

PROBLEMATIC INTERNET USE AMONG INDIAN ADOLESCENTS: FINDING FROM A SAMPLE OF UNDERGRADUATE STUDENTS

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ABSTRACT

BACKGROUND

There is paucity of data related excessive or problematic internet use among young adults in India.

METHOD

The sample consisted of 1763 undergraduate students of various faculties across the city of Mangalore, Karnataka. The study was approved by Nitte University Institutional Ethics Committee and permission was sought from the concerned colleges. Students were cross-sectionally assessed with a specially constructed semi-structured proforma, SRQ-20 (WHO) and The Internet Addiction Test (IAT; Young, 1998), which was self-administered by the students after giving them brief instructions. Subjects were classified into mild users, moderate users, and addicts for comparison.

RESULTS

Of the 1763 participants who took part in the study, 64.4% (n=1136) were female and 35.6% (n=627) were males. The mean age of participants was 19.73±1.4 years. About 54.56% of total participants were using internet for more than 4 years. As per the Young's original criteria, about 10.4% were moderate problematic user and 0.8% was found to severe problematic user. However, 35.5% of participant felt that they are addicted to internet. 54.8% used it for multiple times in a day. 63.8% were using mobile phone internet. Significant correlation between IAT scores and SRQ scores indicates that higher the internet use higher is the physical and psychological problems.

CONCLUSION

Our result shows that problematic internet user among young adults is prevalent and this population might be at risk of addiction. It indicates that there higher need to design an intervention and treatments for this susceptible group.

KEYWORDS

Problematic Internet Use, Adolescent, Internet, IAT.

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INTRODUCTION

The internet use has increased all over the world significantly in last one and half decades. Similarly, it has also increased considerably in India during last decade. The internet penetration as per statistics by Internet Live Stats an independent agency, which surveys the internet usage in the world as on January 2016 internet penetration in India is 34.8%. That means 34.8% Indians were active users of internet with yearly user growth of around 15-20%, India ranked 2nd on total number of users in the world.¹ It shares 13.5% of world internet use. India has large adolescent student population and this population is the one which is

most active on internet as per different statistics and studies.

Adolescent students use internet for different purpose like for studies, social media, gaming, online shopping, messaging, watching videos, downloading etc. with the increase of smartphone availability and reduced data service cost, the use of internet has become easy and common entity. The increased use has led to different mental and health related problems in the users.

The uncontrolled use of internet is gradually taking the form of addiction in adolescent population. Internet addiction is characterized by excessive or poorly-controlled preoccupations, urges, or behaviours regarding computer use or internet access that lead to impairment or distress.² The studies from different countries have reported the prevalence of problematic internet use is much higher among the adolescent students qualifying them for internet dependence. The study conducted in China among adolescents show that the 2.4% of adolescents were scored positive for criteria of internet addiction; and these adolescents also shown higher psychological problems related to use of internet.³

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The study conducted in three countries Croatia, India, and Nigeria among medical students has shown 38.7 and 10.5 % of respondents scored in the mild and moderate level of addiction. Only a small fraction (0.5%) of students scored in the severe level of addiction.⁴

A meta-analysis of 31 nations across seven world regions using data set derived from 80 reports including 89,281 participants showed a global prevalence estimate of 6.0%. The highest prevalence was in the Middle East with 10.9%, and the lowest was in Northern and Western Europe with 2.6% of users having internet addiction.⁵

Similarly, study conducted on Italian student population of 2533 students from different schools has shown that normal users of the internet were 94.19%, moderately addicted were 5.01%, and 0.79% were seriously addicted to use of internet.⁶

Another study quoted around 25% of prevalence of internet addiction among students.⁷ The studies have found that the addictive level of internet use is around 11.3% in adolescent psychiatric patients.⁸

Review of published literature between 2000-2009 in Medline and PubMed using the term "internet addiction", United States and Europe have indicated prevalence rate between 1.5% and 8.2% in study population.⁹ A three year longitudinal study conducted in Hong Kong among adolescents reported that 22.5% of the participants met the criterion of internet addiction.¹⁰

The study conducted in six Asian countries on epidemiology of internet behaviour and addiction among adolescents has shown that internet addictive behaviour is common among adolescents in Asian countries. Problematic internet use is prevalent and characterized by risky cyber behaviours.¹¹

With all the above studies to support, it is much necessary to study the internet use and its related problems in adolescent student population from different streams. With increased internet penetration in adolescent population, the problematic level of internet use also has increased leading to different psychological and educational, social, personal setbacks in adolescent age group. There are very few studies from India related to prevalence of problematic internet use among students of different educational streams in India. Our attempt is to study the internet use pattern in adolescent students and to correlate it with global trend.

MATERIALS AND METHODS

The ethical clearance for the study was obtained from institutional ethical committee of NITTE University.

STUDY SETTING

The study was conducted in N=1763 undergraduate students in the age group of 18-25 years from different undergraduate colleges of different streams in Mangalore, Karnataka, India from August 2014 to August 2015. Prior permission was taken from these colleges for conducting study among students.

Informed consent is obtained for the participation in the study from the students individually.

Study Design

Cross Sectional Survey.

Inclusion Criteria

1. College students aged between 18-25.
2. Access to internet for at least 6 months.
3. Willing to participate in the study and provided signed informed consent.

Exclusion Criteria

1. Severe mental or physical ailment.
2. Inability to consent for the study.

Study Tools

1. Socio-Demographic Performa.
2. The Internet Addiction Test (IAT; Young, 1998): is a 20-item 5-point Likert scale that measures the severity of self-reported compulsive use of the internet.
3. Self-reporting Questionnaire (SRQ, WHO)-20: SRQ-20 includes the items indicative of non-psychotic mental health disorders and physical symptoms.

METHOD

Students were given the consent form, questionnaire for Socio-demographic details, Internet addiction test (IAT), SRQ 20. The students were explained regarding the questionnaire and how to score it.

Socio-Demographic Details

Socio-demographic details like age, sex, residence, and year of course etc. collected.

Internet Addiction Test (IAT)

English version of IAT is used in this study.

The Internet Addiction Test (IAT) is the first validated instrument to assess internet addiction. The psychometric properties of the IAT shows that it is reliable and valid measure that has been used in further research on internet addiction.¹² The test measures the extent of client's involvement with the computer and classifies the addictive behaviour in terms of mild, moderate, and severe impairment. It can be used for In-Patient and Outpatient settings. It is 20-item questionnaire based upon the five-point Likert scale. It asks client to consider use other than academic and job related purpose. On 5-point Likert scale, 0 is not applicable to 5 is always.

Scoring

After all the questions have been answered the numbers for each response is added to obtain a final score. The higher the score range the greater the level of addiction:

Normal Range	:	0-30 points.
Mild Range	:	31-49 points.
Moderate Range	:	50-79 points.
Severe Range	:	80-100 points.

The Internet Addiction Test is most widely used tool in studies conducted in the field of problematic internet use and is well validated in different studies across the globe. In one Chinese study for validity of the scale, IAT demonstrated strong internal consistency (Cronbach's $\alpha=.93$). Satisfactory concurrent and convergent validity of IAT were found moderately correlated with CIAS-R ($r=.46$) and the average online time per day ($r=.40$ for weekdays; $r=.37$ for weekends).¹³

SRQ 20

This is a self-administered questionnaire formulated by WHO as a screening instrument for screening of psychological and physical symptoms in the general populations. It consists of 20 items each of 20 items are scored 0 or 1. Where 0 indicates no symptoms in last one month whereas the score 1 indicates presence of the symptoms. The maximum score is 20. This instrument is validated and reliable as a screening instrument. In the current study, SRQ score of 6 and above are considered positive for screening and detailed assessment of psychiatric morbidity.

Statistical Analysis

SPSS version 15 used for the statistical analysis of data. Frequencies of different variables were calculated. Correlation used to see if there is any relationship between IAT score and SRQ score.

RESULTS

The results of this study have shown very interesting outcomes regarding the use of internet in the student population. The mean age of study population was 19.73 years. The female population comprised of major chunk of population that is 64.4% was females and 35.6% were males. In the south Karnataka region, it shows the trend towards more female population in undergraduate level. Major group was the student living at home and commuting to college were 53.6% whereas 44.1% students were living in the hostels away from their family. Most of the internet users among this age group was found to be using internet on their mobile phones that is 63.8%, which is nearly two third of the study population. Students using internet via computer or laptop internet connection were 22.3% where as other mode of use like tablet etc. were 13.9%, so this indicates the easy availability of internet among the student population. 54.56% of student were using internet for more than 4 years and another 44.45% were using internet from last 0 to 4 years. The purpose of internet use was mostly distributed over entertainment, educational, messaging, social media, and other uses. The maximum amount of usage was found to be for entertainment 37.4% followed by instant messaging 28.9% followed by educational use 15.6% and then other uses 18.1%. When frequency of use was studied, it is found that 54.8 % of students were using the internet for multiple times in a day whereas remaining percentage of students used it at any time in the day whenever necessary. When the age of first use of internet considered 46.6% of students started using internet between 10-15 years. In this study, 35.5% of students felt that they are addicted to internet, which indicated that the subjective feeling of the students about their use of internet and feeling addicted to it. Nearly more than one third students felt that they are getting addicted to the internet. When severity of internet use was calculated based on the IAT score, it is found that 27% of students come under mild severity of use, 10.4% comes under moderate severity of use, and 0.8% comes under severe severity of use of internet. All these figures are alarming as more than 11% students are having moderate-to-severe severity of use.

When the IAT scores were correlated with the SRQ scores, it indicates that the higher scores on IAT is significantly correlated with higher scores of SRQ that means the more the

severity of internet use more is the physical and psychiatric distress a person maybe suffering. This indicates the morbidity caused by the problematic use of internet. Following table indicates the result mentioned above.

Variable	Result
Age	19.73 ± 1.4 Years
Gender	
Male	35.6% (n=627)
Female	64.4% (n=1136)
Age at First Use	
10-15 Years	46.6% (n=822)
16-18 Years	34.03% (n=604)
> 18 Years	19.11% (n=337)
Current Residence	
Home	53.6% (n=945)
Hostel	44.1% (n=777)
Other	2.3% (N=41)
Device Used	
Mobile Phone	63.8% (n=1125)
Computer	22.3% (n=393)
Other	13.9% (n=245)
Duration of Internet Use	
Less than 4 Years	45.44%(n=801)
More than 4 Years	54.56%(n=962)
Purpose of Using	
Entertainment	37.4% (n=659)
Education	15.6% (n=275)
Instant Messaging and Social Media	28.9% (n=509)
Other	18.1% (n=320)
Frequency of Use	
Several Times in a Day	54.8% (n=966)
Felt Addicted to Internet	35.5% (n=626)
Table 1: Socio-Demographic Variables	

Severity (IAT Score)	Percentage
Mild (31-49)	27% (n=476)
Moderate (50-79)	10.4%(n=183)
Severe (80-100)	0.8% (n=14)
Table 2: Severity of Internet Use as per IAT	

	SRQ Score
IAT SCORE	0.37** <0.0001
Table 3: Correlation Between IAT Score and SRQ Score	

DISCUSSION

This study is conducted as a survey among the undergraduate students who are between the age group of 18-25 studying in undergraduate courses of different discipline. Thus, it involves population of students from different streams from different colleges representing the diverse student population. This kind of diverse student population gives exact picture of trend among student population regarding use of internet and its effect on the physical and mental health, which is the concern for current age parents and also colleges who are struggling to control the internet behaviour in their students.

In the current study, the above results are representative of internet behaviour and use among adolescent population/student population in India. There are multiple

studies were being conducted in other countries, which have higher internet knowledge and penetration compared to India and based on the reports they have started implementing the required measures to control the problematic internet use in the country. In India, the internet penetration is still low and thus we are still in process to understand the consequences of internet use among the populations. This study results will work as a guide for further studies in this area in India.

The results in this study are in accordance with the similar studies conducted regarding epidemiology and internet behaviour among adolescents of six Asian countries China, Hong Kong, Japan, South Korea, Malaysia, and the Philippines where they found internet use is around 68% and internet addiction is around 5 to 21% in various participated countries and smartphone ownership to be 62%¹¹. In current study, we found the similar results of use of smartphone or mobile internet is around 63.8%. This indicates the trend towards the ease of use of internet and increasing availability of use in the student population. It also indicates that smartphone or mobile phone availability among the students as significantly high.

This study studied the number of times the student using the internet in daytime and it found that around 54.8% of students used internet multiple times in a day for browsing, messaging, or just to check their status on social media. This trend indicates that because of easy availability students are engaging themselves more in the use of internet on multiple times daily, which may result in less time for studies, preoccupation with the internet use, and anticipation of the updates on social media in turn leading to increased anxiety and obsessive use of internet.

In this study, 35.5% students felt that they are addicted to internet or they really feel the need to cut down on the internet use. This indicates the subjective need or feeling of the student regarding their internet use. Nearly more than one third of the students feel that they are using internet excessively to the level that they feel they are addicted to the internet, which is an alarming figure as this figure indicates the forthcoming problem of prevalence of internet addiction in the undergraduate student population.

The percentage of students using internet for more than 4 hours per day was 54.56% that is more than half of students participated in study were using internet for significant time in a day. These results also correspond to the study conducted in adolescents in Tunisia, which average use of hours of internet among them to be around 4.5 hours.¹⁴ This results show that the type of internet use among the adolescents in different countries are similar and also the problematic internet use pattern also being similar in different regions. This result indicates that there is need to look more in detail regarding the pattern of use and to control the hours of use of internet in students as it leads to less time for other activities and studies.

The severity scale on IAT shows that the around 10.4% of student have more than moderate level of use where as 0.8% of students have severe level of severity of use of internet, which is again showing the level of problematic internet use in the student population. This result is similar to the trend found in Tunisian study, which reports the problematic internet use among the student population being 18.05%.¹⁴ Also, one of the Italian study conducted in student population

has found similar findings that 5.01% moderately addicted and 0.79% seriously addicted.⁶ A review of literature on internet addiction and excessive internet use found that in US and Europe prevalence rate is around 1.5% to 8.2%.⁹ A meta-analysis of studies from 32 nations across the globe shown a global prevalence estimate of 6.0%. The highest prevalence was in the Middle East with 10.9% and the lowest was in Northern and Western Europe with 2.6%.⁵ Thus, this study validates the similar trend of problematic internet use in India also.

In any form of addiction, the age of onset is an important criterion for the prognosis of the behaviour and treatment. In this study, the age of first use was found to be higher towards the early age. Thus, 46.6% of students started using internet between ages of 10-15 years showing growing trend towards early age of onset of internet use among the student population. This result is in correspondence with the phone survey report from US, which quotes the onset of problematic use reported to occur in the late 20s or early 30s age group and there is often a lag of a decade or more from initial to problematic computer usage.² This indicates that the age of first use is usually in 20's. The early age of use has more chances of going towards problematic use in future.

The review of literature published in European Journal of Psychiatry in 2012 suggested that there exists a strong relation between the psychiatric symptoms and problematic internet use¹⁵. In this view, our study also tried to correlate the use of internet with Self Reporting Questionnaire score in an effort to understand whether any relationship exist between the heavy internet use and psychological and physical symptoms faced by the adolescents. The results gave significant correlation between the internet addiction score and SRQ that means the higher the internet use more is the psychological and physical symptoms faced by the adolescents.

The study among adolescent about co-morbid psychiatric disorders among addictive internet users found that they have more anxiety and depression diagnosis than the general population.¹⁵ This results are replicated in the current study in Indian adolescent population.

Thus, the current study finds the trend of internet use among the adolescent and student population in Indian undergraduate colleges who are vulnerable to the new technology and internet. This study represents the effort to address the need to conduct more research in this area to formulate the preventive plan for the Indian student population from the problematic internet use and to address the psychological needs related with it. It shows the trend among the adolescent population about the gravity of problematic internet use and related psychological and physical effects on them.

CONCLUSION

This study has put some insight in the problematic internet use among the undergraduate students among different colleges from South Karnataka Region. The findings from this study also brought forward various important conclusions. India though being a developing country it is facing similar situation regarding internet use as the developed nations, so it is very much necessary to study the effects of internet use country wide and for a strategy to deal with the problematic internet use and internet addiction.

The result of this study have shown the early age of onset of internet use, higher hours of use, more frequency of internet use, easy availability of internet through mobile and smartphones, which all indicates towards oncoming problems of the uncontrolled and increased internet use leading to the adverse physical and psychological effects of it on individual's life and health.

This study also shown that there is significant correlation in severity of internet use and physical and psychological distress individual suffer. So, it is all the more important to formulate the strategy to regularly conduct physical and psychological awareness programs in colleges and schools regarding the use of internet and new age technologies and their adverse effects on health. Also, students should be trained to use internet rationally.

Thus, via this study, we suggest the need to educate the adolescent in the field of rational use of internet and the effects of it on their psychological and physical health, also to include the measures in the college for early detection and management of physical and psychological effect of internet.

LIMITATIONS

The study is conducted as a cross-sectional survey, so it indicates the trend at a point of time, so doesn't give idea regarding the periodic trend among the different age group of students.

Similarly, the survey is conducted in urban area so doesn't represent the rural student population.

The psychological effects have to be studied in details with formal assessment by the psychiatrist for the students who are above the prescribed cut off score on SRQ that will give the correct measure of prevalence of psychiatric morbidity among the student population.

This survey is conducted in specific geographical area, so it may not represent the complete country.

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