

Internet Addiction and Associated Factors among Undergraduates

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ABSTRACT

Background: With the surge of internet-based smart gadgets worldwide in 21st century the problem of internet addiction is emerging as a major behavioural addiction pandemic of the contemporary era. Excessive Internet use has become significant mental health concerns especially among students. Internet use has many advantages if used in right fashion, it has an enormous amount of negative consequences as well such as depression, attention deficit and so forth.

Methods: Descriptive cross-sectional study was done among 356 undergraduate students of Bharatpur Metropolitan City of Nepal. Multistaged random sampling was applied to select undergraduate students and semi structured self-administered questionnaire along with structured standard Young's tool for Internet Addiction Test was used for collecting information during June 2019 to August 2019.

Result: Alarming High proportions of participants (73%) were found addicted to Internet, where, 48%, 20.5% and 4.5% had mild, moderate and severe Internet addiction respectively. Higher prevalence of Internet addiction was observed among those whose father's occupation was 'foreign employment' as compared to agriculture. (AOR = 2.34, 95% CI 1.02-5.33, p=0.04), Failed in the recent exam as compared to Pass in the recent exam. (AOR = 2.81 CI 1.40 – 3.561, and among non-science stream as compared to science stream (AOR = 3.10, 95%CI 1.81-5.32), p=<0.001)

Conclusions: The finding suggests that prevalence of Internet addiction was tremendously high among undergraduate students. There is critical need of awareness programmes targeted to the students as well as parents regarding the negative impacts of unwise Internet use.

Keywords: Bharatpur metropolitan; internet addiction; undergraduate students.

INTRODUCTION

The Internet has become an indispensable part of our life today. The prevalence of Internet users and using hours has grown extraordinarily.¹ In Nepal, Internet penetration rate alone has reached up to 63% in 2019 from 0.2% in the year 2000.²

Though there are lots of advantages of Internet use if used in right fashion, it has enormous amount of negative consequences as well.^{3,4} Internet addiction is an emerging psychological problem across the globe.^{5,6} Internet addiction is recently classified as one of the mental disorders.⁷ Prevalence rate of Internet addiction is high among undergraduate students worldwide.^{8,9}

Undergraduates are accessing the Internet more than any other age groups even in Nepal.¹⁰ Effects of these problems could have serious implications for academic performance as well such as difficulty in performing daily routine, problems with selfcare, anxiety, depression, pain and discomfort etc .¹¹⁻¹⁴ The aim of present study is to assess the magnitude of Internet addiction and its associated factors.

METHODS

Institution-based cross-sectional descriptive study design was used to assess the magnitude of Internet addiction among undergraduates of Bharatpur Municipality, Chitwan, Nepal.

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The study was conducted in Bharatpur Metropolitan City lies in the central-southern part of Nepal. The City is the District headquarter of the Chitwan District and is the fifth largest city of Nepal with the population of 199,867. Bharatpur is one of the fast-growing cities of Nepal. It lies on the left bank of Narayani River and serves as a commercial centre of Chitwan district and central region of Nepal. There is a total of 27 colleges including 2 Medical colleges.¹⁵ Literacy rate for female and male in Chitwan are 82.25 % and 90.75% respectively.¹⁶

The data collection period was from June 2019 to August 2019.

Ethical approval was obtained from Institutional Review Committee of Chitwan Medical College and Teaching Hospital (Ref: CMC/IRC 075/76-130). Permission obtained from each selected college before data collection. Informed consent was explained to the respondents and obtained just before the data collection. Respondents were assured that the information provided by them would be anonymous and confidential to avoid response bias. Study participants were informed about their right to decide whether to participate in the study.

Those Undergraduate students including health science students who were willing to give written consent and currently studying undergraduate level at Bharatpur metropolitan city were included in the study. Those undergraduate students who were not willing to give valid consent and those who were absent for two consecutive visits during data collection were excluded in the study.

Sample size for the study was 356 which was estimated using Cochran's formula $N = Z^2pq/L^2$ [29] with 95% level of confidence interval, critical value $Z = 1.96$, and 6% margin of error, and pooled prevalence of internet addiction among medical students is 30.1% from meta-analysis.¹⁷ The initial sample size of the study was 225. Since multistage random sampling was used as a sampling technique, the initial sample size of the study 225 was multiplied by design effect of 1.5. By adding non-response rate of 5.5%, the final sample size of the study was 356.

Multistage random sampling method was applied to select the participants. In the first stage, three out of 27 undergraduate colleges of Bharatpur Metropolitan were randomly selected by using lottery method. For the lottery method, names of all 27 undergraduate colleges were written in a separate, uniform-sized paper which was folded and put into a bowl. The papers were thoroughly mixed in the bowl. One by one, three papers were taken out. The bowl with papers was thoroughly

shaken every time a paper was taken out. In the second stage, the list of undergraduate students from the selected colleges were obtained from the college administrations one week prior to data collection and listed in Microsoft excel sheet in alphabetical order. After assigning the serial numbers to make sample frame with total of 1430 eligible students, 356 were randomly selected by systematic sampling technique. The first undergraduate student was selected by using the lottery method and then using an interval ratio of 4.01, i.e. One in every four undergraduate students was selected. Those students who were not available during visits and/or did not give informed consent were not included in the study, and subsequent students were selected from the list using random selection method.

Data was collected using self-administered questionnaire. There were two sections in the data collection tool in the study. Self-constructed pretested semi-structured questionnaire was used to measure independent variables and structured standard Young's Internet Addiction Test (IAT) was used to measure the prevalence of Internet addiction.¹⁸ Pretesting of the questionnaire was carried out in similar population at non-study area. The questionnaire was checked, and modification of the tools was done as per the requirement after pretesting. Adequate literature was reviewed and simple and understanding language was used as far as possible to get proper responses from the respondent. Internet Addiction Test used in this study is a validated tool, used for detection of internet addiction, where, reliability coefficient Cronbach alpha was calculated as 0.90 and Spearman Brown value was calculated as 0.86.¹⁹

The Internet addiction was assessed through the tool, which was developed by Dr Kimberly S Young in 1998. The tool includes 20 questions with a scoring of zero to five for each question. Each answer was scored on a Likert scale as 0 = Never, 1=rarely, 2=occasionally, 3=frequently, 4=often, and 5=always. The final score was obtained by summing up the scores of all questions, hence, a total minimum and maximum scores of the Young's tool was 20 and 100 respectively. The greater score represents a higher level of addiction. According to this scoring, study unit was classified into normal users <20, mild 20-49, moderate 50-79) and severe >79 Internet addiction groups.

For calculating binary logistic, the output variable was categorized into two variables i.e. Normal Internet use (less than 20 score) and Internet addicted (21 and above score)

Data entry was done in Epi data 3.1 and exported to

IBM SPSS 20 v. Descriptive as well as inferential analysis were done through this software. Under the descriptive analysis: frequency, percentage, mean, median were calculated. For the purpose of inferential analysis, those variables, which had statistically significant association ($p < 0.05$) in bivariate analysis (Pearson chi square) were further analyzed in multivariate logistic regression to analyze factors which were associated with Internet addiction.

RESULTS

The study found that only 27% of undergraduate students were normal internet user, i.e. not having internet addiction. Nearly half of the students were having mild internet addiction. A total of 4.5% of students was suffering from severe internet addiction (Table 1).

The age of participant ranges from 16 to 25 with the Median (IQR) 19.00(8) years. Around 75% of the respondents were between 16-20. A total of 58.7% and 41.3% of respondents were male and female respectively. It showed a statistically significant relationship of Internet addiction with fathers' occupation ($\chi^2 3.3$, $p=0.016$) and mothers' educational status ($\chi^2 7.847$, $p=0.049$) but there was no significant association of Internet addiction with age, sex, mothers' occupation and religion (Table 2). There was statistically significant

relationship of Internet addiction with Stream of education ($\chi^2 19.009$, $p < 0.001$), academic achievement in recent exam ($\chi^2 4.347$, 0.024) and access to Internet ($\chi^2 4.347$, 0.001) but there was no significant association of Internet addiction with study year and college shift. (Table 3)

In multivariate analysis the significant factors associated with Internet addiction were observed among those whose fathers' occupation was 'foreign employment' as compared to agriculture (AOR=2.34, 95% CI 1.02-5.33, $p=0.04$). This suggest that the students whose fathers' occupation was foreign employment has nearly two-and-half times more tendencies of being internet addicted as compared to those whose father's occupations was agriculture. Similarly, those who failed in recent exam has tendency of nearly 3 times high chances of being internet addicted as compared to those students who passed in recent exam (AOR = 2.81 CI 1.40 - 3.561). Students from non-science stream had more than three times high chances of getting internet addiction as compared to those from science stream (AOR=3.10, 95%CI 1.81-5.32), $p < 0.001$). Similarly, those who have access to Internet at their home had more than three times Internet addiction as compared to those who were not having Internet access at home. (AOR 3.10 CI 1.81-5.32) (Table 4).

Table 1. Prevalence of internet addiction among undergraduate students in Bharatpur Metropolitan City.

Addiction status (Score)	Frequency (n=356)	Percentage (%)
Not addicted (0-19)	96	27
Mild (20-49)	171	48
Moderate (50-79)	73	20.5
Severe (80- 100)	16	4.5

Table 2. Association of Socio-demographic Variables with Internet addiction (n=356).

Variables	Number (%)	Internet addiction		X ² Value	P-value
		Addicted (%)	Non-addicted (%)		
Age					
16-20	267 (75.0)	190 (71.2)	77 (28.8)	1.902	0.168
21-25	89 (25.0)	70 (78.7)	19 (21.3)		
Sex					
Male	209 (58.7)	155 (74.2.1)	54 (25.8)	0.328	0.567
Female	147(41.3)	105 (71.4)	42(28.6)		
Father's educational status					
Illiterate	47 (13.2)	30 (63.8)	17(36.2)	4.969	0.174
Primary education	70 (19.7)	50 (71.4)	20 (28.6)		
Secondary education	134 (37.6)	106 (79.1)	28 (20.9)		
Higher Secondary and above	105 (29.5)	74 (70.5)	31(29.5)		

Table 2. Association of Socio-demographic Variables with Internet addiction (n=356).

Father's occupation					
Agriculture	110 (30.9)	69 (62.7)	41 (37.3)	10.265	0.016*
Business	122 (34.3)	91 (74.6)	31 (25.4)		
Service	63 (17.7)	49 (77.8)	14 (22.2)		
Foreign employment	61 (17.1)	51 (83.6)	10 (16.4)		
Mother's educational status					
Illiterate	62 (17.4)	48 (77.4)	14 (22.6)	7.847	0.049*
Primary education	107 (30.1)	68 (63.6)	39 (36.4)		
Secondary education	141 (39.6)	111 (78.7)	30 (21.3)		
Higher Secondary and above	46 (12.9)	33 (71.7)	13 (28.3)		

*Significant at p=<0.05

Table 3. Association of academic variables with Internet addiction (n=356).

Variables	Number (%)	Internet addiction		X ² Value	P-value
		Addicted (%)	Non-addicted (%)		
Study year					
1 st year	194 (54.5)	141 (72.7)	53 (27.3)	2.695	0.26
2 nd year	140 (39.3)	106 (75.7)	34 (24.3)		
3 rd year	22 (6.2)	13 (59.1)	9 (40.9)		
Stream of education					
Science	138 (38.8)	83 (60.1)	55 (39.9)	19.009	0.000*
Non-science	218 (61.2)	177 (81.2)	41 (18.8)		
Academic achievement in recent exam					
Pass	273 (76.4)	192 (70.3)	81 (29.7)	4.347	0.024*
Fail	134 (37.6)	68 (81.9)	15 (18.1)		
College shift					
Morning	222 (62.4)	166(74.8)	56 (25.2)	0.908	0.341
Day	134 (37.6)	94 (70.1)	96 (29.9)		
Internet access at current residence (for study)					
Yes	258 (72.5)	201 (77.9)	57 (22.1)	11.302	0.001*
No	98 (27.5)	59 (60.2)	39 (39.8)		

*Significant at p=<0.05

Table 4. Multivariate Analysis of Internet Addiction with Explanatory Variables.

Variables	^a UOR (95% CI)	^b AOR (95% CI)	p-value
Mothers' Education			
Illiterate	1	1	
Primary Schooling	0.50 (0.24-1.03)	0.49 (0.23-1.06)	0.07
Secondary Schooling	1.07(0.52-2.21)	0.80 (0.37-1.73)	0.58
Higher Education	0.74(0.30-1.77)	0.59 (0.35-1.48)	0.26
Fathers' Occupation			
Agriculture	1	1	
Business	1.74 (0.99-3.05)	1.41 (0.77-2.60)	0.26
Service	2.08 (1.02-4.22)	1.36 (0.63-2.92)	0.42
Foreign Employment	3.03 (1.38-6.61)	2.34 (1.02-5.33)	0.04*
Academic Achievement			

Table 4. Multivariate Analysis of Internet Addiction with Explanatory Variables.

Variables	^a UOR (95% CI)	^b AOR (95% CI)	p-value
Passed in recent exam	1	1	
Failed in recent exam	1.91 (1.03-3.54)	2.81 (1.40-3.5.61)	0.03*
Access of Internet in home			
Presence	1	1	
Absence	2.33 (1.41-3.84)	1.75 (0.99-3.07)	0.05*
Stream of Education			
Science	1	1	
Other than Science	2.86 (1.76-4.62)	3.10 (1.81-5.32)	0.00*

*Significant at $p < 0.05$, 1=reference category, ^acrude odds ratio, ^badjusted odds ratio, Hosmer and Lemeshow p value = 0.185, 2 log likelihood = 369.830, Cox and Snell R square = 0.173

DISCUSSION

The central aim of current study was to assess the magnitude of Internet addiction among undergraduate students of Bharatpur Metropolitan City. The age range of the student was 16 to 25 with the median age 19.62 ± 1.4 years. Nearly three-fourth i.e. 73% of students were having internet addiction as per the criteria suggested by Young's Internet Addiction Test (IAT) tool. A total of 48%, 20.5% and 4.5% of respondents were suffering from mild, moderate and severe form of Internet addiction respectively. The finding of mild and moderate addiction is closer to the findings of study in Nepal where, 50.8% were mildly addicted, 40.7% were moderated addicted.¹² A study conducted in Malaysia has reported slightly higher prevalence of severe Internet addiction as compared to present study.²⁰ The prevalence of Internet addiction in present study was higher than that reported from the Saudi Arabia²¹, Egypt²², USA²³, and Asia.²⁴ This variation may be due to differences in study tools used in these studies and differences in study sites where dissimilar internet penetration rate may exist as compared to ours. There was no statistical difference in age and sex for Internet addiction in this study. Similar finding was evident in the study from Tanzania.²⁵ But the study from Malaysia revealed significant sex differences.²⁶

Undergraduate students who reported their fathers' occupation as 'foreign employment' were more likely to be addicted to the Internet compared to those whose fathers' occupations was agriculture. This finding is identical to the study conducted in Iran.²⁷ Similarly, students who reported having access to home internet were nearly two times more addicted than those who were not having internet connection at home. Similar finding was evident from the study conducted in India.²⁸ Present study revealed that students from non-science stream were far more addicted than the students who

reported science as their stream of education. In the multivariate analysis, it was observed that students who reported 'failed' in their recent exam were nearly three times more addicted to Internet than those who reported 'passed' in recent exam. The statement that Internet addiction affects in students' academic performance has been evident from studies in Sri Lanka,²⁹ Iran,³⁰ Pakistan³¹ and Turkey.³²

CONCLUSIONS

Nearly three-fourth of the undergraduate students were found addicted to the Internet. There was statistically significant relationship of Internet addiction with fathers' occupation, mothers' educational status, stream of education, academic achievement in the recent exam and access to Internet. Significant factors associated with Internet addiction were observed among those whose fathers' occupation was 'foreign employment' as compared to agriculture. Similarly, those who failed in the recent exam have the tendency of nearly three times high chances of being the internet addicted as compared to those students who passed in recent exam and students other than science stream had more than three times high chances of getting internet addiction as compared to those from science stream. Hence, students should be properly monitored, engaged and guided in the household along with college settings for reducing Internet addiction. Students of non-science discipline also be extensively monitored and engaged in academic activities for avoiding their excess Internet use. There is critical need of awareness programme targeted to the students as well as parents regarding the negative impacts of unwise Internet use.

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CONFLICT OF INTEREST

None.

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