

# The Prevalence of Internet Addiction and Associated Factors among School-Going Adolescents in Ahmedabad

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## Abstract

**Background:** The Internet is an integral part of modern life, and for the vast majority of Internet users, its benefits far outweigh the adverse consequences secondary to excessive use. Increasing internet use among adolescents is also likely to pose a major public health concern that is internet addiction (IA).

**Aim:** To assess the prevalence of IA among school-going adolescents and the factors associated with IA.

**Methodology:** A cross-sectional study was carried out to survey adolescents studying in 8th to 10th standard of three schools of Ahmedabad. The sample size was calculated 384 by using the formula ( $n = Z^2pq/d^2$ ). Information regarding sociodemography and various patterns of internet use were obtained by using survey forms. Young's IA test (IAT) Questionnaire was used to screen for IA.

**Results :** The prevalence of Internet Addiction (IA) was 67.5%, 27% and 5.5% with normal (IAT < 50), moderate (IAT 50-79) and severe addiction (IAT 80-100) respectively. Age, male gender, owning a personal device, hours of internet use per day, use of smartphones, permanent login status, online shopping, watching movies, online gaming, searching information online were found to be significantly associated with severity of IA.

**Conclusion:** Our study revealed a relatively high prevalence of internet addiction among younger participants and that requires awareness and intervention towards risk factors of internet addiction.

**Keywords:** School-Going Adolescents, Internet Addiction, Ahmedabad

## Background

The internet provides a new communication medium that enables access to unlimited resources of information across various topics. It is being used extensively throughout the world, especially among adolescents and youth. Internet is used for education, entertainment, social networking, and information sharing.<sup>[1]</sup>

With the advancement in media and technologies, the Internet has emerged as an effective tool in eliminating human geographical barriers. However, excessive use of the Internet has resulted in negative consequences, especially among regular users labeling it as addiction.<sup>[2]</sup>

Most of the epidemiological researches on Internet addiction used different diagnostic instruments to encounter this enigmatic problem, but none have emerged as the gold standard.<sup>[3]</sup> The most commonly used ones are the Internet Addiction Test (IAT), the Young Diagnostic Questionnaire (YDQ), the Chen's Internet Addiction Scale, and the Internet Addiction Scale.<sup>[4]</sup>

A research conducted by IAMAI (Internet And Mobile Association of India) and IMRB International (Indian Market Research Bureau) in June 2013, indicates that the Internet usage in India has gone up with more and more Internet users using the Internet on a regular basis. In June 2013, India had 190 Million Internet Users, of this; 130 Million belonged to Urban India and the rest 60 Million were from Rural India.<sup>[5]</sup>

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) identified excessive Internet gaming as a specific addictive behavior and proposed Internet gaming disorder in Section III as a condition warranting more clinical research and experience.<sup>[6]</sup>

Surveys have shown a prevalence of 0.3-0.7% in the general population.<sup>[7]</sup> Young individuals (i.e., between 12 and 18 years old) were more vulnerable to become internet addicts than old individuals.<sup>[8]</sup> Worldwide, prevalence for IA in adolescents varies between 2% and 18% and in India from 0.3% to 11.8%.<sup>[9-16]</sup>

Internet addiction disorder is characterized by preoccupation with internet, need to spend long periods online, repeated attempts to reduce internet use, suffering withdrawal symptoms when reducing internet use, time management problems, environmental distress, deception regarding time spent online, and mood modification through internet use.<sup>[17]</sup>

The present survey was carried out to estimate the prevalence of internet addiction, understand the pattern of internet use and to determine the association of various factors and internet addiction among School-going adolescents.

### **Methodology**

This was a cross-sectional study conducted to survey adolescents studying in 8th to 10th standards. The period of data collection was between August and September 2019. From seven zones of Ahmedabad city, four zones were randomly selected and from each of the selected zones, one school was conveniently selected for the study after obtaining permission from concerned authorities. The students were encouraged to fill the form by themselves, and any difficulty in filling the form or understanding any question was clarified by the principal investigator.

The data was collected by self-administering the questionnaire to the students which consisted of two parts. First part recorded the demographic information including age, sex, religion, education, type of phone used, purpose of using the internet (like education, entertainment or social networking etc.) and average time spent

on internet per day. Second part was the Young's scale of internet Addiction which was developed by Dr. Kimberly Young, 1998 which is one of the most reliable scales for evaluating internet addiction.<sup>[18]</sup> It covers the degree to which internet use affect daily routine, social life, productivity, sleeping pattern, and feeling. It is a 20-item 5-point likert scale that measures the severity of self reported compulsive use of the internet. Total internet addiction scores were calculated, with possible scores for the sum of 20 items ranging from 20 to 100. Based on the scoring, subjects were classified into normal users (< 50), moderate (50-79) and severe (> 79) internet addiction groups. Participants who did not want to participate were excluded from this study.

The rationale for choosing Young's diagnostic questionnaire for the study was that it is the first global psychometric measure and hence has been extensively and frequently used across many studies globally, is self-completed, has been validated on adult and adolescent populations, and has good internal consistency reliability as well as concurrent validity.<sup>[19]</sup>

Before administering the questionnaire to students, the nature and purpose of the study was explained to the students and it was emphasized to choose the answer which they actually felt. Confidentiality was assured and informed consent was taken.

### Sample Size

The sample size was calculated by using the formula  $n = Z^2pq/d^2$  (where  $Z = 1.96$  at 95% confidence;  $p =$  prevalence of internet addiction;  $q = 1 - p$ ;  $d =$  absolute allowable error). For this study we presumed maximum variability, therefore  $p = 0.5$ ;  $q = 0.5$ ;  $d = 10\%$  of  $p$ . Sample size thus yielded was 384.<sup>[13]</sup>

### Statistical Analysis

Frequencies and percentages were calculated for all the categorical variables. Mean and Standard deviation were calculated for age, time spent using internet. Chi-square test was used for analyzing categorical variables. P-value < 0.05 considered as significant.

### Results

In total, 384 adolescents were surveyed. Sixteen reported not having used internet ever, so they were excluded from analysis. Internet use prevalence was 95.8%. Only 368 participants completed the IAT and were included in the subsequent analysis.

Out of 368, 199 (54%) were males. The mean age of participants was 12.84 years (standard deviation [SD] 0.93, range 13–16). A personal device for internet use was owned by 28.26% of the participants and in all of them, mobile is the personal device of use instead of personal computers/laptops. The mean age of onset of internet use was 10.30 years (SD 1.76). Participants who admitted to use internet for more than 4 h/day were 16% and 29.6% kept a permanent log-in status. Sociodemographic characteristics of the study participants are shown in the Table 1.

In this study, 67.5% of all internet users come under normal category (IAT < 50), 27% of them come under moderate addicts (IAT 50-79) and 5.5% are in severe addiction (IAT 80-100). Pattern of use of internet in the study participants are displayed in the Table 2.

Age, Male gender, owning a personal device, hours of internet use per day, use of smartphones, permanent login status, online shopping, watching movies, online gaming, searching information online were found to be significantly associated with severity of Internet Addiction (IA) (Table 3).

Table 1 : Sociodemographic Characteristics of Study Participants

Variables (n = 384)	Frequency	Percentage (%)
<b>Age (In Years)</b>		
13	164	42.7
14	83	21.6
15	116	30.2
16	21	5.5
<b>Gender</b>		
Boys	200	52.1
Girls	184	47.9
<b>Education of Mother</b>		
Illiterate	200	52.1
Primary	144	37.5
Secondary	32	8.3
Higher Secondary and above	8	2.1
<b>Education of Father</b>		
Illiterate	72	18.8
Primary	168	43.8
Secondary	112	29.2
Higher Secondary and above	32	8.3

Table 2 : Severity and Pattern of Internet Addiction in Study Participants (n = 368)

Severity of Internet Addiction in Internet Users (n = 368)	Frequency	Percentage (%)
Normal Internet Users (IAT < 50)	248	67.5
Moderate Addicts (IAT 50-79)	100	27
Severe Addicts (IAT 80-100)	20	5.5
<b>Frequency of Internet Use per Day</b>		
< 2 hours	232	63.0
2-4 hours	77	20.9
> 4 hours	59	16.0
<b>Purpose of Internet Use</b>		

Educational	128	34.8
Non-educational	240	65.2

Table 3 : Association of Various Variables with Severity of IA (n = 368)

Sr. No.	Variables		Normal Internet Use	Moderate Internet Addiction	Severe Internet Addiction	p value
1	Age	13-14	155 (62.7%)	84 (34%)	8 (3.3%)	0.00001
		15-16	93 (77%)	16 (13%)	12 (10%)	
2	Gender	Boys	88 (44.2%)	92 (46.2%)	19 (9.6%)	< 0.00001
		Girls	160 (94.7%)	8 (4.7%)	1 (0.6%)	
3	Education	8th	128 (72.7%)	38 (21.6%)	10 (5.7%)	0.0695
		9th	120 (62.5%)	62 (32.3%)	10 (5.2%)	
4	Device Used (Smartphone)	Self	32 (30.8%)	60 (57.7%)	12 (11.5%)	< 0.00001
		Others	216 (81.8%)	40 (15.2%)	8 (3%)	
5	Frequency of Internet Use per Day	< 2 hours	208 (89.7%)	22 (9.5%)	2 (0.9%)	< 0.00001
		2-4 hours	24 (31.2%)	48 (62.2%)	5 (6.5%)	
		> 4 hours	16 (27.1%)	30 (50.8%)	13 (22%)	
6	Login Status	Intermittent Login	196 (75.7%)	54 (20.8%)	9 (3.5%)	< 0.00001
		Permanent Login	52 (47.7%)	46 (42.2%)	11 (10.1%)	
7	Online Gaming	Yes	88 (59.5%)	46 (31.1%)	14 (9.5%)	0.0039
		No	160 (72.7%)	54 (24.5%)	6 (2.7%)	
8	Online Shopping	Yes	8 (50%)	5 (31.3%)	3 (18.8%)	0.0426
		No	240 (68.2%)	95 (27%)	17 (4.8%)	
9	Online Chatting	Yes	197 (69.6%)	70 (24.7%)	16 (5.7%)	0.158
		No	51 (60%)	30 (35.3%)	4 (4.7%)	
10	Online Movies/Video	Yes	96 (53.9%)	64 (36%)	18 (10.1%)	< 0.00001
		No	152 (80%)	36 (18.9%)	2 (1.1%)	
11	Searching Information Online	Yes	104 (81.3%)	16 (12.5%)	8 (6.3%)	0.002
		No	144 (60%)	84 (35%)	12 (5%)	

### Discussion

We conducted a cross-sectional study in school-going adolescent population of Ahmedabad. The present study identified approximately 5.5% of severe Internet addiction which is lower when compared to other earlier Indian studies.

Previous studies from India reported 8.7%–11.8% of severe Internet addiction as per IAT among adolescents with an age range from 13 to 18 years.<sup>[16,20]</sup> This variation in the estimated prevalence of Internet addiction is due to various factors such as the usage of different screening instruments, issues related to sampling technique, study setting, and study population adopted by the earlier studies.

Male gender, owning a personal device, hours of internet use per day, use of smartphones, permanent login status, online shopping, watching movies, online gaming, searching information online were found to be significantly associated with IA. These associations are in agreement with similar findings from previous studies.<sup>[13,16,19]</sup> Males are more susceptible to IA as they are primarily using internet more for entertainment purposes such as gaming and watching videos as compared to females. Internet use for searching information is found to be protective against IA. Adolescents using internet for information seeking are supposedly using their time constructively in contrast to those using time for entertainment and other social networking purposes. More engagement into constructive work acts as a shield for participants from getting addicted. A review by Kuss and Griffiths reports that extroverts use such sites to increase their social network and friendships and introverts engage more into online friendships to compensate for their real life deficits.<sup>[1]</sup>

The overall prevalence of internet addiction (representing both - moderate and severe addiction) was 32.5%, which is in accordance with most studies that have done by assessing internet addiction using Young's IAT. A study on university students in India reported a prevalence of 18.88%.<sup>[21]</sup>

In the present study, most of the participants have been using internet more for non educational purposes than educational use. Similarly, the studies have shown that entertainment was the most salient motive for internet use, followed by passing time, acquiring social information and relaxation.<sup>[22]</sup>

The study sample was recruited by a convenient sampling method and included those who were using internet and gave consent. The results of the study relied on self-reported standard screening tools, and no pilot study was done beforehand. The assessment of various patterns of Internet addiction particular to adolescents such as Internet gaming disorder and smartphone addiction was not explored. Despite the limitation, the study gives insights about the magnitude of Internet addiction among school-going adolescents using a standardized screening tool. Adolescents are vulnerable to Internet addiction considering age and advancement in the technologies. This was a cross-sectional study which limits the interpretation to factors associated with IA. To further explore the risk factors contributing to IA, longitudinal studies need to be planned. There is a possibility of recall bias in the current study as the information was collected using self-reported questionnaires. As the study sample was taken conveniently, the results can not be generalized to all population.

## Conclusion

In the current time, internet has become an integral part of our life. The present study identified 5.5% of severe Internet addiction among school-going adolescents. The result from this study imply that Internet addiction is a prevalent public health issue, having multiple risk factors and varied patterns of Internet use, in a place where the Internet is becoming an inclusive component of an individual's personal and social life. Awareness should be created among the students to improve their ability to reduce the occurrence of internet addiction behaviour which promotes their healthy growth. Any adolescent presenting to primary care doctor with behavioral issues and poor academic performance with a history of internet use needs to be screened for IA. Early interventions should be done including counseling regarding monitoring of internet use either by self or involving family members. Monitoring of hours and purpose of internet usage by parents and school authorities may help in controlled internet use.

Limitation of the study was that the sample of this study is considerably small, so that the result can not be justified. So, further studies using a larger sample size are necessary for proper assessment of the internet addiction.

### Conflict of Interest

There is no conflict of interest.

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