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PREVALENCE AND PATTERNS OF INTERNET ADDICTION AMONG URBAN AND RURAL SCHOOL-GOING ADOLESCENTS IN KURUKSHETRA DISTRICT, HARYANA

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ABSTRACT

Background: Internet addiction (IA) has emerged as a growing behavioral concern among adolescents, driven by increased access to smartphones and digital platforms. Excessive and uncontrolled internet use can impair social, academic, and psychological functioning in school-aged children. The objective is to assess the prevalence and patterns of internet addiction among school-going adolescents in rural and urban areas of Kurukshetra, Haryana, and to identify its association with socio-demographic variables.

Materials and Methods: This cross-sectional, observational study was conducted over 12 months among 320 students from classes 8th to 10th in randomly selected schools. Young's Internet Addiction Test (IAT) was used to evaluate the level of internet addiction. Socio-demographic data were collected through a structured questionnaire. Data were analyzed using SPSS v27.0, with chi-square and correlation tests applied to determine associations. A p-value <0.05 was considered statistically significant.

Results: The mean age of participants was 13.99 ± 1.15 years. IA was present in 88.4% of students, with 44.1% exhibiting mild, 36.6% moderate, and 7.8% severe addiction. Significant associations were observed between IA and age group, family structure, and socioeconomic status ($p < 0.05$). No significant differences were found based on gender or residence (urban/rural).

Conclusion: A high prevalence of internet addiction was observed among adolescents, particularly in nuclear families and upper socioeconomic groups. Early education, school-based interventions, and parental involvement are essential to manage and prevent IA in adolescents.

Keywords: Internet addiction, Adolescents, School children, Smartphones, Haryana.

INTRODUCTION

The Internet is a vast global system of interconnected computer networks that enables communication and information sharing through the Standard Internet Protocol suite.[1] It connects private, public, academic, and government systems, and is one of the most widely accessible forms of media worldwide. Internet use has grown exponentially—by June 2016, the number of users globally was nearly 7 billion, with 4 billion in Asia. India, second only to China in Asia, had 462 million users, up from 137 million in 2000.[2,3]

The Internet has revolutionized communication, bringing the world closer and facilitating knowledge access. Children and adolescents are among its most active users, using it for education, research, and entertainment.[1] However, concerns have emerged regarding excessive and uncontrolled internet use, particularly among teenagers, leading to the concept of Internet Addiction (IA). Introduced by Dr. Ivan Goldberg in 1995, IA refers to compulsive internet

use that causes distress and functional impairment. Yang likened this behavior to substance addiction due to shared symptoms like craving, withdrawal, and increasing tolerance.[2]

IA has gained attention in psychiatric research. It is listed in Section III of the DSM-5 under "Emerging Measures and Models," with symptoms including preoccupation, inability to control use, continued use despite consequences, and withdrawal.[4,5] IA can negatively affect adolescents' emotions, academics, family life, identity development, and cognitive functions. It has also been linked to depression and ADHD.[6] Though not formally classified as a disorder, it is a topic of growing concern, and diagnostic tools have been proposed by Young.[7]

Problematic smartphone use, closely tied to internet addiction, has also raised alarms. Studies link abnormal use in adolescents to psychopathological issues such as aggression, somatic complaints, attention problems, and exposure to cyberverbal or sexual misconduct.[8] Due to smartphones' affordability, even adolescents from lower socioeconomic backgrounds are affected. A Digital Clarity survey showed that 16% of users aged 18–25 exhibited signs of IA, while other studies estimate that 6–10% of U.S. internet users and up to 1 million Germans may be addicted.[9]

Risk factors for IA include male gender, urban residence, lack of parental supervision, early internet exposure, and heavy use of social media or gaming platforms. Smartphones have made internet access effortless, increasing usage for communication, gaming, multimedia, and social interaction. Its constant availability, anonymity, and escapism especially attract adolescents, who are developmentally vulnerable and often lack monitoring.[10]

Institutions in India, such as IITs, have implemented nighttime internet bans due to growing concerns. Studies show that IA is often associated with online sexual activities and other addictions, such as to alcohol or drugs. Yet, research on IA in developing nations like India remains limited.[1] Adolescence is a critical period for addiction development, and peer influence plays a major role in shaping behaviors, including addictive tendencies.[10] As schools increasingly adopt digital education, concerns about IA risk grow. This study thus aims to assess the prevalence and patterns of Internet Addiction among urban and rural schoolchildren in Kurukshetra district, Haryana.

MATERIALS AND METHODS

Study design: This was a prospective, observational, and cross-sectional study. The study was conducted in the Department of Paediatrics at Adesh Medical College and Hospital, Shahbad. The duration of the study was 12 months following the approval of the study protocol. Prior to study initiation, written informed consent was obtained from the parents or guardians of participating children. Ethical clearance for the study was obtained from the Institutional Ethics Committee of Adesh Medical College and Hospital.

Sample size: The sample size was determined based on previous data indicating that 75% of children had access to mobile devices. Using a 5% margin of error and a 5% level of significance, the calculated minimum sample size was 289. After accounting for a 10% non-response rate, the final sample size was increased to 315 school-going children, who were ultimately included in the study.

Inclusion and exclusion criteria:

The study included school-going children from 8th, 9th, and 10th grades enrolled in both rural and urban schools of the Kurukshetra district. Only those students who were users of smartphones or other internet-enabled devices were considered eligible for participation. Children with any form of physical disability, such as cerebral palsy or hemiparesis, were excluded from the study. Additionally, those with developmental delays or diagnosed mental retardation were also not included in the sample.

Data collection: Students from selected rural and urban schools were chosen randomly. Written informed assent was obtained from participants under 18 years of age, along with the signature of their teacher or principal. Data were collected using a pre-validated tool—Young's Internet Addiction Test (IAT). The questionnaire included 20 items, some of which were modified to suit the age group and school guidelines.

Internet addiction assessment: To assess the level of internet addiction among participants, Young's Internet Addiction Test (IAT) was employed. This tool consists of 20 items, each rated on a 5-point Likert scale ranging from 0 to 5. The total possible score on the scale is 100. Based on the cumulative score, internet usage was categorized into four levels: a score between 0 and 30 indicated normal internet use, 31 to 49 suggested mild addiction, 50 to 79 reflected moderate addiction, and scores between 80 and 100 were indicative of severe internet addiction.

Statistical analysis: Data were entered into Microsoft Excel and analyzed using SPSS version 27.0. Descriptive statistics such as frequencies and percentages were computed. Pearson's chi-square test was applied to determine associations between categorical variables. The Karl Pearson correlation coefficient was used to assess relationships between continuous variables. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 320 school-going children were included in the study. The mean age of the participants was 13.99 ± 1.15 years. When categorized into age groups, the majority of the children (49.4%) were between 14–15 years, followed by 39.7% in the 12–13-year group and 10.9% in the 16–17-year group. In terms of

gender distribution, 52.8% (n = 169) of the participants were male, while 47.2% (n = 151) were female, showing a nearly balanced gender representation. Regarding family structure, a larger proportion of children, 57.8%, belonged to nuclear families, whereas 42.2% were from joint families. When assessing residence locality, the majority of participants (90.6%) resided in urban areas, with only 9.4% from rural areas, indicating a predominantly urban sample. As per socioeconomic status, based on the modified Kuppuswamy scale, most participants (53.1%) were from the lower middle class, followed by 28.7% from the upper middle class, 16.3% from the upper lower class, and only 1.9% belonged to the upper class. These demographic details provide a comprehensive overview of the study population, showing a predominantly urban, nuclear family-based, and lower-middle socioeconomic background group with balanced age and gender distribution [Table 1].

Table 1: Distribution of study participants according to socio-demographic characteristics.

Variable	Domain	Number	Percentage
Age groups	Mean age	13.99 ± 1.15 years	
	12-13 Years	127	39.7
	14-15 Years	158	49.4
	16-17 Years	35	10.9
Gender	Male	169	52.8
	Female	151	47.2
Family structure	Joint	135	42.2
	Nuclear	185	57.8
Residence locality	Rural	30	9.4
	Urban	290	90.6
Socioeconomic status	Upper class	6	1.9
	Upper middle	92	28.7
	Upper lower	52	16.3
	Lower middle	170	53.1

Based on Young's Internet Addiction Test (IAT), the distribution of internet addiction levels among the 320 school-going children revealed that a majority of participants (44.1%) exhibited mild internet addiction (scores between 31–49). A significant proportion, 36.6%, were found to have moderate addiction (scores between 50–79), while 7.8% demonstrated severe internet addiction (scores between 80–100), indicating a concerning level of dependence on internet usage. Only 11.6% of the students fell into the non-addicted category (scores between 0–30), reflecting normal levels of internet use. These findings highlight that nearly nine out of ten students showed some degree of internet addiction, emphasizing the growing prevalence of problematic internet use among school children [Table 2].

Table 2: Distribution of participants according to levels of internet addiction based on Young's Internet Addiction Test (IAT).

Internet addiction level	Number	Percentage
No Addiction (0-30)	37	11.6
Mild Addiction (31-49)	141	44.1
Moderate Addiction (50-79)	117	36.6
Severe Addiction (80-100)	25	7.8

Children aged 14–15 years showed the highest levels of moderate (51.3%) and severe addiction (52%), while those aged 16–17 years had the highest proportion of severe addiction (44%). In contrast, younger children (12–13 years) were more likely to report no addiction (64.9%) (p = 0.001). In terms of family structure, students from nuclear families had a higher prevalence of moderate (65.8%) and severe addiction (88%), whereas those from joint families showed more cases of no addiction (43.2%) and mild addiction (53.9%) (p = 0.001). Socioeconomic status was also significantly associated with addiction. Participants from the upper middle class had the highest rates of moderate (58.1%) and severe addiction (76%), while those from the lower middle class predominantly fell into the no addiction (75.7%) and mild addiction (72.3%) categories (p = 0.001). Although males had slightly higher rates of moderate (62.4%) and severe addiction (56%) compared to females, this was not statistically significant (p = 0.054). Similarly, residence location (urban vs. rural) showed no significant association with addiction levels (p = 0.609) [Table 3].

Table 3: Association of internet addiction with socio-demographic variables among school-going children.

Variable	Domain	No addiction		Mild addiction		Moderate addiction		Severe addiction		P value
		N	%	N	%	N	%	N	%	
Age (years)	12-13	24	64.9	67	47.5	35	29.9	1	4	0.001*
	14-15	13	35.1	72	51.1	60	51.3	13	52	
	16-17	0	0	2	1.4	22	18.8	11	44	

Gender	Male	17	45.9	65	46.1	73	62.4	14	56	0.054
	Female	20	54.1	76	53.9	44	37.6	11	44	
Family structure	Joint	16	43.2	76	53.9	40	34.2	3	12	0.001*
	Nuclear	21	56.8	65	46.1	77	65.8	22	88	
Residence location	Rural	5	13.5	12	8.5	12	10.3	1	4	0.609
	Urban	32	86.5	129	91.5	105	89.7	24	96	
Socio economic status	Upper class	0	0	0	0	1	0.9	5	20	0.001*
	Upper middle	0	0	5	3.5	68	58.1	19	76	
	Upper lower	9	24.3	34	24.1	9	7.7	0	0	
	Lower middle	28	75.7	102	72.3	39	33.3	1	4	

DISCUSSION

Internet addiction (IA) is a complex behavioral issue characterized by impaired control over online use, particularly on social networks that can substitute real-life relationships. The internet offers adolescents an appealing escape from frustration, social pressure, and emotional burden, but can gradually lead to emotional detachment and hinder social development. With the increasing penetration of internet-connected devices, particularly smartphones, IA is emerging as a global public health concern.[11]

The mean age of participants in the present study was 13.99 ± 1.15 years, with the highest proportion (49.4%) in the 14–15-year group. Internet addiction was most prevalent in this age group, which aligns with findings by Kumar et al,[12] and similar studies in Karnataka,[13] Northern Cyprus,[14] and Spain.[15] These studies collectively suggest early adolescence as a critical period of vulnerability to IA.

While males constituted a slightly higher proportion (52.8%) of the study population, no significant gender difference in IA levels was observed—similar to findings by Kayastha et al.[16] However, other studies, such as those by Kumar et al,[6] and Anwar,[1] reported higher IA odds among males. This discrepancy may reflect regional variations in access, cultural norms, and digital literacy.

Internet addiction was significantly higher in children from nuclear families, which might be due to limited parental supervision or fewer interpersonal interactions at home. Most participants belonged to the lower middle socioeconomic class (53.1%), followed by the upper middle class (28.7%), where addiction was more prevalent. This could be attributed to increased access to personal devices in higher socioeconomic groups. Similar trends were noted in other Indian studies.[9]

Urban students constituted 90.6% of the sample, yet IA did not significantly differ between urban and rural participants. This may indicate narrowing rural-urban gaps in internet access due to smartphones and cheaper data plans.[17] Adolescents from both settings appear similarly vulnerable due to shared exposure and developmental characteristics.

In our study, 88.4% of participants showed some degree of internet addiction—44.1% mild, 36.6% moderate, and 7.8% severe. These figures are significantly higher than previous studies such as Prabhakaran et al. (8.7%),[18] Sharma et al. (4.8%),[19] and Tenzin et al. (34.4%),[20] likely due to different populations, regional access, and methodological differences. Bhatia et al,[9] and Mangalore-based studies also reported moderate to severe addiction in up to 30% of adolescents.[21]

Use of the internet for education was common (91.5%) as reported by Kumar et al,[6] while entertainment, gaming, and social media use were also prevalent. Social interaction, online games, and streaming platforms contribute to excessive screen time, consistent with findings from Vadodara,[18] and Turkey.[22] Adolescents often struggle to reduce internet use due to its addictive nature,[23] especially given their novelty-seeking and emotionally intense developmental stage.[24]

Smartphones, being accessible and portable, further increase the risk. Excessive internet use affects academic performance, delays assignment completion, and disrupts sleep patterns—leading to poor outcomes and mental health issues.[20,25] The correlation of IA with depression, anxiety, and stress has been documented in multiple studies.[26,27]

Given these findings, IA must be addressed with urgency. Internet safety education, prevention programs, and counselling should be integrated into school curricula. Teachers and parents must play a proactive role in monitoring usage and promoting balanced digital behaviour. Schools can host awareness programs and workshops focused on managing screen time and promoting real-life engagement.

However, this study had some limitations. It focused only on healthy school-going adolescents, limiting insights into co-morbid psychiatric conditions. Data may have been influenced by social desirability bias, though efforts were made to maintain privacy during interviews. Perspectives of parents and teachers were not included, which could have provided a more comprehensive understanding. Future research should incorporate qualitative approaches and stakeholder views to develop more targeted interventions. Moreover, standardized diagnostic criteria for IA and longitudinal studies are needed to understand causality and inform management strategies.

CONCLUSION

Internet addiction is an emerging lifestyle issue with significant implications for adolescent health and well-being. This study highlights its high prevalence among students and the urgent need for early identification and intervention within school settings.

School counselors should be equipped to screen, counsel, and refer affected students appropriately. Adolescents must be educated from an early age about responsible internet use, while parents and educators should work together to promote healthy digital habits and encourage regular outdoor activities. A collaborative, awareness-driven approach is essential to effectively manage and prevent internet addiction in school-aged children.

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