

Cross- Sectional Assessment of Internet Addiction and Its Correlation with Substance Use in Adolescents**Md. Shahnwaz¹, Sanjay Kumar², Ahmad Ijtaba Karim³**¹Senior Resident, Department of Psychiatry, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, India²Associate Professor, Department of Psychiatry, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, India³Assistant Professor, Department of Psychiatry, Shyam Lal Chandrashekhar Medical College, Khagaria, Bihar, India

Received: 01-05-2026 / Revised: 15-06-2026 / Accepted: 21-07-2026

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Conflict of interest: Nil

Abstract

Background: The issue of internet addiction has become one of the growing behavioral health issues among teenagers, with the increase in smartphone use and the wide accessibility of internet or online services. Overuse of the Internet can have a negative impact on academic and psychological functioning and socialization. Adolescence is also a time of high susceptibility to drug experimentation including the use of tobacco, alcohol, and marijuana.

Materials and Methods: This was a cross-sectional observational study on 100 adolescents aged 10 to 19 years attending the hospital outdoor and indoor consultation in the period of May 2025 to November 2025. Participants were selected using Convenience sampling approach. Semi-structured questionnaire and Young's Internet Addiction Test (IAT) were used to gather data. Data on substance use (tobacco, alcohol, cannabis, and other substances) were also collected and were analysed using SPSS. Descriptive statistics, Chi-square test, and correlation analysis were used and a p value <0.05 was considered statistically significant.

Results: The study revealed that 72% of participant's were mildly to severely addicted to the internet, and 38% were moderately to severely addicted. 24% of respondents used tobacco; 18% used alcohol; 9% used cannabis; and 11% used multiple substances. There was a significant relationship between Internet Addiction and substance use ($\chi^2 = 12.64$, $p = 0.005$). There was moderate positive correlation between scores of Internet addiction and the frequency of substance use ($r = 0.42$).

Conclusion: Internet addiction is common among adolescents and is positively related with substance use behaviors. The burden of behavioral and substance-related addictions can be reduced in adolescents through early identification, counseling and prevention.

Keywords: Internet addiction, Adolescents, Substance use, Behavioral addiction, Young's Internet Addiction Test.

DOI: 10.25258/ijcpr.18.8.324

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Introduction

Digital technology and the rapid diffusion of the smartphone have revolutionized the life and behavior of adolescents all over the world. In the last 10 years mobile devices, social media and connectivity have taken a great dive forward making internet access are more available and affordable [1].

Adolescents are one of the most active groups of internet users, due to their educational needs, entertainment interests, and socializing interests [2]. Internet use has educational and communication benefits but can also be excessive

and unchecked, thus becoming an important concern in public health [3]. Internet and online gaming, social networking, video streaming platforms and video communication apps are more common now, so problematic internet use among adolescents has increased.

The increasing reliance on digital technology has caused worries about its psychological, behavioural, and social implications [4]. Internet addiction is seen as a behavioral addiction where there are excessive or poorly controlled preoccupations, urges or behaviors with the

Internet that cause distress or impair functioning in everyday life [5]. Internet addict adolescents tend to have trouble with academic, difficulty focusing, disturbed sleep, social isolation and such emotion as anxiety and depression [6]. The most commonly used standardized instruments for measuring the degree of Internet Addiction, the IAT, which categorizes people as mild, moderate or severe Internet addicts according to their Internet usage behavior [7]. Substance use among adolescents is also a major public health problem with serious physical, psychological, and social consequences, and that is preventable [8]. Childrens and teens might try drugs, alcohol, cigarettes, drugs from inhalants, and other chemicals because they are curious, being pressured by friends, stressed out, or feeling emotionally unbalanced. Adolescents are at high risk for addictive habits, impulsivity and risk taking [9]. Substance use during early adolescence has been linked to academic underachievement, behaviour problems, mental health disorders and dependency [10].

Some recent research has indicated a possible link between adolescent substance use and Internet addiction [11]. They have common neurobiological circuits related to dopamine reinforcement mechanisms. Some of these addictive behaviors may be currently organized due to factors like impulsivity, peer influence, emotional dysregulation, social isolation and low self-esteem [12]. Overuse of the internet can also lead to the exposure to unhealthy peer groups and excessive substance-related material, which raises the risk of trying a psychoactive substance.

With the growing problem of internet addiction and drug abuse among Teenagers, there is scarcity of data from Bihar, especially hospital settings. It is crucial to know the relationship between internet addiction and substance use in order to develop early screening strategies and preventive interventions.

Hence, the present study was designed to evaluate the incidence of internet addiction and its association with substance use among Adolescents attending Sri Krishna Medical College and Hospital.

Objectives

- To find out the incidence of Internet addiction among adolescents.
- To recognize the patterns of substance use.
- To evaluate the relationship between the severity of the internet addiction and the use of substance.
- To assess demographic factors related to Internet addiction.

Materials and Methods

Study Design: The present study was a cross-sectional observational study, which was aimed at

the evaluation of internet addiction and its relationship with substance use in adolescents. The cross sectional design was felt to be suitable because it allowed for the exposure and outcome variables to be assessed in the same population of individuals at the same time over the course of the study.

Study Setting: The study has been conducted in the Outpatient and Inpatient Departments of Sri Krishna Medical College and Hospital. The institution provides to a large population from the rural and urban areas of Bihar so that a diversified adolescent population is provided by the study.

Study Duration: The study was carried out for seven months starting from May 2025 to November 2025. The collection of data, participant interviews and questionnaire administration took place during this period.

Sample size and population size: The study population were the adolescent patients (10-19 years) admitted to the hospital during the study period. There were 100 participants in the study. The number of samples was decided as per the feasibility, availability of subjects and length of the study.

Inclusion Criteria

- Adolescents aged 10–19 years
- Any participant who is willing to be involved in the study.
- Participants who gave assent and informed consent by their parents or carers.
- Participants who gave assent and informed consent from their parents/carers.

Exclusion Criteria

- Adolescents who have a severe psychiatric illness.
- Adolescents whose cognitive functioning has been compromised for communication or comprehension
- Participants who do not answer the full questionnaire or respond to individual sections with an inadequate answer

Sampling Technique: Adolescent who came for outpatient and inpatient treatments of the study period were selected by convenience sampling. Those who met the inclusion criteria were selected consecutively until the desired sample size was reached.

Study Tools: A semi-structured questionnaire was used for data collection to obtain sociodemographic and behavioral information. Questionnaire variables included, age, gender, place of residence, education level, family type, hours of internet use/per day, and purpose of internet use.

The IAT developed by Young was employed to measure Internet addiction, which is based on

several questions regarding Internet usage behavior. The total score earned was used to classify the participants into normal internet users, mild, moderate, and severe internet addicts.

Structured questions about the use of tobacco, alcohol, cannabis, inhalants and other psychoactive substances were assessed to substance use. Additional data on the frequency and duration of substance use was also collected.

Data Collection Procedure: Eligible participants were approached and informed about the purpose of the study after getting permission from the concerned authorities. Parents/guardians provided written informed consent and adolescent participants provided assent before they entered the study.

Face-to-face interviews were conducted using the study questionnaire in a confidential environment to ensure privacy and accurate reporting. The participants were informed that all data gathered would be kept confidential and would only be used for research.

Statistical Analysis: Data gathered were then analyzed using the Statistical Package for the Social Sciences (SPSS) software and Microsoft Excel. Data were summarized using descriptive statistics like frequency, percentage, mean and

standard deviation. Chi-square test was used to determine the association between internet addiction and substance use. Pearson's or Spearman's correlation was performed to assess correlation between the scores of the internet addiction and the substance use variables as appropriate. A p value < 0.05 was accepted as statistically significant.

Ethical Considerations: The study was approved by the Institutional Ethics Committee of Sri Krishna Medical College and Hospital before the study was started. All the participants were volunteers, and participant information was kept confidential throughout the study. During data analysis and presentation of the results of the study no personal information was presented.

Results

Demographic Characteristics: The study was conducted with 100 adolescents. The majority of participants belonged to the age group of 16–19 years (58%), followed by 13–15 years (30%) and 10–12 years (12%). This study included 62% male and 38% female participants. The majority of participants (56%) are from urban regions while 44% are from rural regions. As far as education is concerned, 48% were studying in secondary school, 37% in higher secondary school and 15 % were studying in middle school.

Table 1: Sociodemographic Characteristics of Participants (N = 100)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	10–12 years	12	12
	13–15 years	30	30
	16–19 years	58	58
Gender	Male	62	62
	Female	38	38
Residence	Urban	56	56
	Rural	44	44
Education	Middle school	15	15
	Secondary school	48	48
	Higher secondary	37	37

Internet Usage Pattern: Most of the participants indicated that they used the internet for more than 4 hours a day (46%). The most popular device for accessing the internet was a smartphone (81%), followed by a laptop (12%) and tablets/computers (7%). The main purposes of adolescents' Internet use were social media and entertainment.

Table 2: Internet Usage Pattern among Participants

Variable	Category	Frequency (n)	Percentage (%)
Daily Internet Usage	<2 hours	18	18
	2–4 hours	36	36
	>4 hours	46	46
Device Used	Smartphone	81	81
	Laptop	12	12
	Tablet/Desktop	7	7
Purpose of Internet Use	Social media	42	42
	Online gaming	21	21
	Educational purposes	19	19
	Entertainment/video streaming	18	18

Prevalence of Internet Addiction: The internet addiction measurement by Young's Internet Addiction Test (IAT) revealed that 34% of the respondents had mild internet addiction, 28% had moderate internet addiction and 10% internet addiction was severe and 28% had normal internet use behavior.

Table 3: Distribution of Internet Addiction Severity

Internet Addiction Category	Frequency (n)	Percentage (%)
Normal	28	28
Mild Addiction	34	34
Moderate Addiction	28	28
Severe Addiction	10	10

Substance Use Pattern: Within the group of participants, 24% reported using tobacco, 18% reported drinking alcohol, 9% reported using cannabis, and 11% reported multiple substance use among adolescents. Older adolescents and males had higher rates of substance use.

Table 4: Pattern of Substance Use among Participants

Substance Type	Frequency (n)	Percentage (%)
Tobacco	24	24
Alcohol	18	18
Cannabis	9	9
Multiple Substance Use	11	11
No Substance Use	38	38

Correlation between Internet Addiction and Substance Use: There was a statistically significant relationship between Internet addiction and substance use among adolescents. Internet addiction was correlated with the prevalence of substance use, as higher levels of internet addiction

were related to higher prevalence of substance use. Association between the two was significant according to Chi-square test ($\chi^2 = 12.64$, $p = 0.005$). There was also a moderate positive relationship between the scores of Internet addiction and the frequency of substance use ($r = 0.42$).

Table 5: Association between Internet Addiction and Substance Use

Internet Addiction Level	Substance Use Present n (%)	Substance Use Absent n (%)	Total
Normal	6 (21.4%)	22 (78.6%)	28
Mild Addiction	14 (41.2%)	20 (58.8%)	34
Moderate Addiction	17 (60.7%)	11 (39.3%)	28
Severe Addiction	8 (80.0%)	2 (20.0%)	10

Chi-square value (χ^2) = 12.64, Correlation coefficient (r) = 0.42, p-value = 0.005 (statistically significant)

Discussion

This study aimed to assess the level of Internet Addiction Disorder and its relationship with adolescent substance abuse in Sri Krishna Medical College and Hospital.

The results showed a high rate of internet addiction among adolescents and a large percentage of them scoring in a mild to severe range of addiction, on Young's Internet Addiction Test (IAT). High level of internet use was related to long duration of daily screen time; high smartphone uses and social media and entertainment use. The study also found significant amounts of drug use among the respondents, mainly smoking of tobacco and alcohol. In addition, a positive correlation was found between internet addiction and substance use that was statistically significant ($p < 0.01$), suggesting that the higher the score of internet addiction, the greater the probability of substance use in adolescents.

Comparison with Previous Studies

The results of the present study are similar with some of the Indian and international studies which have found that the prevalence of internet addiction is growing in adolescents. Various prevalence ranging from 30% to 70% have been reported in studies conducted in India depending on populations studied, geographical location, and method of assessment [13]. The same phenomenon has been reported in China, South Korea and other Western countries, where high-tech progress and the wide use of smartphones have led to high levels of internet consumption in young people [14]. The high prevalence of substance use found in the current study also matches previous adolescent health studies that found that tobacco and alcohol were the most commonly used substances. The differences in prevalence rates among studies may be related to urbanization, culture, family environment, parental supervision and socioeconomic status [15]. Urban adolescents may be better able to access digital devices and the internet, increasing their risk of Internet use.

Strengths and Limitations

The current study has a number of strengths. It utilised primary data collection and specifically targeted the adolescent age group who are a exposed group at increased risk of developing substance and behaviour related addictions. A standardized assessment tool for the evaluation of the Internet addiction has also been used in the study, enhancing the reliability of the findings.

There are some restrictions, however, that need to be observed. The study population was limited in size and limited to a single tertiary care center, thus the results may not be generalizable to the larger population. Finally, self-reported questionnaires may have led to recall bias and underreporting of sensitive behaviors, including the use of drugs and alcohol.

Conclusion

The present study confirms that the level of Internet addiction is high among adolescents and also found that there is a significant correlation between adolescent Internet addiction and substance use behaviors. Internet addict youths were more likely to use substances like tobacco, alcohol, and cannabis.

The results highlight the need for early identification, screening of behavior, and early intervention to prevent the life-long psychological and social effects on adolescents. Raising awareness about responsible online behavior and the negative impact of drug and alcohol abuse is key to young people's wellbeing. There should be an integrated approach to responsible Internet use and substance abuse prevention initiatives with adolescents.

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