



ORIGINAL RESEARCH PAPER

Community Medicine

INTERNET ADDICTION IN YOUNG MEDICAL STUDENTS USING YOUNG'S INTERNET ADDICTION TEST: A CROSS-SECTIONAL STUDY

KEY WORDS:

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INTRODUCTION

Internet has become an indispensable necessity of modern times offering multiple benefits such as information, recreation and communication. However, excessive usage of Internet has been found to be associated with a host of problems in some individuals affecting their personal, professional and social lives. This "loss of control" or "inability to regulate Internet use" has been termed as "Internet addiction" at its extreme, and has been compared to a phenomenon akin to substance abuse leading to an inquiry into its mechanism, whether its disadvantages outweigh its advantages and if it can be regulated or minimized by intervention. It has been found recently by imaging techniques that prolonged Internet use may result in grey matter atrophy causing decrease in concentration, memory and executive ability¹.

Adolescence is a particularly vulnerable group owing to higher experimental and risk taking behavior² along with lesser cognitive maturity³ and limited ability of critical thinking⁴. In a study conducted by Chatoth VM et al. (2013)⁵, it was found that prevalence of internet addiction (moderate and severe) among undergraduate medical students was 18.9%, thereby revealing medical students as a particularly vulnerable group.

Technology like internet was created to make official communication and research easier. 3.36 billion people utilize the internet worldwide, according to Internet World Stats. There are 692 million active internet users in India. Studies suggest that approximately 20% to 40% of students in India are at a risk for internet addiction⁶.

In 2023, India had over 1.2 billion internet users across the country. This figure was projected to grow to over 1.6 billion users by 2050, indicating a big market potential in internet services for the South Asian country. In fact, India was ranked as the second largest online market worldwide in 2022, second only to China. The number of internet users was estimated to increase in both urban as well as rural regions, indicating a dynamic growth in access to internet.

It is a multi-faceted behavioral condition that can present as variety of physical, psychological, and social diseases and that alters the functional and anatomical makeup of the brain as well as causing a number of associated co-morbidities.

Addicts generally use internet excessively ranging anywhere between forty to eighty hours per week with up to twenty hour long sessions, however, timing is not considered a hallmark of Internet addiction⁷.

Misuse of the internet has become a health concern worldwide and is growing swiftly and steadily. The field of

internet addiction has experienced significant debates over the years. WHO included internet gaming disorder in the chapter of substance and behavioural addiction in the 11th edition of the International Classification of Diseases and Related Health Problems (ICD-11)⁸. Internet addiction can reduce the young generation's productivity and cause cognitive dysfunction, poor academic performance and physical, mental and behavioural disturbances⁹.

The term "Internet addiction" was suggested as a satirical hoax in 1995 by a psychiatrist Dr. Ivan Goldberg based in New York. Later, Dr. Young observed severe psychosocial problems in a young man who used Internet excessively. She found it similar to pathological gambling- an impulse control disorder listed in Diagnostic and Statistical Manual of Mental Disorders (DSM) IV. She also suggested that there could be various types and purpose of Internet addiction such as sexual, relationship and information based¹⁰. She gave its first scientific description in 1996 and later, developed an Internet Addiction Test¹¹.

Multiple scales, questionnaires and instruments are developed over time to measure internet addiction. But the most commonly used reliable scale is the Internet Addiction Test (IAT) developed by Young. The scale consists of 20 items rated on a 5-point Likert scale yielding a total score with a range of 20 to 100¹².

INSTRUMENTS

Young's Internet Addiction test (YIAT20)

Severity of problematic Internet use was assessed by the Internet Addiction Test (IAT) developed by Young. The test contains 20 self-reported items using Likert scale in which scores of 1 and 5 are defined as "rarely" and "always" respectively. It includes questions on how Internet behavior affects an individual's lives on a day to day basis including social interactions, feelings and sleeping patterns¹³. High scores indicated higher severity or problems with internet use. As per a recent meta-analysis¹⁴, the scoring was done as follows: 20-39- Average users with complete control, 40-69- Internet usage with frequent problems / "Possible addicts" and 70-100-Internet usage with significant problems/ "Addicts".

On this subject, there are not many local studies, yet there are a lot of people using the internet. The purpose of this study was to determine the extent of internet addiction among medical students.

Aims and Objectives

To estimate the prevalence and characteristics of internet usage, addiction among medical students.

MATERIAL AND METHODS

A cross-sectional study was conducted between June 2023 to November 2023 on 384 medical students of both sexes of DY Patil Hospital, Navi Mumbai using a semi-structured self-administered questionnaire. It includes questions pertaining to socio-demographic status, attitude, practice based and Young's internet addiction test.

After obtaining the institutional ethical clearance and permission from the authorities the study was conducted. For data gathering, a semi-structured interview schedule was created.

Three hundred and eighty four medical students i.e. undergraduates of both sexes were enrolled for the study by convenience sampling after they were informed about the purpose of the study and the method of completing the questionnaire. The students were interviewed and their privacy and confidentiality was maintained. Informed verbal consent was taken from each participant. The exclusion criteria consisted of any previous history of anxiety / depression / psychiatric problems, drug history of antidepressants/ tranquilizers, etc., thyroid disorders or history of substance abuse, and those who did not give consent to participate in the study.

All the data were tabulated and relevant inferences were drawn. Present work includes distribution of prepared questionnaire, collection of responses against each question, a compilation of data in the form of tables and graphs, interpretation of data using appropriate statistical test and conclusion.

RESULTS

Table 1 : Characteristics

Characteristics	Frequency	%
Gender		
Male	278	72.4
Female	106	27.6
Place of Residence		
Urban	365	95.1
Rural	19	4.9
Current Place of Study		
Hostel	98	25.5
Home	223	58.1
Private accomodation	63	16.4
Education of Father		
Primary	19	4.9
High School	74	19.3
Graduate and above	291	75.8
Occupation of Father		
Professional	45	11.7
Private Practioner	44	11.5
Business	147	38.3
Government Employee	68	17.7
Working abroad	18	4.7
Corporate job	62	16.1
Family Income		
0-1 lac	50	13
1-5 lac	99	25.8
5-10 lac	119	31
> 10 lac	116	30.2
Type of gadgets		
Mobile phone	135	35.2

Table 2 :

		RISK SCORE							
		Normal		Mild		Moderate		Severe	
		Count	%	Count	%	Count	%	Count	%
Health Problem Faced	Nil	81	51.30%	51	32.30%	23	14.60%	3	1.90%
	Headache	23	39.70%	19	32.80%	16	27.60%	0	0.00%
	Backache	13	34.20%	12	31.60%	13	34.20%	0	0.00%

Laptop	11	2.9
Tablets / Ipads	16	4.2
All of the above	219	57
Gadgets used		
Personal gadgets	312	81.3
Parents gadgets	50	13
Internet cafe	24	6.3
All	64	16.7
Not answered	8	2.1
Characteristics	Frequency	%
Monthly expenditure on internet (Rs.)		
0-200	42	10.9
200-400	110	28.6
400-600	89	23.2
600-80	69	18
800-1000	74	19.3
Purpose of Internet		
Education	189	49.2
Entertainment	145	37.8
Socialising	50	13
Time spend daily		
30 min. - 1 hr.	54	14.1
1 hr. - 2 hr.	156	40.6
3-4 hr.	113	29.4
4-5 hr.	61	15.9
Time spend for non academic purpose		
30 min. - 1 hr.	32	8.3
1 hr. - 2 hr.	122	31.8
3-4 hr.	89	23.2
4-5 hr.	52	13.5
5-6 hr.	35	9.1
6-7 hr.	13	3.4
7-8 hr.	18	4.7
8-9 hr.	12	3.1
9-10 hr.	11	2.9
Health Problem Faced		
Nil	158	41.1
Headache	58	15.1
Backache	38	9.9
Sleep disturbances	59	15.4
Anxiety, Stress and visual disturbance	71	18.5

The above tables shows the basic characteristics. In our study 278 (72.4%) were male and 106 (27.6%) were female. Maximum cases from Urban background only 19 cases (4.9%) were from rural background. 291 (75.4%) fathers education was in the category of Graduation and above. Maximum cases 147 cases (38.3%) from Business family background. Only (50) 13% of cases were from lower income group (less than 1 lac p.a.). 135 cases (35.2) have mobile phone, 312 (81.3%) were have their own personal gadgets. Maximum cases have spent on internet is between 200-600 Rs. per month. 189 cases (49.2%) have use their mobile for education purpose. 1 to 2 hours daily time spending on internet was maximum in our cases. 122 (31.8%) were spend their time on internet for non academic purpose. Due to use of internet and mobile headache was found in 58 (15.1%), Backache 38 (9.9%), sleep disturbances in 59 cases (15.4%) and Anxiety, Stress and visual disturbance in 71 cases (18.5%).

	Sleep Disturbances	19	32.20%	15	25.40%	23	39.00%	2	3.40%
	Anxiety, Stress, etc	20	28.20%	24	33.80%	23	32.40%	4	5.60%
	Chi Square = 29.519 , P value = 0.03 (Significant)								
Purpose of Usage of Internet	Education	100	52.90%	56	29.60%	31	16.40%	2	1.10%
	Entertainment	39	26.90%	54	37.20%	48	33.10%	4	2.80%
	Socialising	17	34.00%	11	22.00%	19	38.00%	3	6.00%
Chi Square = 34.214 , P value = 0.001 (Significant)									
Time spend daily for non academic purpose (hour)	1	24	75.00%	6	18.80%	2	6.30%	0	0.00%
	2	61	50.00%	45	36.90%	16	13.10%	0	0.00%
	3	42	47.20%	24	27.00%	23	25.80%	0	0.00%
	4	17	32.70%	16	30.80%	19	36.50%	0	0.00%
	5	7	20.00%	14	40.00%	13	37.10%	1	2.90%
	6	1	7.70%	5	38.50%	5	38.50%	2	15.40%
	7	1	5.60%	7	38.90%	9	50.00%	1	5.60%
	8	2	16.70%	3	25.00%	6	50.00%	1	8.30%
	9	1	9.10%	1	9.10%	5	45.50%	4	36.40%
Chi Square = 136.548 , P value = 0.001 (Significant)									

The above tables shows the risk score in our study. Mild risk score related to health problem faced was observed in our study (p value = 0.03, Significant). Purpose of usage of internet risk factor was normal in 100 (52.90%) cases, 56 (29.60%) as mild and only 2 (1.10%) cases were observed as severe (p value = 0.001, Significant). Time spend daily for non academic purpose (hour) one hour daily in 24 (75%) cases were in normal risk score (p value = 0.001, Significant).

Table 3 : Frequency Tables of LIKERT SCALE

		Valid						
		0 (Not applicable)	1 (Rarely)	2 (Occasionally)	3 (Frequently)	4 (Often)	5 (Always)	
Q1	How often do you find that you stay online longer than you needed ?	Frequency	9.0	49.0	94.0	96.0	83.0	53.0
		Percent	2.3	12.8	24.5	25.0	21.6	13.8
		Valid Percent	2.3	12.8	24.5	25.0	21.6	13.8
		Cumulative Percent	2.3	15.1	39.6	25.0	86.2	100.0
Q2	Do you neglect household chores to spend more time online?	Frequency	48.0	109.0	91.0	62.0	51.0	23.0
		Percent	12.5	28.4	23.7	16.1	13.3	6.0
		Valid Percent	12.5	28.4	23.7	16.1	13.3	6.0
		Cumulative Percent	12.5	40.9	64.6	80.7	94.0	100.0
Q3	How often do you form new relationships with fellow online users?	Frequency	133.0	111.0	43.0	49.0	29.0	19.0
		Percent	34.6	28.9	11.2	12.8	7.6	4.9
		Valid Percent	34.6	28.9	11.2	12.8	7.6	4.9
		Cumulative Percent	34.6	63.5	74.7	87.5	95.1	100.0
Q4	How often do others in your life complain to you about the amount of time you spend online?	Frequency	58.0	117.0	78.0	55.0	40.0	36.0
		Percent	15.1	30.5	20.3	14.3	10.4	9.4
		Valid Percent	15.1	30.5	20.3	14.3	10.4	9.4
		Cumulative Percent	15.1	45.6	65.9	80.2	90.6	100.0
		Valid						
		0 (Not applicable)	1 (Rarely)	2 (Occasionally)	3 (Frequently)	4 (Often)	5 (Always)	
Q5	How often do your grades or school work suffer because of the amount of time you spend online?	Frequency	56.0	113.0	86.0	71.0	35.0	23.0
		Percent	14.6	29.4	22.4	18.5	9.1	6.0
		Valid Percent	14.6	29.4	22.4	18.5	9.1	6.0
		Cumulative Percent	14.6	44.0	66.4	84.9	94.0	100.0
Q6	How often do you check your email before something else that you need to do?	Frequency	104.0	99.0	79.0	56.0	26.0	20.0
		Percent	27.1	25.8	20.6	14.6	6.8	5.2
		Valid Percent	27.1	25.8	20.6	14.6	6.8	5.2
		Cumulative Percent	27.1	52.9	73.4	88.0	94.8	100.0
Q7	How often does your job performance or productivity suffer because of the Internet?	Frequency	55.0	117.0	94.0	69.0	36.0	13.0
		Percent	14.3	30.5	24.5	18.0	9.4	3.4
		Valid Percent	14.3	30.5	24.5	18.0	9.4	3.4
		Cumulative Percent	14.3	44.8	69.3	87.2	96.6	100.0
Q8	How often do you become defensive or secretive when anyone asks you what you do online?	Frequency	79.0	120.0	70.0	53.0	40.0	22.0
		Percent	20.6	31.3	18.2	13.8	10.4	5.7
		Valid Percent	20.6	31.3	18.2	13.8	10.4	5.7
		Cumulative Percent	20.6	51.8	70.1	83.9	94.3	100.0
		Valid						
		0 (Not applicable)	1 (Rarely)	2 (Occasionally)	3 (Frequently)	4 (Often)	5 (Always)	
Q9	How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	Frequency	57.0	64.0	92.0	74.0	48.0	49.0
		Percent	14.8	16.7	24.0	19.3	12.5	12.8
		Valid Percent	14.8	16.7	24.0	19.3	12.5	12.8
		Cumulative Percent	14.8	31.5	55.5	74.7	87.2	100.0

Q10	How often do you find yourself anticipating when you will go online again?	Frequency	64.0	98.0	91.0	76.0	34.0	21.0
		Percent	16.7	25.5	23.7	19.8	8.9	5.5
		Valid Percent	16.7	25.5	23.7	19.8	8.9	5.5
		Cumulative Percent	16.7	42.2	65.9	85.7	94.5	100.0
Q11	How often do you fear that life without the Internet would be boring, empty, and joyless?	Frequency	46.0	84.0	88.0	80.0	47.0	39.0
		Percent	12.0	21.9	22.9	20.8	12.2	10.2
		Valid Percent	12.0	21.9	22.9	20.8	12.2	10.2
		Cumulative Percent	12.0	33.9	56.8	77.6	89.8	100.0
Q12	How often do you snap, yell, or act annoyed if someone bothers you while you are online?	Frequency	84.0	127.0	75.0	49.0	31.0	18.0
		Percent	21.9	33.1	19.5	12.8	8.1	4.7
		Valid Percent	21.9	33.1	19.5	12.8	8.1	4.7
		Cumulative Percent	21.9	54.9	74.5	87.2	95.3	100.0
			Valid					
			0 (Not applicable)	1 (Rarely)	2 (Occasionally)	3 (Frequently)	4 (Often)	5 (Always)
Q13	How often do you lose sleep due to being online?	Frequency	53.0	108.0	85.0	61.0	44.0	33.0
		Percent	13.8	28.1	22.1	15.9	11.5	8.6
		Valid Percent	13.8	28.1	22.1	15.9	11.5	8.6
		Cumulative Percent	13.8	41.9	64.1	79.9	91.4	100.0
Q14	How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?	Frequency	102.0	106.0	71.0	63.0	22.0	20.0
		Percent	26.6	27.6	18.5	16.4	5.7	5.2
		Valid Percent	26.6	27.6	18.5	16.4	5.7	5.2
		Cumulative Percent	26.6	54.2	72.7	89.1	94.8	100.0
Q15	How often do you find yourself saying "just a few more minutes" when online?	Frequency	43.0	77.0	90.0	87.0	49.0	38.0
		Percent	11.2	20.1	23.4	22.7	12.8	9.9
		Valid Percent	11.2	20.1	23.4	22.7	12.8	9.9
		Cumulative Percent	11.2	31.3	54.7	77.3	90.1	100.0
Q16	How often do you try to cut down the amount of time you spend online and fail?	Frequency	44.0	79.0	96.0	78.0	49.0	38.0
		Percent	11.5	20.6	25.0	20.3	12.8	9.9
		Valid Percent	11.5	20.6	25.0	20.3	12.8	9.9
		Cumulative Percent	11.5	32.0	57.0	77.3	90.1	100.0
			Valid					
			0 (Not applicable)	1 (Rarely)	2 (Occasionally)	3 (Frequently)	4 (Often)	5 (Always)
Q17	How often do you try to hide how long you've been online?	Frequency	85.0	87.0	80.0	73.0	30.0	29.0
		Percent	22.1	22.7	20.8	19.0	7.8	7.6
		Valid Percent	22.1	22.7	20.8	19.0	7.8	7.6
		Cumulative Percent	22.1	44.8	65.6	84.6	92.4	100.0
Q18	How often do you choose to spend more time online over going out with others?	Frequency	70.0	106.0	87.0	61.0	29.0	31.0
		Percent	18.2	27.6	22.7	15.9	7.6	8.1
		Valid Percent	18.2	27.6	22.7	15.9	7.6	8.1
		Cumulative Percent	18.2	45.8	68.5	84.4	91.9	100.0
Q19	How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?	Frequency	95.0	98.0	73.0	56.0	36.0	26.0
		Percent	24.7	25.5	19.0	14.6	9.4	6.8
		Valid Percent	24.7	25.5	19.0	14.6	9.4	6.8
		Cumulative Percent	24.7	50.3	69.3	83.9	93.2	100.0

The above tables shows frequency tables of LIKERT SCALE. 53.0 frequency was observed for stay online longer than you needed according to the LIKERT Scale 5 (Always). 19.0 frequency was observed for new relationships with fellow online users, 14.0 valid percent was noted on (0, not applicable) scale for work suffer of grades or school because of the amount of time you spend online.

The life without the Internet would be boring, empty and joyless frequency was 84 and 29.4% was observed in our study on 1 (Rarely Scale) in LIKERT SCALE parameters. In our study "just a few more minutes" when online answer was noted 90.0 frequency (23.4%) in scale of 2 (Occasionally) in LIKERT SCALE. Spend more time online over going out with others was noted maximum 106 frequency (27.6%) in our study for LIKERT SCALE TEST.

DISCUSSION

The use of internet has become an essential part of modern-day life, and the global population using the internet has grown to almost 3.8 billion¹⁵. The number of internet users, as well as using hours, has grown exponentially among educated people because it is the most appropriate tool for

worldwide communication, information source, and a broader source of entertainment.¹⁶

Now-a-days with increasing internet penetration, affordability of smart phones, and availability of high-speed internet connectivity, the use of internet has become pervasive in India. With the rapid growth of internet access and usage; an impending doom of excessive use of internet for the most online activities paved a clear path toward internet addiction, which was defined as an imprudent and compulsive use of the internet.¹⁷⁻¹⁹

The millennial generation's view of the Internet as a wealth of information and a crucial tool for communication has resulted in a huge dependence on it in every aspect of life, leading to pathological addiction-like state²⁰.

India being among the top consumers of Internet worldwide, this misuse of the tool is not uncommon. The plethora of research over the past two decades have collectively pointed toward the adolescents, especially university students being at a greater risk for internet addiction²¹.

In the present study, 278 (72.4%) were male and 106 (27.6%)

were female. Maximum cases from urban background only 19 (4.9%) cases were from rural background. Maximum cases 147 (38.3%) cases from business family background. Only 50 (13%) of cases were from lower income group (<1 lac p.a.). 135 (35.2%) cases have mobile phone, 312 (81.3%) had their own personal gadgets. Maximum cases have spent Rs 200-600 per month on internet usage. 189 (49.2%) cases have used their mobile for education purpose. 122 (31.8%) students spend their time on internet for non academic purpose. Due to use of internet and mobile, headache was found in 58 (15.1%), backache 38 (9.9%), sleep disturbances in 59 cases (15.4%) and anxiety, stress and visual disturbance in 71 (18.5%) cases. Similar observation were found in the study of Asokan AG et al. (2019)²² that comparison of patterns of internet usage and socio demographic data among students with and without addiction. Presence of facebook and Whatsapp accounts and increased frequency of its usage had a positive association with internet addiction. Similarly respondents using internet for more than 2 hours a day and more than an hour for social communication also had positive correlation with internet addiction. (Table 1)

Mild risk score related to health problem faced was observed in our study (p value=0.03, Significant). Purpose of usage of internet risk factor was normal in 100 (52.90%) cases, 56 (29.60%) as mild and only 2 (1.10%) cases were observed as severe (p value=0.001, Significant). Time spend daily for non academic purpose (hour) one hour daily in 24 (75%) cases were in normal risk score (p value=0.001, Significant). In the study of Rao SB et al. (2024)²³ psychological distress with 42.1% experienced depression, 42.4% anxiety and 20.0% stress symptoms. In addition, 25.0% were classified as alexithymia. Significant correlations were found between grades of depression, anxiety, stress, and alexithymia with gender, residence, psychiatric illness in family, substance, and Internet use. (Table 2).

In our study 53.0 frequency was observed for those who stayed online longer than they needed according to the LIKERT Scale 5 (always). 19.0 frequency was observed for new relationships with fellow online users, 14.0 valid percent was noted. In our study the parameter "the life without the Internet would be boring, empty, and joyless frequency was 84 and 29.4% was observed on 1 (Rarely Scale) in LIKERT SCALE parameters. In our study "just a few more minutes" when online answer was noted 90.0 frequency (23.4%) in scale of 2 (Occasionally) in LIKERT SCALE. In our study, spending more time online over going out with others was noted maximum 106 frequency (27.6%) as per the LIKERT SCALE TEST.

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