Pattern of internet use, anxiety, and depression among professional students of Tripura, India: an analysis

Abstract

Introduction: In this era of technology we cannot imagine our lives without internet. However, excessive internet use may bring curse in life. **Aims and objectives:** The present study was an attempt to examine the pattern and prevalence of internet use among medical and engineering students. It was also aimed at comparing pattern of internet use, anxiety, and depression of professional students. Further, it was also intended to study the level of anxiety and depression across the subgroups of internet users. **Methodology:** The study was carried out among 1100 professional students, selected randomly from five institutions of Tripura, India. Out of 1100 students, 659 were medial students and 441 were engineering students. All of them were in the age group of 18-25 years. Internet Addiction Test, Hamilton Anxiety Rating Scale, and Hamilton Depression Rating Scale were used for assessing pattern of internet use, anxiety, and depression respectively among the professional students. Data was collected from the subjects following group administration method and was analysed quantitatively with the help of Statistical Package for the Social Sciences version 25 (SPSS v25). **Results:** The prevalence of excessive internet use among professional students of Tripura was 7.4%. Medical and engineering students did not differ significantly with respect to their pattern of internet use (except 'average' use of internet), anxiety, and depression. However, a significant difference in each of anxiety and depression had been noted across the different patterns of internet use of the study subjects.

Keywords: Medical Students. Engineering Students. Internet Addiction. Nervousness. Depressive Disorder.

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INTRODUCTION

The present digital world moves on internet. Internet is being used extensively globally. According to a data from internet usage statistics in June 2013, India had 190 million internet users.[1] Social platforms like Facebook, Twitter, and WhatsApp are the very popular terms related to internet use among young generations. Through internet we can upgrade our knowledge as well as able to communicate with our near and dear ones. In this sense, internet use makes our life easy. However, excessive internet use may bring curse in life.

Researches on internet suggest that the excessive use of internet is related to dangers of negative influence on number of daily life activities, sometimes leading to a state resembling addiction to various substances. Mental health experts have named internet addiction (IA) as internet addiction disorder (IAD), a term first used by Goldberg in 1996.[2] Goldberg said, IAD occurs when a person experiences decreased personal, academic, social, work-related, family, political, psychological, or physiological functioning. According to Kimberly Young, IA is characterised by inability to control use of internet, activity avoidance, psychological isolation, and continued use despite poor behavioural outcome.[3] Problematic use of the internet has negative impacts on various

dimensions of life, such as education, political, and jobs. Study showed that young students are vulnerable to IA.[4] So, it is very important to identify IA among students for preventing associated psychopathology.

All over the world different researchers investigated the prevalence of IA. IA is recorded more frequently in Asian countries and in males aged between 12 and 20 years.[5] According to the reports of World Internet Usage and Population Statistics, the prevalence of IA varies across world regions. North America had the highest internet penetration rate (94.6%) followed by Europe (87.2%). Although Asia had the greatest number of internet users but, its average penetration rate was comparatively, low (55.1%). The country where there is less penetration of internet is Africa with 39.3% prevalence.[6]

IA/problematic internet use (PIU) is very much harmful because it negatively affects an individual's daily life and activity. Researches have indicated that PIU results in muscle ache, computer vision syndrome, sleep deprivation, attention-deficit/hyperactivity disorder (ADHD), depressive disorders, social phobia, and aggression, and thus, influences negatively academic or job performance of an individual and his/her relationship with others.[7,8]

Many studies also found significant relationship between internet addiction and depression and anxiety among students.[9,10] Thus, internet addiction is such a problem which has negative psychological, physical, and social impact on one's life. So, it is necessary to examine prevalence of internet addiction and its associated mental health issues.

Aims and objectives

1. To ascertain pattern and prevalence of internet use among medical and engineering students.
2. To compare pattern of internet use, anxiety, and depression among medical and engineering students.
3. To compare the subgroups of internet users with respect to their anxiety and depression.

Hypotheses

To fulfil the objectives of the present study, following hypotheses have been formulated-

Ho_1: There will be no significant difference among medical and engineering students with respect to their pattern of internet use.

Ho_2: There will be no significant difference among medical and engineering students with respect to their (a) anxiety and (b) depression.

Ho_3: There will be no significant difference among the subgroups of internet users with respect to their (a) anxiety and (b) depression.

METHODOLOGY

The sample consisted of 1100 professional students of Tripura, India who were selected randomly from two medical (Agartala Government Medical College and Tripura Medical College) and three engineering colleges (National Institute of Technology, Agartala, Tripura Institute of Technology, and Techno College of Engineering, Agartala). All of them were in the age group of 18-25 years. Among them 659 were medial students and 441 were engineering students.

For the collection of data, permission was taken from the authorities of different engineering and medical institutes, and a tentative time schedule was planned for visit to each college/institute. Before administering the scales, the participants were requested to fill the consent form and then rapport was established with the subjects. Only those subjects who were willing to participate were selected for this study. All the ethical concerns were followed during data collection.

For data collection, Background Information Schedule, Internet Addiction Test,[3] Hamilton Anxiety Rating Scale,[11] and Hamilton Depression Rating Scale[12] were used. Data were collected from the subjects through group administration of the scales during the period of February 2016 to November 2017.

Data collected from the students were analysed quantitatively. For testing the hypotheses, inferential statistics like t-test and analysis of variance (ANOVA) with Tukey's Honestly Significant Difference (HSD) (post-hoc analysis) were computed. Data analysis was done with the help of Statistical Package for the Social Sciences version 25 (SPSS v25).

RESULTS AND INTERPRETATION

Table 1 displayed the pattern and prevalence of internet addiction among professional students of Tripura, India. The results showed that out of 1100 students, 7.4% students were found to have PIU. The majority (69.7%) of the students were found to be 'average' online user. 22.9% of them were found to have below average scores of addiction. The participants mostly reported that they use internet at any time of the day and night (85.73%). The reason behind using internet was dominated by using social networking sites (34.7%), followed by educational purposes (32.5%) and gaming (15.6%).

As evident from the post-hoc test against a significant ANOVA model (p<0.01), in terms of below 'average' addiction scores (no addiction), there existed no significant difference among the medical and engineering groups. The same went for 'problematic' usage pattern (p>0.05). However, the medical group (mean=32.721) was found to be significantly higher (p<0.01) in 'average' pattern of internet usage, as compared to the engineering group (mean=29.331). Hence, Ho_1, i.e. 'There will be no significant difference among medical and engineering students with respect to their pattern of internet use' has been partially accepted (Table 2).

From Table 3, it is also evident that medical and engineering students did not differ significantly with respect to their anxiety and depression level. Therefore, $Ho_{2(a)}$, i.e. 'There will be no significant difference among medical and engineering students with respect to their anxiety' and $Ho_{2(b)}$, i.e. 'There will be no significant difference among medical and engineering students with respect to their depression' have been accepted.

Table 4 shows the comparison of anxiety level across the subgroup of internet users. The results indicated that there exists significant difference in anxiety, across the three groups of internet users. The problematic internet users have more anxiety than the average internet users (p<0.05). Hence, the $Ho_{3(a)}$, i.e. 'There will be no significant difference among the subgroups of internet users with respect to their anxiety' has been rejected.

Table 1: Pattern and prevalence of internet addiction among professional students

Parameters	N	%
Pattern of internet use		
No addiction (limited or no internet use)	252	22.9
Average addiction (average online user)	767	69.7
Problematic addiction (problematic online user)	81	7.4
Time of internet use		
At day time only	58	5.27
At night time only	99	9
Both day and night time	943	85.73
Reasons for internet use (multiple response)		
Educational search	888	32.5
Social networking	949	34.7
Recreation	407	14.9
Game	427	15.6
Others	63	2.3

Table 2: Comparison between medical and engineering students with respect to theirpattern of internet use

Groups	N	Mean	SD	Tukey's HSD comparisons		
				Medical vs engineering students (p values)		
				No addiction	Average addiction	Problematic addiction
No addiction				p>0.05	p<0.01	p>0.05
Medical students	160	11.700	5.876			
Engineering students	92	9.359	5.139			
Average addiction						
Medical students	423	32.721	7.765			
Engineering students	344	29.331	6.869			
Problematic addiction						
Medical students	76	56.553	4.927			
Engineering students	5	57.600	4.506			

$F_{(5,1094)}=30134.771$, $p<0.01$

Table 3: Comparison between medical and engineering students with respect to their anxiety and depression

Mental health variables	Subjects	Mean	SD	t value	p value
Anxiety	Medical students (N=659)	12.289	7.286	0.365	0.715
	Engineering students (N=441)	12.138	5.838		
Depression	Medical students (N=659)	4.302	3.656	-1.472	0.141
	Engineering students (N=441)	4.659	4.138		

Table 4: Comparison of subgroups of internet users with respect to their anxiety

Groups	Number	Mean	SD	Tukey's HSD comparisons		
				No addiction vs average addiction	Average addiction vs problematic addiction	No addiction vs problematic addiction
No addiction	252	8.282	6.980	p<0.01	p<0.05	p<0.01
Average addiction	767	13.205	5.914			
Problematic addiction	81	15.272	8.301			

$F_{(2,1097)}=66.597$, $p<0.01$

Tukey's HSD comparison (Table 5) showed that both 'problematic' and 'average' online users have significantly higher depression than the 'no addiction' group (p<0.01). However, 'problematic' and 'average' online users did not differ significantly in their feelings of depression. Hence, Ho$_{3(b)}$, i.e. 'There will be no significant difference among the subgroups of internet users with respect to their depression' has been partially accepted.

DISCUSSION

So far as pattern and prevalence of internet addiction among the professional students of Tripura, India is concerned, the findings indicated that 22.9% students did not have any indication of internet addiction. Most of the professional students were found to be 'average' internet users while, 7.4% of the participants were 'problematic' online users. Therefore, it can be said that the prevalence of PIU among professional students of Tripura is 7.4%. In the year 2009, Lam *et al.*[13] conducted a study and found that 10.2% of the participants were moderately addicted and only 0.2% were severely addicted. However, Deng *et al.*[14] reported 5.52% severe addiction to internet, which is close to the present findings.

The present study indicated that more than 85% students used to be online at any point of time irrespective of day or night and the dominant reason behind staying online was social networking. Different studies also showed that internet addiction was mostly linked to the online activity of social interaction.[15,16]

When it comes to 'average' addiction level, the medical students had at a significantly superior position than that of the engineering group. This outcome concurs with the findings of Ghamari *et al.*,[17] who also found significantly higher level of internet addiction among the medical students. Studies stated that there is excessive academic pressure on the medical students,[18] and high academic stress increases the risk of getting addicted to internet.[19] On the contrary, in case of 'problematic' internet use, the present study revealed that engineering students had more internet addiction than their counterparts (although the difference was not significant). The present findings corroborate with the findings of Sharma *et al.*,[1] who did their research on Indian population and found that 47.61% of the engineering students were addicted to internet, while 44.61% of medical students were addicted to internet. Again, in a study on 'nomophobia' by Dasgupta *et al.*,[20] the level of smartphone and internet addiction were

Table 5: Comparison of subgroups of internet users with respect to their depression

Groups	Number	Mean	SD	Tukey's HSD comparisons		
				No addiction vs average addiction	Average addiction vs problematic addiction	No addiction vs problematic addiction
No addiction	252	3.075	3.371	p<0.01	p>0.05	p<0.01
Average addiction	767	4.821	3.889			
Problematic addiction	81	5.148	4.047			

$F_{(2,1097)}=66.597$, $p<0.01$

found to be significantly higher among engineering students (44.6%) as compared to the medical students (42.6%).

The results of the present study also pointed to the fact that anxiety and depression significantly differed across the different levels of internet addiction. The students belonging to 'no addiction' category of internet use had less anxiety and depression than their counterparts. It is likely that more severe the addiction, higher is the level of anxiety and depression. Many studies also found anxiety and depression as the significant predictors of problematic internet use [21,22].

Limitations

The study was conducted among undergraduate professional students of Tripura only. The study was conducted only on 1100 professional students. The study could not explore the impact of age and sex of the participants on their pattern of internet use, anxiety, and depression.

Conclusions

The majority of the professional students irrespective of their degree course were found to be 'average' internet users. On the other hand, 7.4% students were found to have 'problematic' internet usage which further indicates that the prevalence of excessive internet use among the professional students of Tripura is 7.4%. Medical and engineering students differed significantly with respect to their 'average' use of internet, however, in case of 'no addiction' and 'problematic' internet addiction, they did not differ significantly. Again, both the groups of students did not differ significantly with respect to their anxiety and depression. Finally, it can be concluded that normal/limited online users were less anxious and depressed than the average and problematic online users.

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