

## Research Article

# Evaluation of internet addiction status and effects among medical students

Dipeshkumar D. Zalavadiya\*, Niravkumar B. Joshi, Dhara V. Thakrar, AaroHi H. Mitra, Bhavesh R. Kanabar, Jasmin R. Oza

Department of Community Medicine, PDU Government Medical College, Rajkot, Gujarat, India

**Received:** 17 April 2016

**Accepted:** 12 May 2016

### \*Correspondence:

Dr. Dipeshkumar D. Zalavadiya,  
E-mail: [drdipesh44@gmail.com](mailto:drdipesh44@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** The explosive growth of the internet in the last decade has had a huge impact on communication and interpersonal behavior. More and more students are addicted to internet, while spending lots of time surfing on the internet. The present study was conducted considering the above facts, with the objective to assess the level of internet addiction and effects of it among the medical students.

**Methods:** It was a cross sectional study conducted among medical students of PDU Govt. Medical College, Rajkot. Total 212 students were included in the study that were using internet daily and consented to participate. Young's Internet Addiction Test (YIAT20) was used to study the level of internet addiction.

**Results:** Almost one third (35.4%) students were using internet for more than 2 years. Almost half (48.1%) students were using internet for more than 2 hours per day. Young's Internet Addiction Test showed that 61 (28.8%) students had scoring in the range of 50 - 79 (frequent problem due to internet usage). There was significant difference for level of internet addiction and problems of change of lifestyle change in dietary behavior and sleep distribution.

**Conclusions:** This study's results imply that Internet addiction is a prevalent public health issue varied pattern of internet use. Close observation over the use of internet and changes due to it among students are required by parents and colleges to stop emerging internet addiction.

**Keywords:** Internet addiction, Young's internet addiction test, Students

## INTRODUCTION

Internet has grown extensively in its availability, connectivity and geographical distribution since 1990s and the number of internet users have raised dramatically and it continues to rise. India ranks 3<sup>rd</sup> after China and United States in terms of numbers of Internet users.<sup>2</sup>

The explosive growth of the internet in the last decade has had a huge impact on communication and interpersonal behavior. The internet allows people to establish social connections that cannot be achieved

easily in modern urban life, to be in easy and risk-free relationships with strangers, to express their thoughts and feelings freely without restraint and to exaggerate aspects that the individual wants to feature. People are able to access useful information, communicate with people all over the world, buy various goods and reserve tickets with a single 'click' via internet. Other factors that may increase internet use are the availability of the internet, opportunities to access prohibited content and the ability to play games and take risks.<sup>3-5</sup>

Healthy use of the internet is defined as the use of the internet to achieve a desired goal within an appropriate

period of time without intellectual or behavioral discomfort.<sup>6</sup> Some individuals limit their use of the internet to only what they need, whereas others cannot limit their use. Excessive internet use, which is also called uncontrolled use of the internet, pathological internet use, net addiction or internet addiction, causes problems in work and social life.<sup>7,8</sup> Internet addiction is generally defined as an uncontrollable desire for excessive use of the internet, devaluation of time spent without connecting to the internet, intense nervousness and aggression in the case of deprivation and progressive deterioration of social and family life.<sup>5,9</sup>

College students are especially vulnerable to developing dependence on the Internet, more than most other segments of the society. This can be attributed to several factors including the following: availability of time; ease of use; unlimited access to the internet; the psychological and developmental characteristics of young adulthood; limited or no parental supervision; an expectation of Internet/computer use implicitly if not explicitly, as some courses are Internet-dependent, from assignments and projects to communication with peers and mentors; the Internet offering a route of escape from exam stress, all of which make Internet overuse a significant cause of concern for parents and faculty.<sup>10</sup>

More and more students are addicted to internet, while spending lots of time surfing on the internet. Such indulgence damages their health, sleep, studying and family relationship. The literature contains only a limited number of studies which investigated level of internet addiction in college students. The present study was conducted considering the above facts, with the objective to assess the level of internet addiction, factors affecting it and effects of it among the medical students - the prospective physician/surgeon of P D U Govt. Medical College, Rajkot, Gujarat, India.

## METHODS

The present cross sectional study was conducted among medical students of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year MBBS studying at P D U Govt. Medical College, Rajkot, India. All medical students were invited to participate in the study. 425 medical students were studying in MBBS in P D U Govt. Medical College, Rajkot. Out of 425 medical students approached, 212 students who were using internet daily and consented to participate were included in the study, so almost 50% medical students participated in the study. The students were assured about confidentiality of information and informed consent was taken for participation following a brief about the nature and potential value of the study. Despite the convenience sampling procedure employed, attempt was made to secure a sampling procedure as unbiased as possible. The data was collected from April 2013 to June 2013.

The questionnaire was anonymous and self-administered. The questionnaire was in English and also included basic demographic data like age, sex, residential and socio-economic status. Young's Internet Addiction Test (YIAT20) was used to study the level of internet addiction. It is a 20 - item questionnaire, answered in a five - point Likert scale. It covers the degree to which their internet use affects their daily routine, social life, productivity, sleeping pattern and feelings. The responses to the questions were on a five point Likert scale, rarely=1, occasionally=2, frequently=3, often=4 and always=5. After all the questions have been answered, numbers for each response are added to obtain a final score.

The minimum score is 20, and the maximum is 100; Higher the score, greater the level of internet addiction and the problems internet usage causes. Young suggests that a score of 20-49 points is an average online user who has complete control over his/her usage, A score of 50-79 signifies occasional or frequent problems due to internet usage, and a score of 80-100 means that the internet usage is causing significant problems.

The rationale for choosing Young's diagnostic questionnaire for the study was that it is the first global psychometric measure and hence has been extensively and frequently used across many studies globally, is self-completed, has been validated on adult and adolescent populations, and has good internal consistency reliability as well as concurrent validity. In a recent meta-analysis study drawing from a large sample of studies conducted to determine the overall value for the reliability YIAT20, the mean differences showed that it is more reliable in college students and probably in Asia. The overall Cronbach's computed from the studies was 0.889 (95% confidence interval (CI) 0.884-0.895). The standard deviation of the alpha was low, at 0.049.<sup>11</sup>

All data were carefully cleaned and checked for accuracy. The data was then entered and analyzed in Epi Info version 3.5.1 (CDC, Atlanta) software.<sup>12</sup> The chi square test and correlation were used to analyze the data.

## RESULTS

Total 212 students participated in the study. The age range of students was 17 to 25 years. 67.5% were males and 32.5% were females. More than half (56.1%) students were residing in hostel. The common sources for internet use were mobile phone (86.6%), Laptop/Computer (34.4%). Almost one third (35.4%) students were using internet for more than 2 years. Almost half (48.1%) students were using internet for more than 2 hours per day. Almost two third (66.5%) students were spending more than 100 Rs. per month on internet (Table 1).

**Table 1: Socio demographic characteristics and pattern of internet use among study participants.**

| Variable                                 | Numbers | Percentage |
|------------------------------------------|---------|------------|
| <b>Age</b>                               |         |            |
| 17 – 21 years                            | 175     | 82.5       |
| 22 – 25 years                            | 37      | 17.5       |
| <b>Sex</b>                               |         |            |
| Male                                     | 143     | 67.5       |
| Female                                   | 69      | 32.5       |
| <b>Place of residence</b>                |         |            |
| Home                                     | 86      | 40.6       |
| Hostel                                   | 119     | 56.1       |
| Other                                    | 7       | 3.3        |
| <b>Source of internet use</b>            |         |            |
| Mobile phone                             | 183     | 86.6       |
| College internet                         | 11      | 5.2        |
| Laptop/ Computer                         | 73      | 34.4       |
| Cyber cafe                               | 17      | 8.0        |
| Other                                    | 12      | 5.6        |
| <b>Duration of internet use</b>          |         |            |
| < 6 Months                               | 21      | 9.9        |
| 6 Months - 1 year                        | 51      | 24.1       |
| 1 year - 2 years                         | 65      | 30.7       |
| ≥ 2 years                                | 75      | 35.4       |
| <b>Internet use per day</b>              |         |            |
| < 1 Hour                                 | 25      | 11.8       |
| 1 - 2 Hours                              | 85      | 40.1       |
| > 2 Hours                                | 102     | 48.1       |
| <b>Expenditure on internet per month</b> |         |            |
| < 100 Rs.                                | 71      | 33.5       |
| 100 -200 Rs.                             | 115     | 54.2       |
| > 200 Rs.                                | 29      | 13.7       |

Young's Internet Addiction Test (YIAT20) showed that 150 (70.8%) had scoring in the range of 20-49 (average online user), 61 (28.8%) had scoring in the range of 50-79 (frequent problems due to internet usage) and 1 (0.4%)

had scoring in the range of 80-100 (Internet usage causing significant problems) (Table 2).

The types of activity done on internet were investigated, for which the chi square test was performed. Online shopping and cyber sexual addiction were potential influential factors ( $p$  value<0.05) whereas social networking and purposeless surfing were not found to be significant influential factors. As compared to educational searching or searching for information on internet, students with no such activities on internet had significantly higher problems ( $p = 0.02$ ). Fair degree of positive linear relationship was observed for time spent for non-educational purpose with Internet addiction score ( $r = 0.376$ ). Weak positive linear relationship was observed for time spent for educational purpose ( $r = 0.146$ ) and money spent for internet ( $r = 0.183$ ) (Table 3 and 4).

Out of 212 students, 60.9% students had change of lifestyle, 55.7% had disturbance in study, 41.5% had sleep disturbance, 15.6% had relationship problem and 14.6% had change in dietary behavior. As compared to students with YIAT20 score 20-49, students with  $\geq 50$  scores had significantly higher ( $p < 0.05$ ) problem of change of lifestyle, change in dietary behavior and sleep disturbance whereas disturbance in study and relationship problem were not significantly different in two groups (Table 5).

**Table 2: Prevalence of Internet Addiction.**

| Internet Addiction Score                             | Numbers | Percentage |
|------------------------------------------------------|---------|------------|
| 20-49 (Average on line user)                         | 150     | 70.8       |
| 50-79 (Experiencing occasional or frequent problems) | 61      | 28.8       |
| 80-100 (Experiencing significant problems)           | 1       | 0.4        |

**Table 3: Type of activities done on internet most of the time by the respondents.**

| Particular                                      | Internet addiction score |                     | Total (n=212) | P value | Odds Ratio | 95 % CI     |
|-------------------------------------------------|--------------------------|---------------------|---------------|---------|------------|-------------|
|                                                 | ≥ 50 (n=62) (%)          | 20 – 49 (n=150) (%) |               |         |            |             |
| Social Networking                               | 57 (30.3)                | 131 (69.7)          | 188 (88.7)    | 0.34    | 1.65       | 0.59-4.65   |
| Educational searching/Searching for information | 42 (25.3)                | 124 (74.7)          | 166 (78.3)    | 0.02    | 0.44       | 0.22-0.87   |
| Purposeless surfing                             | 20 (32.3)                | 42 (67.7)           | 62 (29.3)     | 0.54    | 1.23       | 0.65-2.32   |
| Online shopping                                 | 19 (44.2)                | 24 (55.8)           | 43 (20.3)     | 0.02    | 2.32       | 1.16-4.65   |
| Cyber sexual addiction                          | 13 (50)                  | 13 (50)             | 26 (12.3)     | 0.01    | 2.80       | 1.21 – 6.45 |
| Online gambling                                 | 7 (53.8)                 | 6 (46.2)            | 13 (6.1)      | 0.09    | 3.05       | 0.98 – 9.49 |
| Other                                           | 5 (27.8)                 | 13 (72.2)           | 18 (8.5)      | -       | -          | -           |

**Table 4: correlations of internet addiction score with pattern of internet use.**

| Particular                             | Spearman's correlation coefficient (r) | P value |
|----------------------------------------|----------------------------------------|---------|
| Time spent for educational purpose     | 0.146                                  | 0.034   |
| Time spent for non-educational purpose | 0.376                                  | 0.000   |
| Total time spent                       | 0.358                                  | 0.000   |
| Money spent for internet               | 0.183                                  | 0.008   |

**Table 5: Effects of internet usage among students.**

| Particular                 | Internet Addiction Score |                   | Total (n=212) | P value | Odds ratio | 95% CI      |
|----------------------------|--------------------------|-------------------|---------------|---------|------------|-------------|
|                            | ≥50 (n=62) (%)           | 20-49 (n=150) (%) |               |         |            |             |
| Change of lifestyle        | 45 (72)                  | 84 (56)           | 129 (60.9)    | 0.03    | 2.08       | 1.09 - 3.96 |
| Change in dietary behavior | 17 (27.4)                | 14 (9.3)          | 31 (14.6)     | 0.01    | 3.67       | 1.68 - 8.03 |
| Depression                 | 4 (6.5)                  | 13 (8.7)          | 17 (8.0)      | 0.79    | 0.73       | 0.23 - 2.32 |
| Disturbance in study       | 39 (62.9)                | 79 (52.7)         | 118 (55.7)    | 0.17    | 1.52       | 0.83 - 2.80 |
| Sleep disturbance          | 36 (58.1)                | 52 (34.7)         | 88 (41.5)     | 0.01    | 2.61       | 1.42 - 4.79 |
| Relationship problem       | 14 (22.6)                | 19 (12.7)         | 33 (15.6)     | 0.07    | 2.01       | 0.94 - 4.32 |
| Other                      | 4 (6.5)                  | 10 (6.7)          | 14 (6.6)      | -       | -          | -           |

## DISCUSSION

Internet today is the most recent and important human technology which is widely used. Because of availability of smart phones, access to internet is very easy, so more and more people using internet daily especially young. Addiction destroys human beings and their relationship. Internet addiction is no longer exception. The most important finding reported in present study was that 29.2% students had either frequent or significant problems due to internet usage and 70.8% students were average online users.

Based on the self-reported responses to specific questions on usage of the internet, following risk factors were identified in the study: online shopping, cyber sexual addiction, total time spent on internet. Students with online shopping activity had 2.32 times the odds of having internet addiction as compared to their counterpart. Students with cyber sexual addiction had 2.8 times the odds of having internet addiction as compared to their counterpart. In a study conducted by Krishnamurthy S et al. in 2013, it was observed that internet use for chatting, pornography, making new friends and getting into relationships online were risk factors for internet addiction.<sup>13</sup>

In the present study it was found that as the students spent more time on internet, higher the internet addiction score. Similar findings were observed in a study conducted by Orsal O et al. in 2012 and a study conducted by Krishnamurthy S et al. In a study conducted by Orsal O et al.<sup>13,14</sup> It was found that as daily time spent

on the internet was increased, median score for Internet Addiction Scale was also significantly increased. Little correlation was found between the money spent on internet and Internet Addiction score in the study, whereas in a study by Krishnamurthy S et al. significant association found between amounts spent on internet per month and internet addiction level.<sup>13</sup>

The common effects of internet usage among students were change of lifestyle, disturbance in study, sleep disturbance, relationship problem and change in dietary behavior. Social isolation and sleep disturbance were observed due to internet addiction in a study conducted by Kubey RW et al. In a study conducted by Ko C et al. It has been stated Internet addiction as one of a problematic behaviour model among students. Most of the time, student are always surfing internet during classes time which lead them to lose concentration in class.<sup>15,16</sup>

## CONCLUSION

Globally, a number of studies have tried to analyze Internet addiction problems, factors affecting and effects of internet addiction on health and the results of this study provide evidence to support the findings of prior research from an Indian context. This study's results imply that Internet addiction is a prevalent public health issue having many risk factors and varied pattern of internet use. Watch over the use of internet by parents and colleges necessary to prevent and stop emerging internet addiction. The need for detailed research for the same required.

## ACKNOWLEDGEMENTS

Authors would like to thank Dean, Smt. Kashibai Navale Medical College and General Hospital, Narhe, Pune, India.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Weiser EB. Gender differences in internet use patterns and internet application preferences: a two-sample comparison. *Cyber Psychology AND Behavior*. 2000;3(2):167-78.
2. Internet World Stat. Available At: <http://www.internetworldstats.com/top20.htm>. Accessed on 30 November 2013.
3. Buckingham D. The electronic generation? children and new media. In: Lievrouw LA, Livingstone S, eds. *The handbook of new media: Social Shaping and social consequences of ICTs*. London, SAGE Publications Ltd; 2002:77-89.
4. Teo TSH, Lim VKG. Gender differences in Internet usage and task preferences. *Behavior Inf Techno*. 2000;19(4):283-95.
5. Young KS. Internet addiction: Symptoms, evaluation and treatment. In vande Creek L, Jackson T, eds. *Innovations in clinical practice: a source book*. sarasota, FL: Professional Resource Press; 1999.
6. Davis RA. A cognitive-behavioral model of pathological Internet use. *Comput Hum Behav*. 2001;17:187-95.
7. Whang LSM, Lee S, Chang G. Internet over-users' psychological profiles: A behavior sampling analysis on internet addiction. *Cyber Psychology and Behavior*. 2003;6(2):143-50.
8. Widyanto L, Griffiths M. Internet addiction: does it really exist? (revisited). In: Gackenbach J, eds. *Psychology and the Internet: intrapersonal, interpersonal, and transpersonal implications*. 2<sup>nd</sup> ed. San Diego, CA: Academic Press; 2007:141-63.
9. Young KS. Internet addiction. *Am Behav Sci*. 2004; 48:402-41.
10. Kandell JJ. Internet addiction on campus: The vulnerability of college student. *Cyber Psychology and Behavior*. 1998;1(1):11-7.
11. Frangos CC, Frangos CC, Sotiropoulos I. A meta-analysis of the reliability of young's internet addiction test. *WCE*. 2012;1:368-71.
12. Centers for disease control and prevention. Epi Info version 3.5.1, 2008. Available at: [www.cdc.gov/epiinfo/](http://www.cdc.gov/epiinfo/). Accessed on 11 June 2012.
13. Krishnamurthy S, Chetlapalli SK. Internet addiction: prevalence and risk factors: a cross – sectional study among college students in bengaluru, the silicon valley of india. *Indian J Pub Health*. 2015;59(2):115-21.
14. Orsal O, Orsal O, Unsal A, Ozalp SS. Evaluation of internet addiction and depression among university students. *Procedia -Social and Behavioral Sciences*. 2013;82:445-54.
15. Kubey RW, Lavin MJ, Barrows JR. Internet use and collegiate academic performance decrements: early findings. *The journal of communication*. 2001;5:366-82.
16. Ko CH, Yen JY, Yen CF, Chen CS, Weng CC, Chen CC. The association between Internet addiction and problematic alcohol use in adolescents. *The problem behavior model cyber psychology and behavior*. 2008;11(5):571-6.

**Cite this article as:** Zalavadiya DD, Joshi NB, Thakrar DV, Mitra AH, Kanabar BR, Oza JR. Evaluation of internet addiction status and effects among medical students. *Int J Community Med Public Health* 2016;3:1568-72.