

A Study to Estimate the Prevalence of Internet Addiction and Factors Associated With Internet Addiction among the College Students in North Chennai

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Abstract:

Background: The internet is now an integral part of daily life, making it easy to communicate and to share information. However, spending too much online can lead to Internet addiction causing anxiety, functional impairment, and health issues like lack of sleep from extended hours spent chatting, gaming and social media use.

Aim: To estimate the prevalence of internet addiction and to assess various factors associated with internet addiction among college students in Chennai.

Methodology: This cross-sectional study was conducted among 110 college going students in a selected college in North Chennai between August to November-2023 (3 months) through simple random sampling using validated pretested structured questionnaire by face-face interview consisting of Standard Young's Internet Addiction test questionnaire (IAT). Data was entered in Microsoft Excel and analysed in SPSS 23 version. p value <0.05 was considered as statistically significant.

Results: In our study among 110 participants, the mean total score for internet addiction was 49.86 ± 13.38 . Only 7.3% of participants showed no signs of internet addiction, while 37.3% had mild addiction, 54.5% had moderate addiction, and 0.9% had severe addiction. Significant associations were found between internet addiction and factors such as gender, mode of internet usage, internet expense and earning money for internet access.

Conclusion: The study found high internet addiction prevalence, with significant associations between addiction levels and gender, internet usage mode, expense, and earning own money.

Keywords: Internet addiction, Gender, Internet addiction test (IAT), College students.

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Introduction

The internet is becoming an essential part of our daily life, making it simple to communicate with others and to share information [1]. Internet usage has become unavoidable in the current status among adolescents. However, spending too much time online can result in Internet Addiction, a type of impulse control disorder, which was first coined by Dr. Ivan Goldberg in 1995 [2,3]. It is important to note that excessive internet use is not officially recognized as disorder by the World Health Organization (WHO), the Diagnostic and Statistical Manual of Mental Disorders (DSM -5) [4], or the International Classification of Diseases (ICD -11)

[5]. However, the ICD-11 does include "Gaming disorder" (6C51), predominantly online as a diagnosable condition [5]. While not an official diagnosis, internet addiction is often defined as a person's inability to effectively handle their use of the Internet [6]. This can eventually lead to significant anxiety and functional impairment in daily life [6], as well as health issues like insufficient sleep caused by extended hours spent chatting, gaming, and updating social media [1]. Internet usage has increased drastically over the last decade, both in India and around the world [7]. The internet's rapid growth and widespread

availability have increased communication opportunities through apps like Facebook, WhatsApp, Instagram, and Snapchat, as well as easy access to information through platforms like Google News [7]. Younger internet users, especially those aged 18 to 24, are more prone to online addiction than older people [7,8]. This tendency is particularly evident among college students in big metropolitan cities such as Chennai, South India. This increased risk is caused by newfound freedom, academic stress [9], and easy access to digital devices and high-speed internet [1].

Internet addiction can have a substantial impact on teenagers' and young adults' identity formation [10,11], cognitive abilities [11,12], poor academic achievement [11,13], and involvement in daily activities [11]. It can also lead to poor dietary habits and involvement in risky behaviour [10,11]. While research on internet addiction has been conducted in various parts of the world, there is a notable gap in understanding its prevalence and associated factors among college students in Chennai. This study aims to address this gap by examining internet addiction using Young's Internet Addiction Test (IAT) [14].

Methodology:

Study Design: Cross sectional study

Study Area: selected College in North Chennai.

Study period: August to November 2023 (3 months).

Study population: Both male and female students in the selected college in North Chennai.

Inclusion criteria: College students aged 18-25 years, who were all willing to participate and who have given informed consent.

Exclusion criteria: People who were not willing to participate in study.

Sampling Method: Simple random sampling. All co-ed colleges were contacted in North Chennai. Among the colleges who gave permission, one co-ed college was randomly selected by simple random sampling. Sampling frame was obtained from the Attendance register of the college and random number table was used to select samples.

Sample size: Sample size was calculated with p-prevalence of internet addiction [15] 61.2 %, q – 31.8% with relative precision of 15%, Sample size was calculated using $n = Z^2pq/d^2$, $n = 110$ participants were interviewed in our study.

Data collection: Permission was obtained from the college administration and selected participants were briefed about the study and written informed consent was obtained. Data collection was conducted through face-to-face interviews using validated and pre-tested questionnaire.

Study tool: A structured questionnaire that has two domains namely,

1. Socio-demographic factors (Name, age, gender, mode of internet usage, duration of sleep, expenditure per month for internet)
2. Standard Internet Addiction Test questionnaire by Kimberly S. Young [16].

Young's Internet Addiction Test (IAT) questionnaire:

The questionnaire had 20 statements. Based upon the 5-point Likert scale, response was selected after reading the statements. Each item was rated on a 5-point scale ranging from 0 to 5. The maximum score was 100 points. Scoring was done by the sum of all the responses given by the examinee. Based on the total scores, the examinee was categorized as normal (0-30) or as mild (31-49), moderate (50-79) and severe (80 to 100) internet addiction [17]. The questionnaires were translated into Tamil and back translated into English to check for accuracy and consistency.

Analysis: After collecting, the data was compiled and entered in Microsoft Excel Sheet.

Analysis was done using Statistical software SPSS version 23. All quantitative variables were expressed as Mean and Standard Deviation. All Categorical variables were expressed as Percentages and Proportions. p Value <0.05 was taken as significant, at 95% confidence interval.

Ethical clearance details: Government Stanley medical college and hospital, Chennai – Institutional Ethics Committee approved our study on 08.08.2023.

Results:

Table 1: Socio demographic characteristics of the study participants: (n=110)

S.No	Socio-demographic details	Frequency(n=110)	Percentage
1	Age of starting internet usage		
	a) <12	9	8.2
	b) 13-17	88	80.0
	c) >18	13	11.8
	Total	110	100
2	Gender		
	a) Male	70	63.6

	b) Female	40	36.4
	Total	110	100
3	Education		
	a) 2 nd year	66	60.0
	b) 3 rd year	44	40.0
	Total	110	100
4	Gadgets used for internet		
	a) Mobiles	108	98.2
	b) Laptops & mobiles	2	1.8
	Total	110	100
5	Mode of internet usage		
	a) Mobile data	80	72.7
	b) Wi-fi	2	1.8
	c) Both	28	25.5
	Total	110	100
6	Expenditure per month for internet		
	a) less than Rs 200	18	16.36
	b) Rs.200-500	85	77.3
	c) more than Rs 500	7	6.4
	Total	110	100
7	Source of internet expense		
	a) Money from parents	83	75.5
	b) Own money	27	24.5
	Total	110	100
8	Purpose of internet usage		
	a) Academic	11	10.0
	b) Entertainment	99	90.0
	Total	110	100

The socio demographic characteristics of the study participants are presented in Table 1. Our study included 110 participants, with a majority 70(63.6%) being males All were educated and nearly more than one fourth i.e., 29 (26.4%) of them were working along with studying. Mobile phones were the primary device for internet access for majority i.e., 108(98.2%) of the participants. Regarding internet connectivity, around 80 (72.7%)

of them used mobile data while 28 (25.5%) used both Wi-Fi and mobile data. Most participants i.e., 85(77.3%) spent between Rs.200-500 monthly on internet services with 83 (75.5%) obtaining these funds from their parents.

Nearly 66 (60%) reported a bedtime around 10 PM. A vast majority i.e., 99(90%) primarily used the internet for entertainment purposes.

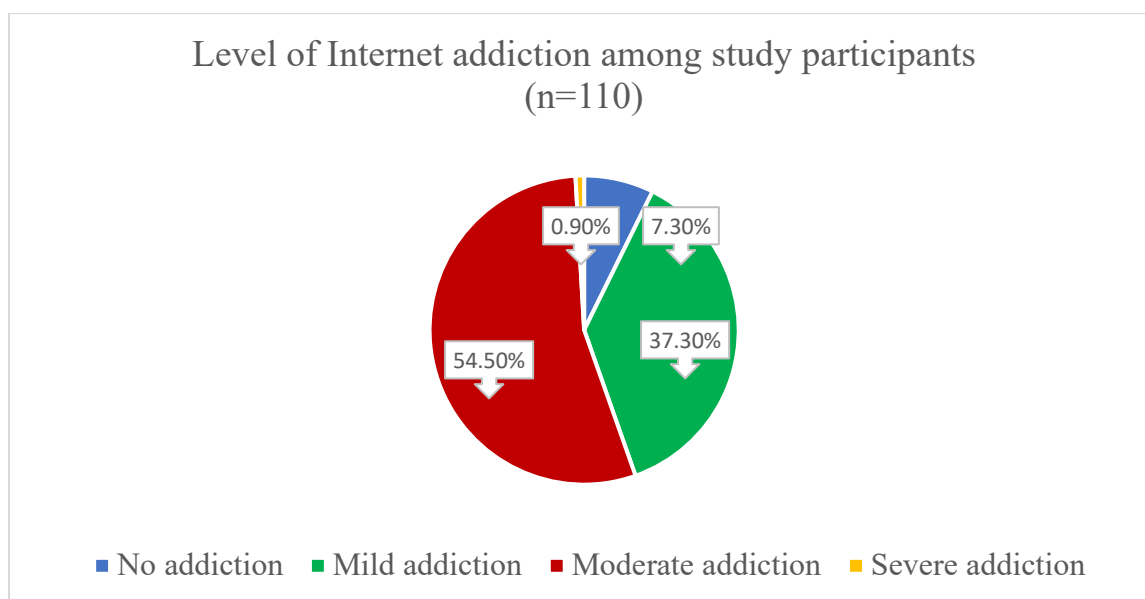


Figure 1: Level of Internet addiction among study participants

Our study findings highlighted various levels of internet addiction among study participants. Among the total study population, only 8 individuals (7.3%) of people showed no signs of internet addiction. A vast majority of 102 participants (92.7%) exhibited some level of

addictive behaviour. Specifically, 41 participants (37.3%) people showed signs of mild addiction, 60 individuals (54.5%) exhibited moderate addiction and 1 (0.9%) people showed signs of severe addiction. The mean total score obtained from the total study population is 49.86 ± 13.38 .

Table 2: Factors associated with internet addiction among study participants (n=110)

S.No	Factors	No addiction N (%)	Mild addiction N (%)	Moderate addiction N (%)	Severe addiction N (%)	Total N (%)	P value
1.	Gender						<0.001 [#]
	Male	7 (10)	15 (21.4)	47(67.1)	1(1.4)	70 (100)	
	Female	1 (2.5)	26 (65)	13 (32.5)	0	40 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
2.	Age of exposure to internet (Years)						0.112
	Less than 12	1(11.1)	2(22.2)	6 (66.7)	0	9 (100)	
	13 to 17	6 (6.8)	38 (43.2)	43 (48.9)	1 (1.1)	88 (100)	
	More than 18	1 (7.7)	1 (7.7)	11 (84.6)	0	13 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
3.	Gadget						0.080
	Mobile	7 (6.5)	40 (37)	60 (55.6)	1 (0.9)	108(100)	
	Mobile and laptop	1 (50)	1 (50)	0	0	2 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
4.	Mode of internet usage						0.015 [#]
	Mobile	7 (8.8)	30 (37.5)	43 (53.8)	0	80 (100)	
	Wifi	0	0	1 (50)	1 (50)	2 (100)	
	Both	1 (3.6)	11 (39.3)	16 (57.1)	0	28 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
5.	Expense for internet (in Rupees) per month						<0.001 [#]
	0-200	1 (5.6)	2 (11.1)	15 (83.3)	0	18 100.0%	
	200-500	7 (8.2)	35 (41.2)	43 (50.6)	0	85 100.0%	
	>500	0	4 (57.1)	2 (28.6)	1 (14.3)	7 100.0%	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
6.	Source of expenditure for internet						0.084
	Money from parents	5 (6)	35 (42.2)	43 (51.8)	0	83 (100)	
	Own money	3 (11.1)	6 (22.2)	17 (63)	1 (3.7)	27 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
7.	Earning money on their own for internet (Working or not)						0.04 [#]
	Yes	2 (6.7)	17 (56.7)	11 (36.7)	0	30 9100)	
	No	6 (7.5)	24 (30)	49 (61.3)	1 (1.3)	80 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
8.	Time of sleep						0.555
	Around 10pm	7 (10.6)	21 (31.8)	37 (56.1)	1 (1.5%)	66(100)	
	Around 12am	1 (3.6)	12 (42.9)	15 (53.6)	0	28 (100)	
	Around 3am	0	8 (50)	8 (50)	0	16 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	
9.	Purpose of internet usage						0.235
	Academic	2(18.2)	2 (18.2)	7 (63.6)	0	11 (100)	
	Entertainment	6 (6.1)	39 (39.4)	53 (53.5)	1 (1)	99 (100)	
	Total	8 (7.3)	41 (37.3)	60 (54.5)	1 (0.9)	110(100)	

Bold values denote statistical significance at the level of $p < 0.05$, # - Fischer exact test

The above table showed the factors associated with internet addiction among college students. Males showed a higher tendency towards moderate addiction (67.1%) compared to females (32.5%). Females exhibited a higher rate of mild addiction (65%) compared to males (21.4%). The gender difference was statistically significant. ($p < 0.001$). Individuals who were exposed to the internet after the age of 18 showed a higher rate of moderate addiction (84.6%) although this association was not statistically significant. More than half of mobile phone users had moderate levels of internet addiction (55.6%) with no statistically significant association. However, there was a statistically significant association between mode of internet usage and internet addiction ($p = 0.015$), with those using both mobile and Wi-Fi exhibiting higher levels of moderate addiction. (57.1%). Moderate addiction was most prevalent (83.3%) in the lowest expense group (0-200 rupees) and the association was found to be statistically significant. ($p < 0.001$). Additionally, there was a statistically significant association between earning own money and addiction levels. ($p = 0.04$) with those not earning their own money exhibiting a higher rate of moderate addiction (61.3%) and those earning their own money had a higher rate of mild addiction (56.7%). No statistically significant association was found between time of sleep, purpose of internet usage and internet addiction.

Discussion

This study aimed to assess internet addiction among 110 students in a selected college in North Chennai using the Young's IAT Questionnaire to quantify the degree of addiction towards internet. We also examined the various factors and their associations towards internet addiction. Our findings revealed a significant prevalence of internet addiction among the participants, with 92.7% showing some level of addictive behaviour. Our study findings highlighted various levels of internet addiction among study participants. More than half (54.5%) of participants showed moderate addiction, while 37.3% showed mild addiction, and only 7.3% demonstrated no signs of addiction. The mean IAT score of 49.86 ± 13.38 indicated an overall moderate level of internet addiction among the study participants.

A study on medical students in Kanchipuram reported an overall prevalence of internet addiction at 70.5%, with 49.1% showing mild addiction, 12.3% moderate addiction, and 9.1% severe addiction [1]. While the overall prevalence in this study was lower than ours, they found a higher percentage of severe addiction cases. Another study by Sharma et al., which was done on professional college students in India reported a markedly lower overall prevalence of 42.7%, with 35% showing

mild addiction, 7.4% moderate addiction, and only 0.3% severe addiction [18]. The considerably lower rates in Sharma's study, particularly for moderate and severe addiction, highlighted the variability in internet addiction prevalence across different populations and contexts. Our results showed statistically significant association between gender and internet addiction levels ($p < 0.001$). Males exhibited a higher tendency towards moderate addiction (67.1%) compared to females (32.5%) while females showed a higher rate of mild addiction (65%) compared to males (21.4%). These findings were consistent with the study done by Xia Lin et al., among undergraduate students in China, where male students (8.3%) had higher rates of moderate and severe addiction compared to females (5.4%) [19]. Similarly, a study done by Ginni Agrawal et al., among 600 school going adolescents in India showed that males were more addicted to internet than females [20]. Our study found a higher rate of moderate internet addiction (84.6%) among those exposed to the internet after age 18, though this association was not statistically significant. This finding contrasts with previous research, which typically suggests that earlier internet exposure is associated with higher addiction rates [21].

We observed that more than half of mobile phone users (55.6%) exhibited moderate levels of internet addiction. Although this finding was not statistically significant, it highlighted the pervasive nature of internet addiction among mobile users, possibly due to the constant accessibility and convenience offered by smartphones. More notably, we found a statistically significant association between the mode of internet usage and internet addiction levels. Participants who used both mobile data and Wi-Fi for internet access showed higher levels of moderate addiction (57.1%) compared to those using only one mode of access. This significant finding aligns with research by Pushpa Kumari et al., [1] and Sharma et al [18].

Our study found significant associations between financial factors and internet addiction levels. Surprisingly, moderate addiction was highest (83.3%) in the lowest expense group (0-200 rupees), suggesting that limited financial resources may not prevent addictive behaviours. This contradicted our expectation that higher spending on internet access would correlate with higher addiction levels which was consistent with the study by Kumari et al [1].

Additionally, those earning their own money showed lower rates of moderate addiction compared to those who didn't, indicating that financial independence might serve as a protective factor against severe internet addiction. People who also work along with the continuation of studying

show lower signs of moderate and severe addiction. This could be due to the limited free time available for them resulting in a lesser time for internet usage. Our study found no statistically significant association between sleep time and internet addiction, considering only sleep duration rather than overall sleep quality. This finding contrasts with research conducted among medical students at Shiraz University, which reported a significant correlation between sleep duration and internet addiction [22]. People who spent most of their network usage over entertainment than over academics show a slight increase in signs of mild addiction. Also, the one who is severely addicted spends the internet mostly on education. Similar studies conducted in Jimma University showed a significant increase in addiction among people using social media platforms like Facebook, Telegram, etc [23].

Conclusion

The study revealed a high prevalence of internet addiction among participants, with moderate addiction being the most common. Gender differences were significant, with males showing higher addiction than female students. The mode of internet usage, expense on the internet, and earning own money were significantly associated with internet addiction levels. However, factors like time of sleep, purpose of internet usage, and vision correction showed no significant associations.

Recommendations: To tackle internet addiction, schools and colleges should implement educational programs that highlight the risks and encourage balanced internet use. Parents and teachers should guide students in managing screen time and promote alternative activities to reduce dependency. Institutions should also establish support services to monitor usage pattern and offer counselling. Additionally, promoting physical activities and hobbies can help students stay engaged and reduce their screen time.

Limitations: This study was done among students in only one college. Hence results cannot be generalised to the entire population. The study's cross sectional study design limits its ability to establish causality. Data collected through self-report surveys may be subjected to recall bias or social desirability bias.

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