

# Urban and rural pattern of Internet use among youth and its association with mood state

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## ABSTRACT

**Introduction:** The problematic use of internet is associated with dysfunction life style. The emerging evidence do also suggest its impact on user's mood profile. There is need to establish the urban and rural difference in relation to internet use as well as its association with mood states and its implications for primary care setting. **Methods:** The present work explored the pattern of internet use in Urban and Rural area and its impact on mood states. 731 individuals (403 males and 328 females) in the age group of 18-25 years from urban and rural areas were approached for the study. The internet addiction test and Depression Anxiety Stress Scale were administered in group setting. Results indicated no significant difference in term of internet use as well as in term for gender. Significant difference was seen for internet use and mood states. **Results:** The results indicate no significant difference in terms of internet use pattern and gender in relation to urban and rural areas. However, a significant difference exists with respect to Internet use and its relation to depression, anxiety and stress. **Conclusions:** It implies the development of early brief intervention for Primary Physicians to enable them to screening psychological conditions along with internet use as well as help users to have healthy use of technology.

**Keywords:** Internet, rural, urban, youth

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## Introduction

Internet is the cost-effective communication method which involves the services like e-mail, web-enabled audio/video

conferencing services, online movies and gaming, data transfers/file-sharing, often through file transfer protocol (FTP), instant messaging, internet forums, social networking, online shopping and financial services. Studies have used many methods to identify, internet addicts, and have used several terms such as internet dependents, problematic internet users, or pathological internet users.<sup>[1,2]</sup> Internet addiction is defined as a psychological dependence on the Internet and is characterized by (a) an increasing investment of resources on Internet-related activities, (b) unpleasant feelings (e.g. anxiety, depression, emptiness) when offline, (c) an increasing tolerance to the effects of being online, and (d) denial of the problematic

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Received: 28-05-2019 Revised: 06-06-2019 Accepted: 12-07-2019

### Access this article online

#### Quick Response Code:



**Website:**  
www.jfmpc.com

**DOI:**  
10.4103/jfmpc.jfmpc\_428\_19

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**How to cite this article:** Hamza A, Sharma MK, Anand N, Marimuthu P, Thamilselvan P, Thakur PC, et al. Urban and rural pattern of Internet use among youth and its association with mood state. J Family Med Prim Care 2019;8:2602-6.

behaviours. Individuals exhibiting such symptoms often are dealing with underlying psychological issues.<sup>[3]</sup> Among students, in the Southeast Asia, the prevalence of severe Problematic internet use/internet addiction ranged from 0 to 47.4%, whereas the prevalence of Internet overuse/possible internet addiction ranged from 7.4% to 46.4%. The problematic internet users also reported presence of disturbance in sleep (26.8%), daytime sleepiness (20%), and eye strain (19%).<sup>[4]</sup> In another study in Indian context, the prevalence of Internet addiction was 25.3% among 380 subjects with mean age of 19.1 years. Internet addiction was significantly associated with higher family income, greater screen time, always online status, and greater duration of internet use per week.<sup>[5]</sup> The excessive use has also been associated with a loss of control over Internet use, social dysfunctions caused by a desire to be longer on online, academic disturbance or work performance due to neglecting activities, (IOJM) and negative health consequences such as disrupted sleep from spending too much time online.<sup>[6-9]</sup> The greater duration of use per week, depression, anxiety and stress were found to be predictor of internet addiction. Anxiety and internet addiction relationship was seen among college students of Mumbai.<sup>[5]</sup>

Other studies conducted outside India among various population groups in various countries have also found depression, anxiety and stress to be associated with the risk of Internet addiction. Some individuals with avoidant style of coping may start using the internet excessively to escape the stress arising out of real-world problems, leading to addiction.<sup>[10-13]</sup>

The average internet addiction score was  $30 \pm 18.474$  in the age group of 18 to 28 years with mean age of  $20.36 \pm 1.83$  years among 600 students. The prevalence rate was 16.8. It was significantly different between males and females ( $P$  value = 0.003), with a higher prevalence in males (23.6% versus 13.9%). The significant association was seen between internet addiction and insomnia, stress, anxiety, depression and self-esteem ( $P$  value < 0.001); ISI and DASS sub-scores were higher and self-esteem lower in students with potential IA.<sup>[10]</sup>

A study showing cultural differences was performed in 6 Asian countries, namely Hong Kong, Malaysia, China, the Republic of Korea, the Philippines, and Japan. The highest risk of Internet addiction and social anxiety was in the Philippines and Japan, while the highest level of Internet addiction and depression was in Hong Kong and Malaysia.<sup>[14]</sup>

Though most studies reviewed nationally or internationally have focussed on urban young sample and documented the association between internet addiction and depression, anxiety and stress. In Indian context, there is documented evidence of the dependence criteria existing as 30.3% among rural students group, with the mean age being 15.1 years. The association was seen with depression. Students in urban areas were found to have more problematic internet use compared to rural areas.<sup>[15]</sup> These studies did not address did not bring the comparison of pattern of use of technology among youth population. The

present study explored the pattern of internet and mobile addiction in urban and rural area. The study also explored the association with depression, anxiety and stress as well as its implication for Primary Care Physicians.

## Methods

### Aim

To examine the relationship between internet addiction with depression, stress and anxiety.

### Objective

It was to assess pattern of internet addiction and its relationship with depression, anxiety and stress.

### Sample

731 individuals (403 males and 328 females) in the age group of 18-25 years from Urban and rural areas were approached for the study. The participants were taken from colleges, workplace and community. The inverse binomial sampling was used to collect the sample. The inclusion criteria included who were using internet/mobile for minimum period of one year of above. The participants who showed unwillingness to participate were excluded from the study. The Institute Ethic permission for the same was obtained.

### Assessment

#### 1. Internet Addiction Test<sup>[16]</sup>

It measured the characteristics and behaviours associated with compulsive use of the internet that include compulsivity, escapism and dependency. This test consists of 20 items. Examinees respond to each statement with a number between 1 and 5, representing a Likert scale continuum, indicating the extent to which they endorse that particular behaviour. The test shows good to moderate internal consistency of factors (alpha coefficients- 0.54–0.82). Content and convergent validity, Internal consistency ( $\alpha = 0.88$ ), test–retest reliability ( $r = 0.82$ ) and bisection ( $r = 0.72$ ) had been determined for this test. This measure has high internal consistency (coefficient alpha = 0.96) and a test retest correlation of 0.73.

#### 2. Depression Anxiety Stress Scale<sup>[17]</sup>

It is a set of three self-report scales consists of 42 items each of the three DASS scales contains 14 items. It designed to measure the negative emotional states of depression, anxiety and stress. The reliability of the scale was 0.88 for depression scale, 0.82 for anxiety, 0.90 for stress scale, and 0.93 for total scale.

### Procedure

The informed consent was obtained from colleges, workplaces or individual participants prior to administration of survey tools. The administration of tools were carried out in individual or group setting. 731 individuals (403 males and 328 females) in

the age group of 18-25 years were approached for the study. The tools administered included the Internet Addiction Test and Depression Anxiety Stress Scale. A minimum of 3 attempts were made to complete the survey before considering participants as drop out.

### Statistical analysis

Data were analysed using SPSS software. All the nominal and ordinal measures were analysed using the suitable statistical procedure such as frequency and percentage. Also chi square was used to see statistical difference between categorical data.

### Results

731 individuals (403 males and 328 females) in the age group of 18-25 years. The usage pattern of internet use as well as for mobile use did not differ in terms of gender.

Table 1 showed that no significant difference in relation to urban and rural area for internet use. Table 2 showed that

significant difference exists in relation to pattern of internet use and depression. Table 3 showed that that significant difference exists in relation to pattern of internet use and anxiety. Table 4 showed that significant difference exists in relation to pattern of internet use and stress.

The study findings showed no difference in pattern of use of internet in urban and rural area and gender difference for the same. However, in terms of percentage score, it was high in rural area [Table 1]. The mood states significantly different for internet addiction test score [Tables 2-4]. The finding corroboration seen in other available studies also. The prevalence of internet addiction among urban school students (N = 300 in the age group of 12-17 years) was found to be i.e. 83.3%, while it was 78% in rural school students. The risk factors identified in both groups were male gender, smart phones and hours spent on internet. The most commonly used gadgets for internet was smartphone in both groups. An average hour of internet was 1-5 hour/day in both groups,<sup>[18]</sup> whereas contradictory findings could be seen in other studies. The students in urban areas were found to have more

**Table 1: Show the Internet addiction test score in Urban and rural area**

Sites	Urban		Rural		Chi Square df=1 (p)
	frequency	percentage	Frequency	Percentage	
Normal	64	41.6%	53	37.6%	0.566
Mild	47	30.5%	42	29.8%	
Moderate	41	26.6%	41	29.1%	
Addiction	2	1.3%	5	3.5%	

**Table 2: Pattern of internet use and Depression score**

Subjects (both sites)	Normal		Mild		Moderate		Chi Square (df=1) (p)
	n	percentage	n	percentage	n	percentage	
Normal	386	93.7	13	3.2	13	3.2	0.000
Mild	173	89.2	13	6.7	7	3.6	0.000
Moderate	114	70.4	33	20.4	15	9.3	0.000
Severe	5	41.7	3	25.0	4	33.3	0.000

**Table 3: Pattern of internet addiction test score and DASS-Anxiety score**

Subjects (both sites)	Normal		Mild		Moderate		Severe		Chi Square df=1 (p)
	n	Percentage	n	Percentage	n	Percentage	n	Percentage	
Normal	371	90.5%	18	4.4%	19	4.6%	2	0.5%	0.000
Mild	144	74.2%	29	14.9%	19	9.8%	2	1.0%	0.000
Moderate	80	49.4%	44	27.2%	35	21.6%	3	1.9%	0.000
Addiction	4	33.3%	3	25.0%	2	16.7%	2	16.7%	0.000

**Table 4: Shows the frequency and percentage of IAT and DASS-Stress score**

Subjects (both sites)	Normal		Mild		Moderate		Chi Square df=1 (p)
	frequency	percentage	Frequency	Percentage	Frequency	Percentage	
Normal	397	96.8%	13	3.2%	0	0.0%	0.000
Mild	175	90.7%	17	8.8%	0	0.0%	0.000
Moderate	131	81.4%	29	18.0%	1	0.6%	0.000
Addiction	5	41.7%	7	58.3%	0	0.0%	0.000

problematic internet use compared to rural areas.<sup>[15]</sup> 30.3% met the dependence criteria for mobile use among rural students' group. The mean age of the sample was 15.1 years.<sup>[19]</sup> It has been found that urban college students use internet over rural college students in terms of daily or — times of every week. Whereas rural college students used internet over the urban college students in terms of — times of a month or just one occasion of a month.<sup>[20]</sup> The positive relationship was seen between internet addiction and depression.<sup>[21]</sup> The severe use of Internet among college students had been associated with psychopathological symptoms in four dimensions such as obsessive-compulsive, interpersonal sensitivity and depression, anxiety, and global severity index.<sup>[22]</sup> The prevalence of internet addiction was found to be 34% (severe internet addiction) among higher secondary school students. The study reported the presence of depression (11.3% mild level and 4.6% moderate level), anxiety (6.5% mild level and 4.6% moderate level) and stress (20% mild level and 6.6% moderate level) among higher secondary school students.<sup>[23]</sup>

Other studies also reported that the impact of internet addiction on depression, anxiety and stress.<sup>[5,24,25]</sup> and poor mental health.<sup>[26]</sup> The study got limitation of qualitative data to demonstrate the causal relationship between internet use and mood states.

## Conclusion

The study implies the need to bring awareness among Primary Care Physicians to screen for excessive use of internet as it is a likely comorbid condition, whenever youth present with psychological conditions. It also implies the development of brief interventions which will enable Primary Care Physicians to screen and counsel for life style changes to promote healthy use of internet among youth in Urban and Rural settings.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

## Compliance with ethical standard

There was no conflict of interest in relation to present work as well as informed consent of the human subjects had been taken prior to inclusion in the study.

## Statement of Human right

The studies have been approved by the Institutional and/or national research ethics committee (Approval from institute ethics committee was obtained and the date of approval was 24<sup>th</sup> December 2016).

## Research involving Human Participants and/or Animals

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## Acknowledgements

Rajiv Gandhi National Institute of Yout Development, Sriperumbudur, ChennaiIndia awarded the grant to Dr Manoj Kumar Sharma.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## References

1. Davis RA. A cognitive-behavioral model of pathological internet use. *Comput Hum Behav* 2001;17:187-95.
2. Lin SSJ, Tsai CC. Sensation seeking and internet dependence of Taiwanese high school adolescents. *Comput Hum Behav* 2002;18:411-26.
3. Kandell JJ. Internet addiction on campus: The vulnerability of college students. *Cyberpsychol Behav* 1998;1:11-7.
4. Balhara YP, Mahapatra A, Sharma P, Bhargava R. Problematic internet use among students in South East Asia: Current state of evidence. *Indian J Public Health* 2018;62:197-210.
5. Gupta A, Khan AM, Rajoura OP, Srivastava S. Internet addiction and its mental health correlates among undergraduate college students of a university in North India. *J Fam Med Prim Care* 2018;7:721-7.
6. Kuss DJ, Shorter GW, van Rooij AJ, Griffiths MD, Schoenmakers T. Assessing internet addiction using the parsimonious internet addiction components model—A preliminary study. *Int J Ment Health Addict* 2014;12:351-66.
7. King DL, Delfabbro PH, Zwaans T, Kaptsis D. Clinical features and axis I comorbidity of Australian adolescent pathological Internet and video game users. *Aust New Zeal J Psychiatr* 2013;47:1058-67.
8. Kirschner PA, Karpinski AC. Facebook® and academic performance. *Comput Hum Behav* 2010;26:1237-45.
9. Young K. Internet addiction: Diagnosis and treatment considerations. *J Contemp Psychother* 2009;39:241-6.
10. Younes F, Halawi G, Jabbour H, El Osta N, Karam L, Hajj A, *et al.* Internet addiction and relationships with insomnia, anxiety, depression, stress and self-esteem in university students: A cross-sectional designed study. *PLoS One* 2016;11:e0161126.
11. Kawabe K, Horiuchi F, Ochi M, Oka Y, Ueno S. Internet addiction: Prevalence and relation with mental states in adolescents. *Psychiatry Clin Neurosci* 2016;70:405-12.
12. Ho RC, Zhang MW, Tsang TY, Toh AH, Pan F, Lu Y, *et al.* The association between internet addiction and psychiatric co-morbidity: A meta-analysis. *BMC Psychiatry* 2014;14:18323.

13. Al-Gamal E, Alzayyat A, Ahmad MM. Prevalence of internet addiction and its association with psychological distress and coping strategies among university students in Jordan. *Perspect Psychiatr Care* 2016;52:49-61.
14. Lai CM, Mak KK, Watanabe H, Jeong J, Kim D, Bahar N, *et al.* The mediating role of internet addiction in depression, social anxiety, and psychosocial well-being among adolescents in six Asian countries: A structural equation modelling approach. *Public Health* 2015;129:1224-36.
15. Kakkar N, Ahuja J, Dahiya P. Influence of internet addiction on the academic performance and mental health of college students. *Scholar Res Jour Interdisciplin Stud* 2014;3:1151-61.
16. Young KS, Rogers RC. The relationship between depression and internet addiction. *Cyberpsychol Behav* 1998;1:25-8.
17. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales*. 2<sup>nd</sup> ed. Sydney: Psychology Foundation of Australia; 1995.
18. Sowndarya TA, Pattar M. Pattern of internet addiction among urban and rural school students, Mangaluru, India: A comparative crosssectional study. *Int J Contemp Pediatr* 2018;5:1750-4.
19. Jamir L, Duggal M, Nehra R, Singh P, Grover S. Epidemiology of technology addiction among school students in rural India. *Asian J Psychiatr* 2019;40:30-8.
20. Karmakar T, Karmakar M. A comparative study on internet use by rural and urban college students. *Int J Adv Res* 2017;5:1125-32.
21. Nie NH, Hillygus DS, Erbring L. Internet use, interpersonal relations, and sociability: A time diary study. In: Wellman B, Haythornthwaite C, editors. *The Internet in Everyday Life*. Oxford: Blackwell; 2002. p. 215-43.
22. Kumar M, Mondal A. A study on Internet addiction and its relation to psychopathology and self-esteem among college students. *Ind Psychiatr J* 2018;27:61-6.
23. Ali A, Horo A, Swain MR, Gujar NM, Deuri SP. The prevalence of internet addiction and its relationship with depression, anxiety and stress among higher secondary school students: North-east perspective. *J Indian Assoc Child Adolesc Ment Health* 2019;15:13-26.
24. Akin A, Iskender M. Internet addiction and depression, anxiety and stress. *Int Online J Educ Sci* 2011;3:138-48.
25. Rabadi L, Ajlouni M, Masannat S, Bataineh S, Batarseh G, Yessin A. The relationship between depression and internet addiction among university students in Jordan. *J Addict Res Ther* 2017;8:349.
26. Yang CK. Sociopsychiatric characteristics of adolescents who use computers to excess. *Acta Psychiatrica Scandinavica* 2001;104:217-22.