Internet Addiction Pattern and Its Mental Impact Among Medical Students in Bangalore: A Cross -Sectional Study

Rashmi R[1], Harsha GT[2], Vandana C Khargekar[3], Karthik KN[4], Narayana Swamy DM[5]

[1,2,3,4]BGS Global Institute of Medical Sciences, Bengaluru, Karnataka, India
[5]ESIC Medical College PGIMSR, Bengaluru, Karnataka, India

ABSTRACT

Background: In recent times internet addiction has become a leading cause of many personality and psychiatric disorders. Researches done on this field has shown that younger population is more vulnerable because of their psychosocial and environmental characteristics. The medical profession is also joining this parade.

Objectives: 1) To assess pattern of Internet Addiction among medical students. 2) To estimate the prevalence of Anxiety, Depression and Stress among medical students. 3) To determine the correlation between Internet Addiction and its impact on mental health.

Methods: Cross-sectional study was conducted among 308 undergraduate students of 1st and 2nd year MBBS in a medical college, Bangalore. Young's Internet Addiction Test –20 was used for assessment of Internet Addiction and DASS-21questionnaire for the assessment of Depression, anxiety and stress. Spearman's Rank Correlation was used to find the strength of association.

Results: In the present study mean age of the study participants was 20.6 years, around 54% were using internet from age of >15 years. Overall prevalence of severe internet addiction was found to be 1.3%. Nearly 53% reported depression and 69% had a state of anxiety.

Conclusion: Chronic usage of internet including in odd hours was observed. Study showed strong positive correlation between Depression and Internet addiction and Stress and Internet addiction.

Key words: Internet addiction, medical students, anxiety, depression

INTRODUCTION

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 billion[1]. 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.[1,2] The report "Internet in India 2017" had estimated that of about 500 million internet users in India in the year 2018, 60% shall be students and youth. The total number of internet users in the country is projected to grow to about 666.4 million by the year 2023[2]. From the past decade, there is a huge change in the field of communication because of the rapid development of social networking[2,3]. Indeed, this progress has made our lives easy and enriched, but it also has the other side effects. Internet can be misused and excess internet use can be pathological and addictive[4]. This maladaptive use of internet has been referred by different labels by different researchers such as internet addiction, internet addiction disorder, pathological internet use, or Internet dependency[4]. Though the adverse effects of excess internet activities were recognized earlier, internet addiction was recognized as a psychological disorder only in the mid-1990s[3,4]. Since then, it has

been considered a subset of behavioural addictions and has drawn a considerable attention of researchers[4-8]. Researchers have also shown that younger population and especially college students are more vulnerable because of their psychosocial and environmental characteristics. The medical profession is also joining the parade and attracted substantial interest among educators and institutions[9-12]. A recent meta-analysis suggests that 75% of medical students were regularly using social networking sites including the compulsive/compensatory use of social networking and we Indians are no exception to that.[13]It is already established that the level of the stress among medical students is much higher and this stress affects the lives of the medical students-their academic performance, physical health as well as their psychological health[14]. With easier access, the internet usage has become an integral part of our lives. In 2021internet penetration rate in India is 53.9%, where as in Asia it is 64%. It is alarming to identify the internet usage pattern and to examine the association between internet addiction and psychiatric symptoms so that proper intervention is placed.[15-18] Recent researchers have found that Yoga and meditation should be treated as a complementary therapy for medical therapy in the treatment of stress, anxiety, depression, and other psychiatric addictive disorders such Internet addiction, since it increases self-confidence, mind relaxation, and attentiveness, and decreases irritability.[19-22,24] .Empirical evidence regarding the magnitude of use of internet and its association with the mental health status of medical students are scarce in India. On this background the present study was aimed to explore the existing pattern of internet use among the medical students, and the mental impact was also explored.

On this view, the present study was conducted with the objectives to assess the pattern of Internet Addiction among medical students and to estimate the prevalence of Anxiety, Depression and Stress among medical students. The study also determines the correlation between Internet Addiction and its impact on mental health.

MATERIAL AND METHODS

A cross-sectional study was conducted among 308 undergraduate students of 1st and 2nd year MBBS in a medical college, Bangalore during the period from July-August 2019. Information on individual characteristics and use of internet addiction details of medical students were collected using a structured questionnaire. Young's Internet Addiction Test – 20 was used for assessment of Internet Addiction and DASS - 21 questionnaire for the assessment of Depression, anxiety and stress. Descriptive statistics like proportions were presented. Spearman's Rank Correlation was used to find the strength of association between variables.

Sample size: The sample size was calculated using

study conducted in India by Lisa Barman et al in 2018, the prevalence of depression among medical students was 24%. At 95% confidence level and absolute allowable error of 5%, sample size

n= $[Z^2_{1-\alpha/2} *P*(1-p)]/d^2$=280.3. Considering 5% dropouts, the estimated sample size is 294.3. Finally, 308 students were enrolled in the study.

Study tools: Data collection was done after an Informed Verbal Consent. Data was collected by a self-administered questionnaire consisting of 3 parts. a) Structured Questionnaire for socio-demographic profile (Name, age, sex, place of stay etc.) and behavioural patterns (Duration of internet usage, expenditure on the internet, Apps frequently used etc.) of study participants; b) Young's Internet Addiction Test – 20 (YIAT -20) for assessment of Internet Addiction; and c) DASS -21 questionnaire for the assessment of Depression, anxiety, and stress

Statistical analysis: The collected data were entered into an Excel sheet and were analyzed by SPSS Version 20. Descriptive statistics like proportions were presented. Spearman's Rank Correlation was used to find the strength of association between variables. p-value <0.05 was considered significant.

Ethical clearance: Ethical clearance for the study was obtained from Institutional ethics committee, BGS global Institute of medical sciences.

RESULTS

Table -1 shows the socio-demographic profile and characteristics of internet use among study participants. Of the 308 students, there were 114(37%) males and 194 (63%) females with mean age of 20.6 years (SD 1.97). On assessing the purpose of Internet use, majority of the students used Internet for social networking (52%), downloading media files (32.2%) and for other purposes (25.4%). Majority of them (54%) were using internet from the age of >15yrs.The mean duration of Internet use was 4.2years (SD 1.64). The mean duration of Internet use per day was 1.96 hours (SD 0.99). Instagram (56.5%) was the most preferred SNS (social networking site). Communication with the friends and families was the most common (60%) cited reasons for using SNSs followed by entertainment (35%) and education and professional activities (5%). When assessed about activity related characteristics of the study participants, around 46% accessed internet at least once in 2-4 hours and around 10.7% of students used to always keep themselves access to internet. Most used gadget for internet was mobile phone (94%). Majority (57.5%) of study participant's preferred late night to spend time in SNSs. It was observed that majority (46.4%) of students spent time on internet was only >/=1/2 to 1 hour for academic purpose. Majority (22.4%) of the students had habit of alcohol consumption in their free time and more than half of the students used to spend <300Rs monthly for internet.

Table 1: Socio-demographic Characteristics and Patterns of Internet use (n=308)

Socio-demographic	Participants (%)
Age	
18-20	275 (89.3)
21-23	33 (10.7)
Sex	
Male	114 (37.0)
Female	194 (63.0)
Schooling	
Rural	57 (18.5)
Urban	251 (81.5)
Place of study	
Day scholar	143 (46.0)
Hostel	165 (54.0)
Socio-economic status	
Upper class	257 (83.4)
Upper middle class	28 (9.0)
Middle class	13 (4.2)
Lower middle class	10 (3.2)
Time spent on physical activity	
≤ 30 Mins	118 (38.3)
30 Mins - 1 Hour	114 (37.0)
> 1 Hour	34 (11.0)
None	42 (13.6)
Usage of addictive substances	
Alcohol	69 (22.4)
Smoking	23 (7.5)
Cannabis	7 (2.3)
Heroine	2 (0.6)
Monthly expenditure on internet	
<300 Rs	188 (61.0)
300-600 Rs	93 (30.2)
>600 Rs	27 (8.8)
Applications most frequently used	
Instagram	174 (56.5)
WhatsApp	147 (47.7)
Browser	41 (13.3)
Snapchat	19 (6.2)
Shopping apps	19 (6.2)
Facebook	14 (4.5)
Preferable time spent on internet usage	
Daytime	130 (42.2)
Night	178 (57.8)
Internet used for academic purpose	
0 - 1/2 hour	86 (27.9)
>1/2 - 1 hour	143 (46.4)
>1 - 3 hour	70 (22.7)
>3 - 5 hour	7 (2.3)
≥5 hours	2 (0.6)

Table 2: Prevalence of Internet addiction and Mental illness (n=308)

Variables	Participants (%)
Internet addiction	
Normal	58 (18.8)
Mild	188 (61.0)
Moderate	58 (18.8)
Severe	4 (1.3)
Depression	
Normal	145 (47.1)
Mild	40 (13.0)
Moderate	78 (25.3)
Severe	21 (6.8)
Extremely Severe	24 (7.8)
Anxiety	
Normal	95 (30.8)
Mild	66 (21.4)
Moderate	51 (16.6)
Severe	43 (14.0)
Extremely Severe	53 (17.2)
Stress	
Normal	206 (66.9)
Mild	44 (14.3)
Moderate	34 (11.0)
Severe	19 (6.2)
Extremely Severe	5 (1.6)

Correlation of use of SNSs with depression, Anxiety and Stress.

Spearman's Rank Correlation was used to find the strength of association between variables. The scatter plot graph between the young's scale score and the Depression score via the DASS scale showed Rank correlation R = +0.574, which is > +0.5 it is a suggestive of strong positive correlation between depression and internet usage. (Fig:1)

Similarly, scatter graph of anxiety levels measured by DASS scale vs young's scale score. Since the Rank correlation R = +0.396, which is < +0.5 it is a suggestive of a weak positive correlation between anxiety and internet usage. (Fig: 2)

Study also showed scatter plot with the distribution of stress and young's scale score among the study population. Since the Rank correlation R = + 0.529, which is > +0.5 it is a suggestive of positive correlation between stress and internet addiction. (Fig: 3)

DISCUSSION

The present study aimed to investigate internet addiction and its effects on the mental health of medical students. The results of the present study demonstrated that 1.3% of students were severely addicted to the Internet. This finding was concurrent with the results of studies conducted by Sushma j et al which was found to be 0.8%[4]. The study conducted by Sharma et al in central India reported a prevalence of severe internet addiction to be 0.35%[8]. Pramanik et al in Nepal noted that 3.07% of the medical students were categorized as severe Internet addicts.[9] Similarly, Lebni et al in Iran reported severe addicts to constitute 2.8% of the subjects.[5]
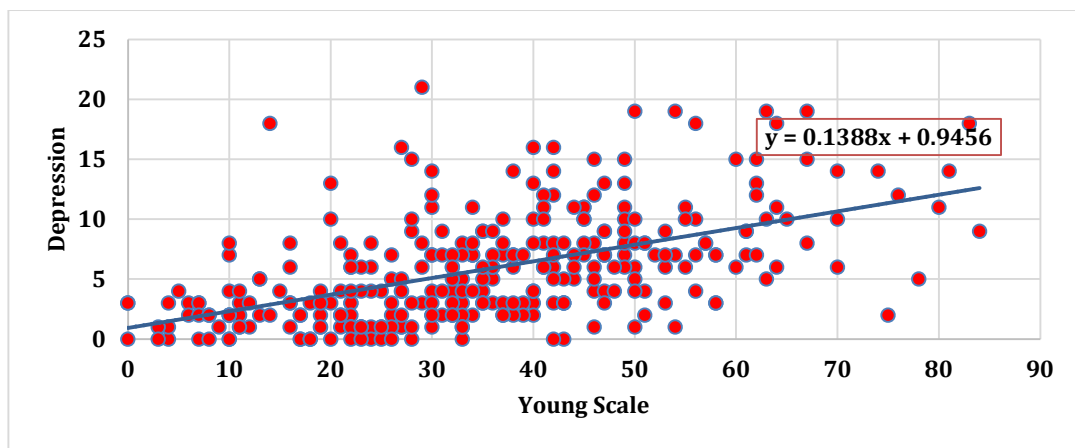
Overall prevalence of severe internet addiction was found to be 1.3%. The internet addiction test revealed that 18.8% of the subjects were normal users, 18.8% had moderate addiction and mild addiction was noted among 61% of the study participants. (Table-2)

As per the score obtained in DASS -21 questionnaires for Depression, Anxiety and Stress, one third (38.3%) had mild-moderate depression and severe depression was observed among 1.3%. It was observed that 38% had mild-moderate anxiety, and 14% had severe and 17.2% were extremely anxiety. It was observed that 25.3% had mild-moderates stress, 6.2% were observed to have severe stress and 1.6% were extremely severe stressed.

Figure 1: Showing co-relation between Depression and Young scale score
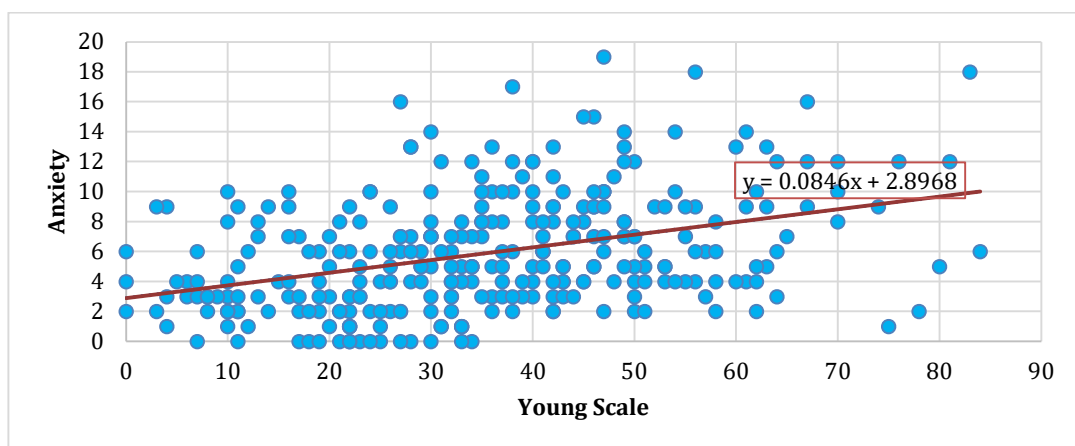

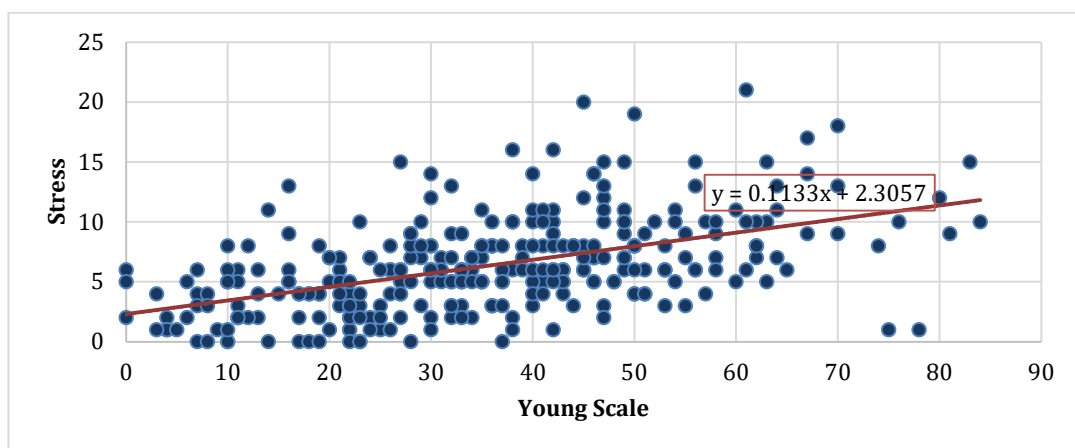**Figure 2: Showing co-relation between Anxiety and Young scale score**

Figure 3: Showing co-relation between Stress and Young scale score

The variations in the addiction pattern could be because of the difference in the evaluating methods, also influence of factors such as stress and psychological co-morbidities.

The mean duration of Internet use per day was 1.96 hours in our study, compared to 4hours per day in a study by Barman et al in Kolkata and 1.29 hours by Sharma et al in Central India[3,8]. In a study conducted by Sharma et al, it was found that majority of the medical students (82%) were using internet daily for around 1-3 hr[8]. In our study, severely depressed were found to be 1.3%, whereas a similar study by Barman et al, showed 4%. where has severe anxiety in our study was found to be 14%, and study by Barman et al showed 9.5%[3]. The different prevalence of psychiatric disorders in various studies can be attributed to several factors, including the differences in groups under study.

CONCLUSION

The overall prevalence of severe internet addiction in our study was found to be 1.3% among the study participants; moderate addiction and mild addiction were 18.8% and 61% respectively. Nearly 53% reported depression and 69% had a state of anxiety. Spearman's Rank Correlation showed strong positive correlation between Depression and Internet addiction and Stress and Internet addiction. Majority of the medical students have more affinity for SNSs. Chronic usage of internet including usage in odd hours was observed, which is not a healthy behaviour among medical students. Affinity of internet overuse has influenced mental illness among the medical students which is an alarming for quick intervention.

The observations of the present study are also indicative of the significance of preventative measures in the form of educational and counselling programs for medical students regarding the proper screen time and practical use of the Internet.

STRENGTHS AND LIMITATIONS

In this study screening tool was used to measure both internet addictions as well as mental illness at one point of time.

The students were selected from only 1st and 2nd year MBBS, and hence the results cannot be generalized. Other possible limitations were recall bias and social desirability bias.

REFERENCES

1. Hassan et al. Prevalence and associated factors of internet addiction among young adults in Bangladesh. Journal of the Egyptian Public Health Association. (2020) 95:3). [https://doi.org/10.1186/s42506-019-0032-7]

2. Kumar S, Singh S, Singh K, Rajkumar S, Balhara YPS. Prevalence and pattern of problematic internet use among engineering students from different colleges in India. Indian J Psychiatry. 2019;61(6):578-583. [doi: 10.4103/psychiatry.IndianJPsychiatry_85_19. PMID].

3. Barman, et al. Social networking site and mental disorders among medical students in Kolkata, westBengal.IndianJPsychiatry2018;60:3405.[doi:10.4103/psychiatry.IndianJPsychiatry_210_18.].

4. Sushma J et al. A study to assess internet addiction among undergraduate medical students of MMC&RI, Mysore. Int J Community Med Public Health. 2018 Jul;5(7):2984-2988. [DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20182634]

5. Lebni et al. A study of internet addiction and its effects on mental health: A study based on Iranian University Students. J Edu Health Promot 2020;9:205. [doi: 10.4103/jehp.jehp_148_20. PMID: 33062738; PMCID: PMC7530416].

6. Murali V, George S. Lost online: an overview of internet addiction. Adv Psychiatric Treatment. 2007;13(01):24-30. [doi:10.1192/apt.bp.106.002907]

7. Young K, Rogers R. The Relationship between Depression and Internet Addiction. Cyber Psychology Behavior. 1998; 1(1):25-8. [http://doi.org/10.1089/cpb.1998.1.25].

8. Sharma A, Sahu R, Kasar P, Sharma R. Internet addiction among professional courses students: A study from central India. Int J Med Sci Public Health. 2014;3(9):1069-72. [doi:10.5455/ijmsph.2014.180620142].

9. Pramanik et al. Internet addiction in a group of medical students: a cross sectional study. Nepal Med coll J.2012 Mar; 149(1):46-8.PMID:23441494.

10. Malviya A, Dixit S, Shukla H, Mishra A, Jain A, Tripathi A. A Study to Evaluate Internet Addiction Disorder among Students of a Medical College and associated Hospital of Central India. National J Community Med. 2014;5(1):93-4.

11. Ching S, Awang H, Ramachandran V, Lim S, Sulaiman W, Foo Y et al. Prevalence and factors associated with internet addiction among medical students - A cross-sectional study in Malaysia. The Med J Malaysia. 2017;72(1):7-10.

12. Bisen SS, Deshpande YM. Prevalence, predictors, psychological correlates of internet addiction among college students in India: A comprehensive study. Anatolian J Psychiatry 2020;21:117-23.

13. Anderson EL, Steen E, Stavropoulos V. Internet use and problematic internet use: a systematic review of longitudinal research trends in adolescence and emergent adulthood. Int J Adolesc Youth. 2017;22(4):430–54. [https://doi.org/10.1080/02673843.2016.1227716].

14. 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 Public Health 2015;59:115-21. [doi: 10.4103/0019-557X.157531].

15. John A. Naslund Ameya ,Bondre2 , John Torous3 & Kelly A. Aschbrenner. Social Media and Mental Health: Benefits, Risks, and Opportunities for Research and Practice. Journal of Technology in Behavioral Science (2020) 5:245–257. [https://doi.org/10.1007/s41347-020-00134-x]

16. InternetWorldStatistics.2022.www.internetworldstats. https://www.internetworldstats.com/stats.htm com (accessed April 2022).

17. Alavi SS, Maracy MR, Jannatifard F, Eslami M. The effect of psychiatric symptoms on the internet addiction disorder in Isfahan's University students. J Res Med Sci 2011;16:793-800.

18. Scherer K. College life online: Healthy and unhealthy Internetuse. J Coll Stud Dev 1997;38:655-65.

19. Morrison CM, Gore H. The relationship between excessive internet use and depression: a questionnaire-based study of 1,319 young people and adults.Psychopathology. 2010;43(2):1216.

20. Young KS. Internet addiction: the emergence of a new clinical disorder. Cyber Psychology Behav. 1996;1(3):237–44.20.21. [doi: 10.1159/000277001. Epub 2010 Jan 23. PMID: 20110764].

21. Tripathi: Impact of Internet Addiction on Mental Health: An Integrative Therapy Is Needed Integr Med Int 2017;4:215–222.[DOI: 10.1159/000491997].

22. Young KS: Caught in the Net: How to Recognize the Signs of Internet Addiction and a Winning Strategy for Recovery. New York, Wiley, 1998.

23. Sadock BJ, Sadock VA. Kaplon and Sadock Comprehensive Textbook of Psychiatry. 9th ed. Philadelphia: Lippincott Williamsand Wilkins; 2009. p. 1063-4.

24. Goel D, Subramanyam A, Kamath R. A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents.Indian J Psychiatry 2013;55:140-3. [doi: 10.4103/0019-5545.111451].

25. Guraya SY. The usage of social networking sites by medical students for educational purposes: A Meta-analysis and systematic review. N Am J Med Sci 2016;8:268-78. [doi: 10.4103/1947-2714.187131].