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Original Article

Impact of Internet use on students of medical college of central India

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ABSTRACT

Background: Internet use is one of the flourishing addictive behaviors and major public health concern affecting worldwide. University students have habit forming use of internet as well as its consequent negative effects. This study determined the prevalence of internet use, its addiction in medical students and its impact on depression, anxiety and stress levels of students by DASS-21 scale. **Method:** It is a cross sectional study done at NKPSIMS & RC & LMH, Nagpur, Maharashtra on 300 undergraduate medical students who consented for the study and chosen by simple random sampling. Self administered questionnaire was used to collect study data. Internet addiction measured using Young's internet addiction test (IAT). Depression, anxiety and stress levels are measured by DASS-21. **Result:** Internet addiction was found in 02 % of participants. Maximum internet users visit social media applications and it is used least for educational purposes. Mobile phones are the most widely used devices to access the internet. **Conclusion:** Our study concluded that large number of students are using internet since long for non academic purpose with many of them having different levels of addiction resulting in negative impact on academics. Statistically significant relationship was seen between scores of IAT and Dass-21. Higher IAT scores were associated with poor academic performance and scoring, with higher depression anxiety and stress levels of students. Hence we recommend timely intervention of harmful consequences of excessive internet use. The association between internet addiction and its consequences should be dealt by undergoing more such studies.

Key Words: *Internet use, Internet Addiction Test, Psychological effects, Medical students, Academic performance.*

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INTRODUCTION:

When World Wide Web (WWW), was invented by Tim Berners Lee in 1990 it stood as nevus in development of tremendous information source accessed by us daily. [1] Internet is very useful in day to day life for communication, academics, educational research, exchange of information and entertainment. Internet provides quick access to any information anytime anywhere. [2] We are so used to internet that we cannot imagine life without internet. [3] Dr. Van Goldberg coined the term "Internet addiction" in 1995 that describes "pathological and compulsive use of internet." Internet addiction is recently classified as diagnosable behavioral disorder under Diagnostic and Statistical Manual (DSM-V). [4, 5]

Internet use is one of the flourishing addictive behaviors and major public health concern affecting worldwide. University students have habit forming use of internet as well as its consequent negative effects. [6] Excessive internet use is most common among university students and it can be misused leading to pathological and addictive form [7] which is regarded by different researchers as Internet addiction [8, 9] internet addiction disorder [10] pathological internet use [11, 12] internet dependency. [13]

Various studies done showed different prevalence rates of internet addiction varying from 1.8 % to 34% among students of different countries. [14-17, 28, 29] India has 85% growth rate of internet usage with about 75 % of it being used for non voice usage like entertainment with videos and music as primary element. [18]

Certain institutions like IIT and other leading universities are limiting night usage of internet since 2007, after some suicide events presumed to be due to antisocial behavior provoked by excessive internet use. [19]

Recent studies state that internet addiction forms in a way very similar to drug and alcohol addiction, resulting in impaired socio-occupational and educational goals. [20]

Internet addiction disorder (IAD) is recognized as significant health problem by South Korean Government following many crimes and deaths related to internet addiction. [21, 22] This Government uses policy of internet shut down since 2011 to arrest midnight online gaming. [23] Again China has cut down online gaming usage time to less than 3 hrs. [24]
Hence we undertook this study to assess the magnitude of problem with some recommendations.

METHODOLOGY:

This is a cross sectional study carried out after gaining approval of Institutional ethics committee in medical students studying in second year and third year part I of NKPSIMS RC LMH, Nagpur, Maharashtra. Study sample was selected by simple random sampling. A semi structured questionnaire was given to 350 medical students all genders, 17-24 years of age, after confirming that they used internet for more than a year and taken their informed consent to participate in the study maintaining the confidentiality of collected data and informing about use of same for publication.

The questionnaire consisted of demographic details, internet usage details based on Young's Internet Addiction Test (IAT), which is the first validated test of assessing Internet addiction. The IAT consisted of a set of 20 questions with 6 point Likert scale and scores of 0-5 for each question and wherein the last part of questionnaire consisted of items pertaining to DASS-21 which is (depression Anxiety Stress Scale) 21 item 4 point Likert scale with scores ranging from 0 to 3.

Participant's marks of first year professional examination, internal assessment examination were collected from respective departments of concerned subjects. All their obtained marks were aggregated and converted in to percentage for comparing it with our Internet Addiction Test scores part of questionnaire.

The data was analyzed by Social science statistical software version 21. Nonparametric tests like Pearson's coefficient, Krushkal-Wallis test, Mann-Whitney U test are used for data evaluation and to find significance of difference among various variables.

Excel datasheet, SSS Software data is used to prepare figures.

RESULTS:

The questionnaire was distributed to 200 II year students and 150 third year part I students. Out of 350 target population, 300 responses were received from 175 females and 125 males with mean age of 20 years.

As shown in following table (Table no. 01 and Fig. no. 01) participants were categorized using Young's IAT into below average users 67 (22.34 %), Average users 196 (65.34%), possible addicts 35 (11.66 %), Addicts 02 (0.66 %).

Table no. 01: IAT score and Gender differences

Score	Class	Males (n=125)	Females (n=175)	Total (n=300)
0-19	Below average user	18 (14.4 %)	49 (28.0%)	67(22.34 %)
20-49	Mild user	92 (73.6 %)	104(59.4 %)	196 (65.34 %)
50-79	Moderate users	13(10.4 %)	22 (12.6 %)	35 (11.66 %)
80-100	Addicts	02 (1.6 %)	00 (00 %)	02 (0.66%)

IAT: Internet Addiction Test

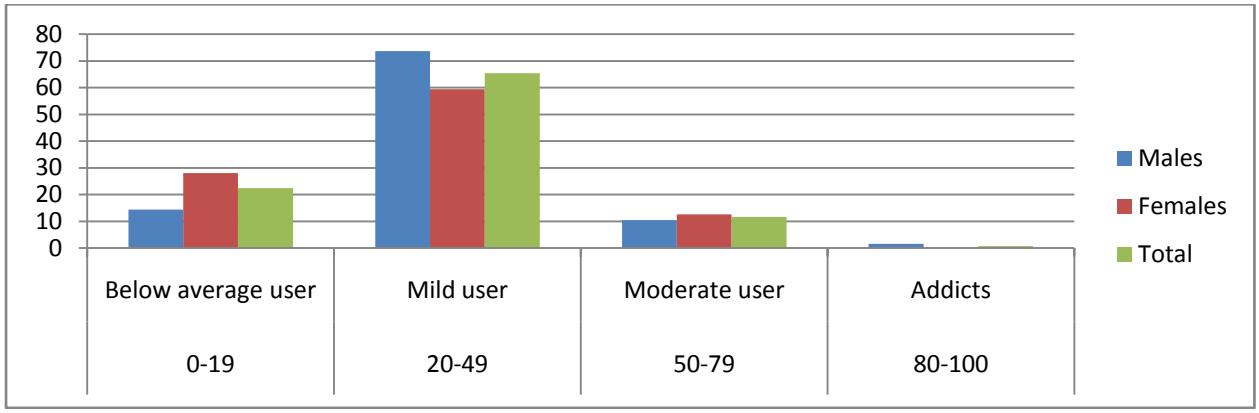

Fig. no. 01.

As shown in following table (Table no. 02) students showing any one or more than one of the symptom included in DASS were divided as normal 208 (69.33 %), mild 61 (20.33%), moderate 20 (6.66 %), severe 9 (3%) and very severe 2 (0.66%).

Table no. 02: DASS-21 Score			
Any one of DAS	Males (n=125)	Females (n=175)	Total (n=300)
Normal	85 (68 %)	123 (70.28%)	208(69.33 %)
Mild	25 (20 %)	36(20.57 %)	61 (20.33 %)
Moderate	9(7.2 %)	11 (6.28 %)	20 (6.66 %)
Severe	5 (4 %)	4 (2.28 %)	9 (3%)
Very severe	1(0.8%)	1(0.57%)	2(0.66%)

DASS-21: Depression Anxiety Stress Scale.

As shown in following table (Table no. 03 and Fig. no. 02) almost all medical students were using internet since more than 2 years and maximum medical students are using internet daily for 1-3 hrs.

Table no. 03: Internet usage and duration.		
Internet usage in hours/day	Total (n=300)	Percentage
1-3	246	82
4-6	46	15.33
7-9	6	2
10-12	2	0.66
Internet usage in years		
<2	48	16
2-5	212	70.66
>5	40	13.33

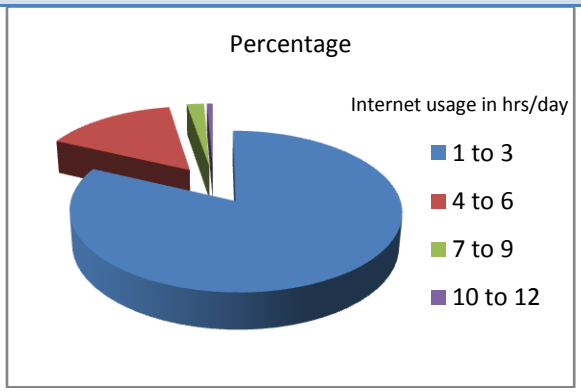

Fig. no. 02

As shown in following table (Table no. 04 and Fig. no. 03a, 03b) social networking apps and websites are used predominantly in both the sexes (60 %), within that males (68 %) outnumbered females (55. 43 %). Similarly internet was used mostly for accessing social networking apps and websites (60 %), for media files (18.67 %), gaming (12.33 %) and it is used least for educational purposes (9.0 %). Mobile phones (63.0 %) are the most widely used devices to access the internet.

Table no. 04: Purpose and gadget to access internet			
Purpose	No. of males (n=125)	No. of females (n=175)	Total (n=300)
Social Networking	85 (68 %)	97 (55.43 %)	180 (60 %)
Online gaming	14 (11.2 %)	24 (13.71 %)	37 (12.33 %)
Media files	18 (14.4 %)	38 (21.71 %)	56 (18.67 %)
Academics	8 (6.4 %)	16 (9.14 %)	27 (9.0 %)
Gadget to access internet			
Mobile phones	78 (62.4 %)	114 (65.14%)	189 (63.0 %)
Laptops	19 (15.2%)	37 (21.14 %)	57 (19 %)
Desktops	20 (16 %)	21 (12 %)	43 (14.3 %)
Tablets	8 (6.4 %)	3 (1.71 %)	11 (3.7 %)

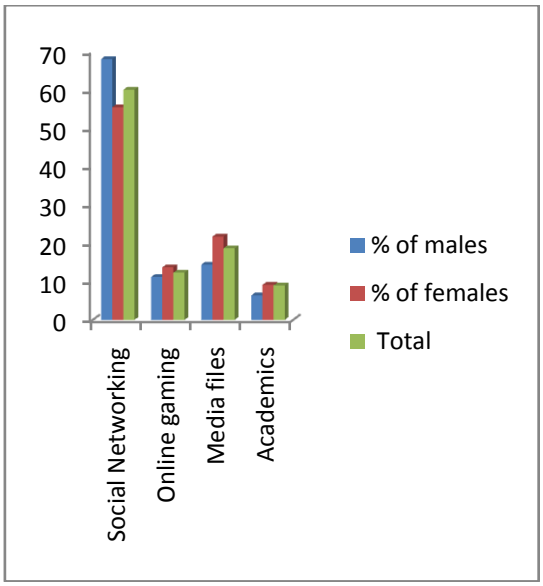

Fig. 03a

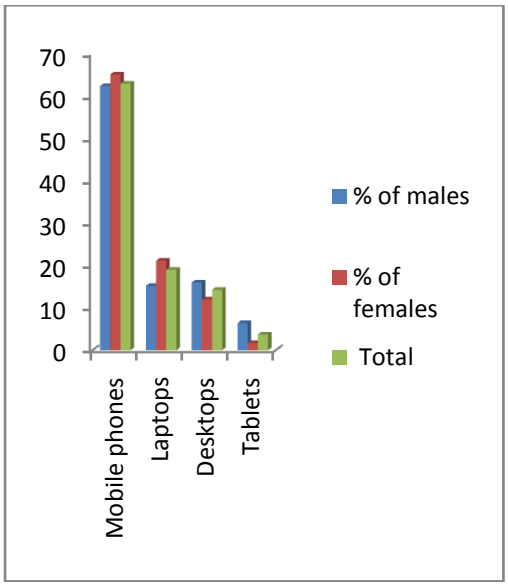

Fig. 03b

Analysis of average of last one year marks obtained and that of student's score in Internet Addiction Test part of questionnaire revealed a significant negative association. Similarly IAT score and DASS score showed significant correlation coefficient of 0.01.

DISCUSSION:

It is clear from above results that internet usage is quite common among medical students. Many studies are conducted worldwide for assessing the prevalence of internet usage among medical students but these studies are not that enough in India.

We used Young's Internet Addiction Test that finds addicts in medical students whereas statistics in our study showed that maximum numbers of medical students are average internet user. Internet addiction in this study is 0.5 % of the participants. It is similar to the study done by Goel et al [25] and Xie et al [26] but contrary to this result a study at Iran on medical students showed 10.8 % prevalence also high prevalence (8.2 %) was found in the study at Greek by Siomos et al. [27] Again alarming results are obtained in a study by Liu X at China [28] and another study at Mangalore by Chathoth V et al. [29]

This study clarifies male preponderance of internet usage which is concordant with data from various online surveys, clinical samples and from community. [8, 12, 14, 30-33] We found that internet is used to access social networking apps and websites by 60 % of the students which is similar to a study by Goel et al. [25] Accessing social networking apps and sites is the most common pattern of internet use in this study. This is consistent with study by Chathoth V et al. (97.8%). [29]

In this study the prevalence of internet addiction is lower than that observed in study at Chandigarh done by Grover et al [34] that may be because of difference in the demographic variables as Nagpur is a developing city.

This study showed that internet use and its addiction has negative impact on academic performance and scores. Similar observations are done by authors Asokan, A.G et al [35], Mainul Haque et al [36], Sonia Garg et al [37], A. Akın [38].

Additionally this parameter is well studied and conquered that use of internet disrupts sleep pattern which in turn causes inadequate and subnormal sleep leading to unhealthy physique and health rendering the person susceptible to infections. [39, 40]

Concluding that internet is used excessively by medical students for non educational purpose rather than academic purpose resulting in poor physical as well mental health and ultimately compromised academics.

CONCLUSION:

Knowledge of internet and its use is 100 percent in medical students. Here in this study as well other studies found that internet is used for non academic purpose and easy access to high speed internet is making students to be on social networking apps and website resulting in poor academics.

Medical Education Technology itself promotes internet based technologies in medical institutions hence this along with growing availability and accessibility students are bound to indulge in more and more internet usage in near future that will be accompanied by unforeseen unfortunate poor academics.

We recommend that internet access should be used for gaining knowledge and communication. The negative impact of internet addiction should motivate medical teachers make their students aware about harmful effects of excessive internet usage. More research studies are needed to evaluate the burden of problem and delineate the ways to promote healthy use of modern technologies.

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CONFLICT OF INTREST: None

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