental supervision and use the Internet for entertainment purposes more than females do.[17]

Limitations

Only two institutions were included under professional courses in this study. Thus generalising the results to the general population is ambiguous. Hence further research involving sample of the most of the professional courses is needed.

CONCLUSION

Internet use plays an integral part in everyone's daily lives, especially in the lives of college students as they use Internet for social interaction, entertainment and for education. In our study, the magnitude of Internet Addiction was found to be 57.7%, with males more than the females and there a close association between Internet addiction and depression which signifies the need to have a controlled and balanced usage of Internet.

Recommendations

The internet addiction among students should be taken serious consideration that we screen the college students for Internet addiction and depression before it becomes problematic. The responsibility of Parents and teachers assessing the possibility of addiction among their children and students should be emphasized. Psychological strategies like motivational interviewing for treating addicts have to be developed exclusively for Internet addiction.

ACKNOWLEDGEMENTS

The authors would like to thank the Director of Hassan Institute of Medical Sciences & Principal of Government Engineering college, Hassan for giving permission to conduct the study in their colleges and also all the students who participated in this study.

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