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A Study on Smartphone Addiction and Its Associated Factors among Adolescent College Students

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Smartphones have become an integral part of students' academic, social and recreational activities; however, excessive and uncontrolled use has raised concerns regarding behavioural dependency, physical discomfort, reduced concentration and psychological well-being. The present study was conducted to assess smartphone addiction and its associated factors among adolescent college students. A total of 200 undergraduate students of the Community Science College and Research Institute (CSC&RI), Madurai were selected through simple random sampling, and data were collected using a structured questionnaire comprising demographic details, smartphone usage patterns, a ten-item six-point Likert-scale nomophobia/dependency inventory (DT-SUP Weekend) and self-reported daily screen-time records. The study revealed that the majority of respondents (76%) were female, 48% belonged to the 18–20 years age group and 64.5% had used a smartphone for 2–6 years. Frequent checking of the smartphone/social media (Mean = 3.61) and using the smartphone longer than intended (Mean = 3.60) were the most prominent dependency indicators, whereas emotional attachment such as thinking about the smartphone when not in use (Mean = 1.99) was comparatively low. Average daily screen time ranged from 283 to 315 minutes, with the highest usage on Saturday and the lowest on Wednesday. Gender significantly influenced neck/wrist pain and intrusive thinking about the device, while duration of smartphone usage significantly influenced the inability to give up smartphone use. The findings highlight the need for digital wellness awareness and educational interventions to promote healthy smartphone usage practices among college students.

Introduction

In recent years, smartphones have become deeply integrated into students' daily lives, with the student population considered one of the most active groups of smartphone users. The ability to access information instantly, communicate through social media, watch videos and complete academic assignments has made smartphones indispensable in higher education. However, excessive and uncontrolled use has raised concerns regarding its effects on physical health, mental well-being, academic performance and social interactions. Prolonged smartphone use has been reported to contribute to reduced concentration, procrastination, poor academic outcomes, sleep disturbances, musculoskeletal discomfort and symptoms associated with smartphone dependency. Frequent notifications, social media engagement and continuous internet access encourage repetitive checking behaviours that interfere with productivity and attention span. College students are particularly vulnerable because they are exposed to academic pressures while simultaneously navigating extensive digital environments. Although smartphones provide numerous academic and social benefits, limited information is available regarding the extent of smartphone addiction, screen-time patterns and the factors associated with excessive smartphone use among undergraduate students. Therefore, the present study was undertaken to assess smartphone usage patterns, dependency behaviours and daily screen time, and to identify the factors associated with smartphone addiction among adolescent college students(1-6).

Methodology

The study entitled **"A Study on Smartphone Addiction and its Associated Factors among Adolescent College Students"** was conducted at the Community Science College and Research Institute (CSC&RI), Tamil Nadu Agricultural University, Madurai, using a cross-sectional descriptive survey design. A total of 200 undergraduate students were selected through simple random sampling. Data were collected using a structured, self-administered questionnaire — the Day Time Smartphone Use Questionnaire (DT-SUP Weekend) — comprising demographic characteristics (gender, age, height and weight, from which BMI was calculated as per WHO guidelines), smartphone usage characteristics (duration of ownership, handedness, screen brightness, handling method and screen orientation), a ten-item nomophobia/dependency inventory rated on a six-point Likert scale (Strongly Disagree = 1 to Strongly Agree = 6), and self-reported daily screen-time records from Monday to Sunday obtained from the Digital Wellbeing or Screen Time applications. The collected data were analysed using frequency, percentage, mean, standard deviation and independent samples t-test, with statistical significance set at the 5 percent level ($p < 0.05$).

Table 1. Details of Selected Respondents

Sl. No	Parameter	Respondents (n=200) Per cent
1.	Gender	
	Female	76.0
	Male	24.0
2.	Age (in years)	
	< 18	24.5
	18 – 20	48.0
	> 20	27.5
3.	BMI (kg/m²)	
	< 18.5 (Underweight)	27.0
	18.5 – 24.9 (Normal)	65.0
	> 24.9 (Overweight)	8.0

Table 1 presents the details of the selected participants. Among them, 76% were female and 24% were male. Nearly half (48%) belonged to the 18–20 years age group, followed by those above 20 years (27.5%) and below 18 years (24.5%). With respect to BMI, the majority (65%) had normal BMI, while 27% were underweight and 8% were overweight, indicating that the sample was representative of the adolescent college population.

Smartphone Usage Pattern of Respondents

The results revealed that 93% of the respondents were right-handed and 64.5% had used a smartphone for 2–6 years, indicating a moderately experienced user base. Most respondents (67.5%) manually adjusted screen brightness, 55.5% operated the device using both hands, and 65.5% used both portrait and landscape orientations, reflecting flexible and habitual usage patterns adapted to different applications.

Table 2. Smartphone Usage Pattern of Respondents

Particulars	Category	Respondents (n=200) Per cent
Handedness	Right-handed	93.0
	Left-handed	2.0
	Ambidextrous	5.0
Duration of use	< 2 years	23.0
	2 – 6 years	64.5
	> 6 years	12.5
Hand used	One hand	28.0
	Two hands	16.5
	Both	55.5

Orientation mode	Portrait	31.0
	Landscape	3.5
	Both modes	65.5

Nomophobia / Smartphone-Dependency Behaviour

Ten statements assessing behavioural, cognitive and physical facets of smartphone dependency were rated on a six-point Likert scale. "Frequently check smartphone/social media" recorded the highest mean score (3.61 ± 1.55), followed closely by "Use smartphone longer than intended" (3.60 ± 1.48), indicating that behavioural over-use was the most prevalent dependency indicator. In contrast, "Think about smartphone when not using it" (1.99 ± 1.29) and "Feel restless without a smartphone" (2.10 ± 1.33) recorded the lowest mean scores, indicating comparatively lower emotional attachment to the device.

Table 3. Mean and Standard Deviation of Nomophobia / Smartphone-use Statements

Statement	Mean ± SD
Frequently check smartphone/social media	3.61 ± 1.55
Use smartphone longer than intended	3.60 ± 1.48
Miss planned work due to smartphone use	3.38 ± 1.62
Difficulty concentrating due to smartphone use	3.10 ± 1.58
Neck/wrist pain from smartphone use	2.80 ± 1.59
Others say I use my phone too much	2.72 ± 1.49
Cannot give up smartphone use	2.38 ± 1.43
Cannot stay without a smartphone	2.32 ± 1.41
Feel restless without a smartphone	2.10 ± 1.33
Think about smartphone when not using it	1.99 ± 1.29

Gender-wise and Duration-wise Comparison

Independent samples t-test comparison between female (n=152) and male (n=48) respondents showed that gender did not significantly influence most dependency-related behaviours. However, two statements yielded statistically significant gender differences: neck/wrist pain from smartphone use ($t = 8.509$, $p < 0.05$; females M = 3.07 vs. males M = 2.29) and thinking about the smartphone when not using it ($t = 2.496$, $p < 0.05$; females M = 2.06 vs. males M = 1.34), with females scoring higher on both. Comparison based on duration of smartphone usage (≥19 years vs. <19 years) showed a significant difference only for "Cannot give up smartphone use" ($t = 2.497$, $p < 0.05$), with younger respondents (<19 years) recording a higher mean (2.71 ± 1.54) than older respondents (2.28 ± 1.38), suggesting comparatively weaker self-regulatory control among younger users.

Daily Screen-Time Pattern

Mean daily screen time ranged from 283.10 minutes on Wednesday to 314.64 minutes on Saturday, with Friday, Saturday and Sunday recording the highest means, indicating greater screen engagement over the weekend compared to a mid-week dip. Gender did not significantly influence screen time on any day, although males recorded numerically higher means on Monday, Saturday and Sunday. Duration of smartphone usage significantly influenced screen time early in the week, with the less than 19 years age group recording significantly higher screen time on Monday, Tuesday and Wednesday ($p < 0.05$).

Table 4. Descriptive Statistics of Daily Screen Time (in Minutes)

Day	Mean	SD
Monday	307.69	167.51
Tuesday	299.04	167.53
Wednesday	283.10	151.40
Thursday	295.34	145.52
Friday	309.72	145.24
Saturday	314.64	163.39
Sunday	311.76	156.88

Frequently Used Mobile Applications

Analysis of application-use responses indicated that WhatsApp, Instagram, YouTube, Snapchat, Facebook, Telegram and educational applications were the most frequently reported applications among respondents. The predominance of social networking and instant-messaging applications supports the view that social media is a major contributor to habitual smartphone checking and extended screen time, through features such as notifications, endless scrolling and instant messaging that continuously prompt re-engagement.

Conclusion

The present study revealed that undergraduate students demonstrated moderate-to-high behavioural dependency on smartphones, characterized mainly by frequent checking behaviour and prolonged usage beyond intended duration, while emotional and cognitive preoccupation with the device were comparatively less pronounced. Consistently high screen time throughout the week, particularly during weekends, indicates a growing reliance on smartphones among adolescents. Gender and duration-of-usage differences were confined to only a few specific indicators, suggesting that smartphone dependency in this population is widespread rather than concentrated in specific subgroups. The findings underscore the need for promoting digital wellness awareness, encouraging responsible screen-time management and implementing educational interventions that foster healthy smartphone usage practices to minimize the physical, psychological and academic consequences of excessive smartphone use among college students.

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