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## Assessment of prevalence of internet addiction among youth population in urban and rural area: A comparative study

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### Abstract

**Background:** With the increase in internet usage in today's time, the incidence of internet addiction has also increased. College students are especially vulnerable to internet, because of availability of time, unlimited access, limited parental supervision and the psychological and developmental characteristics of young adulthood. Objective of this study is to identify internet addiction among urban and rural youth population.

**Method:** This cross sectional study was carried among urban and rural population in the locality of Sangli district, Maharashtra, India. A total of 200 students having an access to internet were selected by simple random sampling. Young's Internet addiction scale, consisting of 20-item, based upon five-point Likert scale was used and subjects were classified accordingly.

**Result:** The prevalence of internet addiction among urban population is 65% while in rural population is 70%. Mild IA was common among both populations while severe IA is seen more in rural population. As far as gender is considered, the prevalence is similar in male and female sample. The addicts use internet preferably for social media and social purposes.

**Conclusions:** In this study, Young's Internet Addiction Test (IAT) is used which is a simple and easy tool to assess Internet addiction among urban and rural youth population. It is necessary to adopt multi-sectoral approach to improve education among urban and rural youth population.

**Keywords:** youth population, internet addiction, young's internet addiction test

### Introduction

Internet has become an essential part of our daily life. It is being used extensively throughout the world, especially among adolescents and youth. Its problematic use is associated with various psychological symptoms<sup>[1-3]</sup>.

India has one of the highest adolescents (253 million) and youth populations in the world. According to Census of India 2011 the profile and status of the adolescent and youth population constitutes a critical segment of the total population and socio-political, economic and demographic developments depend on them<sup>[3]</sup>. The transition from education and training to economic activity marks an important phase in the lives of youth, who are the productive workforce of the country<sup>[4]</sup>. Youth is defined as those persons in the age group 15-24 years by the United Nations, though the age range for youth may vary in different countries due to different contexts and needs of youth<sup>[5]</sup>. Surveys have shown a prevalence of 0.3-0.7% in the general population<sup>[6]</sup>.

College students are especially vulnerable to this, because of, availability of time, unlimited access to the internet, the psychological and developmental characteristics of young adulthood, limited parental supervision and as a project to communication with peers and mentor. And also, 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>[7, 8]</sup>.

There has been an explosive growth in the use of internet not only in India but also worldwide in the last decade. There were about 42 million active internet users in urban India in 2008 as compared to 5 million in 2000<sup>[9]</sup>. During 2013, India had 190 Million internet users, out of these 130 million students belonged to urban area while the remaining 60 million were from rural areas<sup>[10]</sup>.

IA was introduced as a disorder by Young in her seminal paper “Internet Addiction: The emergence of a new clinical disorder” in 1996 [11]. She proposed diagnostic criteria for IA based on the existing Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-4) criteria for substance dependence [12]. The term “addiction” has generally been associated with substance use. However, with internet access becoming widespread, problematic internet use is increasingly being reported. It has been suggested that excessive internet use could represent addictive behaviour with mental health implications [13, 14]. The term “internet addiction” was proposed by Dr. Ivan Goldberg in 1995 for pathological compulsive internet use [15].

**Aims and Objectives**

1. Compare the pattern of internet use and its association with socio-demographic factors in urban and rural area.
2. Identify the problems associated with Internet addiction and suggest appropriate methods for internet use for study population under adopted area with involvement of school as well as college authority.

**Material and Methods**

**Study design and study population**

A cross sectional study was carried out among urban and rural population in the locality of Sangli district, Maharashtra. A total number of 200 students in between age group 15 to 24 years, who are using internet in the past 1 year, were included in the study by simple random sampling method, with 100 selected randomly from urban and rural area of Islampur, Taluk-Walva, which is adopted population under Prakash Institute of medical Science & Research, Islampur. The participants who gave informed consent were included in the study. Participants were assured that the information given by them would be anonymous and confidential to avoid reporting bias.

Pre-designed and pre-structured questionnaire was distributed to the participants in the classroom settings at a predetermined time and was collected on site after 30 min. The questionnaires were anonymous, self-administered and in their vernacular language (Marathi). Ethical clearance was obtained from Institution Ethical Committee.

**Sample size**

50% of the students are considered to be internet addict.

Now using the formula,

$$N = Z^2 \times P(1-P)/d^2$$

$Z = 1.96; P = 50\%; 1 - P = 50\%; d = \text{relative error of } 15\% \text{ of } p = 7.5$  on substituting in the above formula,

$$N = (1.96)^2 \times 50 \times 50 / (7.5)^2 = 177$$

10% of the sample is to be added for non-response rate  $177 + 17 = 194$

Rounding it to 200

The calculated sample size comes out to be 200.

100 Rural and 100 urban students were selected for the study.

**Data collection**

Data was collected by using a self-administered standardized tool based on three internationally validated and reliable questionnaires, namely-The Young Internet Addiction Test,

**Study duration:** May- September 2019.

**Young’s scale of internet addiction**

- Young’s internet addiction scale was used to assess the degree of internet addiction [29].
- As Young’s diagnostic questionnaire is the first global psychometric measure validated for adult and youth population. This tool is having reliability, internal consistency and validity. Young’s Internet Addiction Test (IAT) is a 20-item self-report scale assessing a respondent’s productivity at work, school, or home (3 questions), social behaviour (3 questions), emotional connection to and response from using the internet (7 questions), and general patterns of Internet use (7 questions). Participants responded to the 20 YIAT items on a 6-point Likert measure (“does not apply” to “always”).

**Statistical analysis**

Data was entered into Microsoft excel sheet and analysed using SPSS Inc. 21.0 software. Frequency and percentages (descriptive statistics) were calculated. Pearson’s Chi-square was used as a test of significance. P-value < 0.05 was considered statistically significant.

Sample characteristics were summarized using the mean and the standard deviation (SD) for continuous variables and percentage for categorical variables. Internet addiction prevalence rates were calculated using descriptive data, along with corresponding 95% confidence interval (CI).

**Observation and Results**

**Table 1:** Socio-demographic profile of urban and rural area

| Characteristics      |                        | Urban                  | Rural | Total | Percentage |       |
|----------------------|------------------------|------------------------|-------|-------|------------|-------|
| Age                  | Group 1 15 to 19       | 91                     | 41    | 132   | 66%        |       |
|                      | Group 2 20 to 24       | 9                      | 59    | 68    | 34%        |       |
| Gender               | Male                   | 49                     | 57    | 106   | 53%        |       |
|                      | Female                 | 51                     | 43    | 94    | 47%        |       |
| Type of family       | Joint                  | 21                     | 15    | 36    | 18%        |       |
|                      | 3 Generation           | 19                     | 27    | 46    | 23%        |       |
|                      | Nuclear                | 60                     | 54    | 114   | 57%        |       |
| Education of parents | Fathers education      | Illiterate             | 5     | 12    | 17         | 8.5%  |
|                      |                        | Up to senior secondary | 65    | 78    | 143        | 71.5% |
|                      | Mothers education      | Up to PG               | 30    | 10    | 40         | 20%   |
|                      |                        | Illiterate             | 5     | 23    | 28         | 14%   |
|                      | Up to senior secondary | 74                     | 75    | 149   | 74.5%      |       |

|                      |         |          |    |    |    |       |
|----------------------|---------|----------|----|----|----|-------|
|                      |         | Up to PG | 21 | 2  | 23 | 11.5% |
| Socioeconomic status | Class 1 |          | 19 | 16 | 35 | 17.5% |
|                      | Class 2 |          | 14 | 8  | 22 | 11%   |
|                      | Class 3 |          | 24 | 8  | 32 | 16%   |
|                      | Class 4 |          | 31 | 27 | 58 | 29%   |
|                      | Class 5 |          | 12 | 41 | 53 | 26.5% |

A total of 200 students participated in our study, out of them 132 (66%) belong to the age group 15 to 19 and 68 (34%) belong to the age group 20 to 24 including both urban and

rural population with almost equal number of male and female participants. Among them (contd..)

**Table 2:** Relation of socio-demographic factors with internet addiction

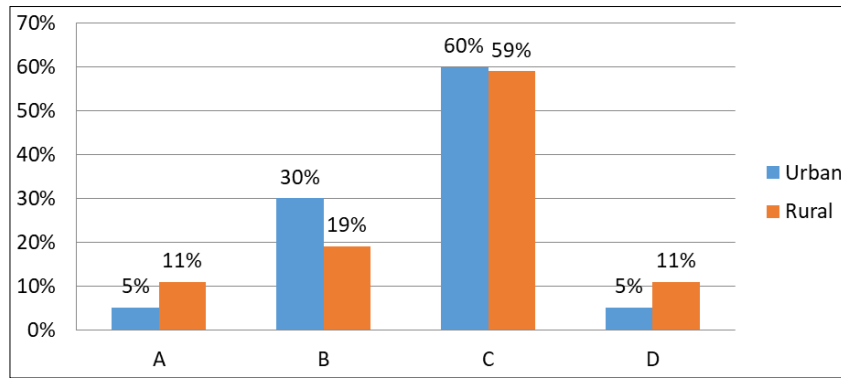
| Characteristics      |                     | Urban frequency        | Internet addiction (N) | %        | Rural frequency | Internet addiction (N) | %        | Total N = 200 (%) | X <sup>2</sup> (P)  |                     |
|----------------------|---------------------|------------------------|------------------------|----------|-----------------|------------------------|----------|-------------------|---------------------|---------------------|
| Age                  | Group 1<br>15 to 19 | 91                     | IA (59)                | 64.8     | 41              | IA (23)                | 56.1     | 132<br>(66)       | 0.5833<br>(0.4450)  |                     |
|                      |                     |                        | INA (32)               | 35.2     |                 | INA (18)               | 43.9     |                   |                     |                     |
|                      | Group 2<br>20 to 24 | 9                      | IA (6)                 | 66.6     | 59              | IA (47)                | 79.6     | 68<br>(34)        | 0.1973<br>(0.6569)  |                     |
|                      |                     |                        | INA (3)                | 33.4     |                 | INA (12)               | 20.4     |                   |                     |                     |
| Gender               | Male                | 49                     | IA (39)                | 79.6     | 57              | IA (38)                | 66.6     | 106<br>(53)       | 1.612<br>(0.2042)   |                     |
|                      |                     |                        | INA (10)               | 20.4     |                 | INA (19)               | 33.4     |                   |                     |                     |
|                      | Female              | 51                     | IA (26)                | 51       | 43              | IA (32)                | 74.4     | 94<br>(47)        | *4.477<br>(0.0344)  |                     |
|                      |                     |                        | INA (25)               | 49       |                 | INA (11)               | 25.6     |                   |                     |                     |
| Type of family       | Joint               | 21                     | IA (9)                 | 42.8     | 15              | IA (7)                 | 46.6     | 36<br>(18)        | 0.05143<br>(0.8206) |                     |
|                      |                     |                        | INA (12)               | 57.2     |                 | INA (8)                | 53.4     |                   |                     |                     |
|                      | 3 Generation        | 19                     | IA (14)                | 73.6     | 27              | IA (15)                | 55.6     | 46<br>(23)        | 0.8912<br>(0.3451)  |                     |
|                      |                     |                        | INA (5)                | 26.4     |                 | INA (12)               | 44.4     |                   |                     |                     |
|                      | Nuclear             | 60                     | IA (42)                | 70       | 54              | IA (44)                | 81.4     | 114<br>(57)       | 1.450<br>(0.2286)   |                     |
|                      |                     |                        | INA (18)               | 30       |                 | INA (10)               | 18.6     |                   |                     |                     |
| Education of parents | Fathers education   | Illiterate             | IA (4)                 | 80       | 12              | IA (12)                | 100      | 17<br>(8.5)       | 0.2169<br>(0.6414)  |                     |
|                      |                     |                        | INA (1)                | 20       |                 | INA (0)                | 0        |                   |                     |                     |
|                      |                     | Up to senior secondary | 65                     | IA (45)  | 69.2            | 78                     | IA (54)  | 69.2              | 143<br>(71.5)       | 0.000<br>(1.0000)   |
|                      |                     |                        |                        | INA (20) | 30.8            |                        | INA (24) | 30.8              |                     |                     |
|                      |                     | Up to PG               | 30                     | IA (16)  | 53.3            | 10                     | IA (4)   | 40                | 40<br>(20)          | 0.1333<br>(0.7150)  |
|                      |                     |                        |                        | INA (14) | 46.7            |                        | INA (6)  | 60                |                     |                     |
|                      | Mothers education   | Illiterate             | 5                      | IA (4)   | 80              | 23                     | IA (15)  | 65.2              | 28<br>(14)          | 0.01281<br>(0.9099) |
|                      |                     |                        |                        | INA (1)  | 20              |                        | INA (8)  | 34.8              |                     |                     |
|                      |                     | Up to senior secondary | 74                     | IA (51)  | 68.9            | 75                     | IA (54)  | 72                | 149<br>(74.5)       | 0.05411<br>(0.8161) |
|                      |                     |                        |                        | INA (23) | 31.1            |                        | INA (21) | 28                |                     |                     |
|                      |                     | Up to PG               | 21                     | IA (10)  | 47.6            | 2                      | IA (2)   | 100               | 23<br>(11.5)        | 0.4574<br>(0.4988)  |
|                      |                     |                        |                        | INA (11) | 52.4            |                        | INA (0)  | 0                 |                     |                     |
| Socioeconomic status | Class 1, 2, 3       | 57                     | IA (34)                | 59.6     | 32              | IA (23)                | 71.8     | 89<br>(44.5)      | 0.8523<br>(0.3559)  |                     |
|                      |                     |                        | INA (23)               | 40.4     |                 | INA (9)                | 28.2     |                   |                     |                     |
|                      | Class 4, 5          | 43                     | IA (31)                | 72.1     | 68              | IA (47)                | 69.1     | 111<br>(89.5)     | 0.01463<br>(0.9037) |                     |
|                      |                     |                        | INA (12)               | 27.9     |                 | INA (21)               | 30.9     |                   |                     |                     |

The relation of internet addiction with socio-demographic factors is considered. In this table we found statistically significant values for females of urban and rural population (p-value = 0.0344). But the prevalence of males having internet addiction is slightly higher in urban area. There is no statistical significance in socio-economic status and internet addiction but the prevalence of internet addiction is seen more in class 4 and 5 in urban population (72.1%)

while almost similar in rural population i.e. 71.8% and 69.1%. Rural population from class 1, 2 and 3 (71.8%) shows more tendency to get addicted as compared to urban population. When the type of family is concerned we found the prevalence of internet addiction more in nuclear families. Apart from this, there is no statistical significance between other socio-demographic factors and internet addiction.

**Table 3:** Prevalence of internet addiction according to Young’s internet addiction test in urban and rural area

| Test score | Urban     |      | Rural     |      | Total | %     | X <sup>2</sup> (P) |
|------------|-----------|------|-----------|------|-------|-------|--------------------|
|            | Frequency | %    | Frequency | %    |       |       |                    |
| A          | 5         | 5%   | 11        | 11%  | 16    | 8%    | 6.978<br>(0.0726)  |
| B          | 30        | 30%  | 19        | 19%  | 49    | 24.5% |                    |
| C          | 60        | 60%  | 59        | 59%  | 119   | 59.5% |                    |
| D          | 5         | 5%   | 11        | 11%  | 16    | 8%    |                    |
| Total      | 100       | 100% | 100       | 100% | 200   | 100%  |                    |



**Fig 1:** Comparison of internet addiction test score

**Internet addiction test score**

**Normal - A:** 0 to 20 - No internet addiction

**Mild - B:** 21 to 39 - Average online users who has control of his/her usage

**Moderate - C:** 40 to 69 - Experiences frequent problems because of excessive internet usage

**Severe - D:** 70 to 100 - Has significant problems because of the internet

Almost 60% of the urban and rural population experiences frequent problems because of excessive internet usage. However, 11% of the rural population is suffering from significant problems. There is No significant difference ( $X^2 = 6.981, p = 0.0726$ ) in internet addiction test score while the overall prevalence is 65% in urban population and 70% in rural population.

**Table 4:** Purpose of using internet

| Variables                 | Urban (N) | Rural (N) | Total (Out of 200) | Percentage | $X^2$ (P)        |
|---------------------------|-----------|-----------|--------------------|------------|------------------|
| Work                      | 9         | 21        | 30                 | 15%        | 7.67<br>(0.0533) |
| Social                    | 58        | 44        | 102                | 51%        |                  |
| Gaming                    | 17        | 22        | 39                 | 19.5%      |                  |
| Adult entertainment sites | 16        | 13        | 29                 | 14.5%      |                  |

Seventy students from urban area and sixty five students from rural area are internet addicts according to Young’s Internet Addiction Test. The pattern of their internet usage is as follows - Work - 9% urban & 21% rural which includes Business surfing, Discussion list, Personal e-mails, Stock trading; Social, the most common purpose of internet usage, which is 58% and 44% in urban and rural area respectively. It includes Instant messaging, Chat rooms, online shopping, Recreational sites, etc. Gaming is 17% in urban and 22% in rural population Adult entertainment sites is 16% in urban and 13% in rural population.

There is no statistically significant difference ( $p = 0.0533$ ) in the purpose of internet use among urban and rural area.

**Discussion**

A report titled “Internet in India 2016” by the Internet and Mobile Association of India (IAMAI) jointly published by the IMRB, mentions that the number of internet users in India is expected to reach between 450-465 million by June 2017. It adds that the country had 432 million mobile internet users in December 2016, of which 269 million or 62.3% were from urban India and 163 million, or 37.7% were from rural India [16]. In our study the overall prevalence is 67.5% which includes 70% in rural and 65% in urban area. In Goel *et al.* males in comparison to females were significantly more likely to be addicted ( $x^2 = 10.2, P = 0.006$ ) [17]. On whole 73.1% males have internet addiction in both urban and rural area compared with 62.7% females. This can be due to easy accessibility and affordability of internet on smart phones.

The prevalence of mild internet addiction is 24.5% which is

low and moderate level of internet addiction is 59.5% which is higher as compared to studies conducted by Sowndarya TA *et al.* [18]. Comparing with these values we found somewhat similar results such as;

Prevalence of mild internet addiction 30% in urban and 19% in rural area while of moderate internet addiction is 60% in urban and 59% in rural area. It might be due easy availability of internet due to cheaper price. Reason for increased prevalence of moderate level internet addicts might be easy availability of internet and increased tendency of playing games online.

Along with the internet addiction, addiction for gaming is increased, as it was 10% according to Tapas Karmarkar *et al.* while it is 19.5% in our study and it may be because games give excitement, feeling of accomplishments; evoke emotions of agency and sometimes as stress busters [19].

**Conclusions**

Prevalence of Internet addiction among the urban youth population is almost similar to the rural youth population but it was found to be higher as compared to rural school students, which is a cause of concern and requires to be addressed on priority before it takes the shape of an outbreak. In the last one decade, the Internet has become an integral part of our life.

There is no statistical significance of internet addiction among males and females of urban and rural population which suggests presence of internet addiction irrespective of the gender but males can have increased tendency.

There is no statistical significance seen in socio-economic status but the prevalence on internet addicts are seen more

among class 4, 5.

The importance of adopting a multi-sectoral approach to improve education, training and awareness of disorders amongst educators, public health specialists and clinicians [30].

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