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Effects of Smartphone Usage on Mental Health Among Students

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Abstract: ***This paper examines the impact of smartphone use on the mental health of students. A structured questionnaire distributed via Google Forms was completed by 42 undergraduate and postgraduate students. The study evaluated five key variables: stress, anxiety, sleep disturbance, concentration, and academic performance. Results indicate that 61.9% of students use their phones for more than four hours daily, 66.7% reported stress due to excessive phone use, and 57.1% reported disrupted sleep. Most students also acknowledged a negative impact on their academic performance. The findings establish a clear association between smartphone overuse and mental health issues among students. Practical recommendations are proposed for students and institutions.***

Keywords—smartphone usage, mental health, students, stress, anxiety, sleep disturbance, academic performance, digital well-being.

I. INTRODUCTION

Smartphone use has become an inseparable part of student life in contemporary India. Students rely on their devices for a wide range of activities, including communication, social media, video streaming, online learning, and academic research. As mobile internet has grown increasingly affordable and accessible across the country, smartphone penetration among college students has reached near-universal levels. While these devices offer undeniable academic and social utility, their excessive use is increasingly associated with negative outcomes. Students who spend extended hours on social media, consume video content late at night, or compulsively check their phones during study sessions are exposing themselves to elevated levels of stress, disrupted sleep, reduced concentration, and declining academic performance. It is not an Indian problem alone - researchers all over the world have been reporting about this problem over the years [1], [2], [3], [4], [8]. The importance of this study is that it examines first-hand responses of real students and documents the severity of the issue within the Indian academic context. A structured questionnaire was completed by 42 students across various programmes, with the aim of producing findings that are actionable for students, educators, and institutions alike.

II. LITERATURE REVIEW

The association between smartphone use and the mental health of students has been examined from various perspectives. The theoretical foundation of this paper draws on four key works.

A. iGen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy — and Completely Unprepared for Adulthood (Twenge, 2017) [1]

Twenge [1] analysed generational mental health data and found that rates of sadness, loneliness, and depression among teenagers and young adults rose sharply from around 2012 onwards, a period that aligns closely with the mass adoption of smartphones. Students who spent more hours on screens, particularly social media, were more likely to report feeling unhappy compared to peers engaged in physical or face-to-face activities. Her work highlighted the emotional cost of always-on digital connectivity.

B. Conceptual Issues Surrounding the Characterization of Smartphone Addiction: A Review and Commentary (Griffiths, 2018) [2]

Griffiths [2] examined the addictive potential of smartphones and found that for many users, smartphones can become addictive in a manner similar to other behavioural addictions. Warning signs include loss of control over usage time, inability to relax without the device, compulsive checking, and disruption to sleep, studying, and relationships. His model helps differentiate between heavy habitual use and clinically significant dependency.

C. iDisorder: Understanding Our Obsession with Technology and Overcoming Its Hold on Us (Rosen, 2013) [3]

Rosen [3] coined the term iDisorder to describe the development of psychological symptoms — including anxiety, attention deficits, and compulsive checking — through excessive device use.

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His experiments showed that students who checked their phones while studying retained less material and scored lower on tests. He also identified phantom vibration syndrome, the false perception that one's phone is vibrating when it is not, as an indicator of serious psychological dependency.

D. Hooked on Smartphones: An Exploratory Study on Smartphone Overuse Among College Students (Lee et al., 2014) [4]

Lee et al. [4] found that smartphone use within one hour of bedtime significantly delays sleep onset, reduces overall sleep duration, and diminishes sleep quality. Exposure to screen light inhibits the natural secretion of melatonin, while engaging digital content prolongs mental alertness at a time when the body requires rest. The downstream effects — reduced concentration, mood instability, and poor academic performance — are directly relevant to the present study.

III. PROBLEM STATEMENT

Although many students know the dangers of high smartphone use, most of them spend five to six or more hours a day on their smartphones, even when they are studying and even right before bedtime. These behaviours are increasingly reflected in deteriorating sleep quality, reduced concentration, and compromised mental well-being. Most of the current studies on this topic are of a Western nature. Localized data of Indian students is lacking which can unambiguously measure these effects. In this research, the direct survey answers were used in studying five domains, namely: stress, anxiety, sleep disturbance, concentration, and academic performance, in the Indian higher education context, among 42 students.

IV. RESEARCH OBJECTIVES

This study was guided by the following objectives: (1) to identify daily smartphone usage patterns, including hours of use and primary activities; (2) to assess whether smartphone use is associated with stress and anxiety among students; (3) to examine how pre-sleep phone habits affect sleep quality; (4) to evaluate the impact of smartphone use during study time on concentration and academic performance; (5) to measure student awareness levels regarding the mental health effects of smartphone overuse; and (6) to suggest practical corrective measures for students and institutions.

V. RESEARCH METHODOLOGY

A. Research Design

This research employs a descriptive survey design. The aim was not to experiment but to capture student responses and document the current state of smartphone behaviour and its association with mental health. A structured questionnaire was designed and administered via Google Forms.

B. Participant Profile

Forty-two students participated in the survey. The demographic profile is provided in Table I. Male respondents made up 71.4% (n=30) and female respondents 26.2% (n=11). The largest age group was 18–20 years (45.2%, n=19), followed by 21–23 years (26.2%, n=11). The participants were enrolled in various programmes including MCA, BCA, B.Tech, BSc, BA, BBA, and BCom.

TABLE I. Demographic Profile of Respondents (N = 42)

Variable	Category	n	%
Gender	Male	30	71.4
	Female	11	26.2
	Pref. not to say	1	2.4
Age Group	Below 18	4	9.5
	18–20 years	19	45.2
	21–23 years	11	26.2
	Above 23	8	19.0

C. Data Collection Instrument

The questionnaire had two parts. Part one captured demographic information and usage patterns. Part two used a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to measure nine items covering: distraction from studies, frequency of phone checking during study time, spending more time than planned, discomfort without the phone, concentration disruption, stress from prolonged use, sleep disruption, anxiety without the phone, and academic performance impact. All statistical values in this paper are derived directly from the survey data. The study acknowledges limitations including small sample size and convenience sampling.

VI. RESULTS AND ANALYSIS

A. Daily Smartphone Usage Patterns

The distribution of daily usage is shown in Fig. 1. The largest group, 38.1% (n=16), reported using their phone for more than six hours daily. Another 23.8% (n=10) said four to six hours, 31.0% (n=13) said two to four hours, and only 7.1% (n=3) said less than two hours. In total, 61.9% of students use their phones for more than four hours every day.

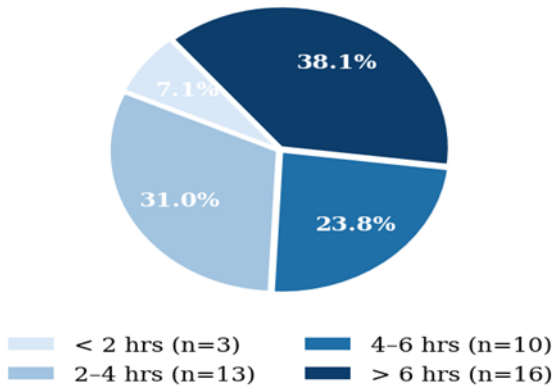


Fig. 1. Daily Smartphone Usage Distribution (N = 42).

Social media platforms like Instagram and WhatsApp were the most common activity, cited by 73.8% of students, followed by entertainment such as YouTube and OTT apps (59.5%), communication (50%), study-related use (40.5%), and gaming (26.2%). On contextual use: 50% always use the phone during study time and 19% often do — meaning 69% are regularly on the phone during time reserved for studying. For pre-sleep use, 57.1% always use the phone before bed and 23.8% often do, giving a combined rate of 80.9%. The full breakdown is in Table II.

TABLE II. Smartphone **Usage Patterns (N = 42)**

Indicator	Category	n	%
Daily hours	< 2 hours	3	7.1
	2–4 hours	13	31.0
	4–6 hours	10	23.8
	> 6 hours	16	38.1
During study	Always	21	50.0
	Often	8	19.0
	Sometimes	8	19.0
	Never	5	11.9
Before sleep	Always	24	57.1

Indicator	Category	n	%
	Often	10	23.8
	Sometimes	4	9.5
	Never	4	9.5

B. Stress

The highest mean score across all nine variables was 3.95 out of 5, recorded for the statement "I feel stressed after prolonged smartphone usage." Fig. 2 shows that 40.5% of students rated it 5 (Strongly Agree) and 26.2% rated it 4 (Agree), yielding a combined agreement rate of 66.7% (n = 28). Only one student strongly disagreed. This is consistent with prior studies identifying a relationship between social media use and notification overload with psychological stress [2], [6].

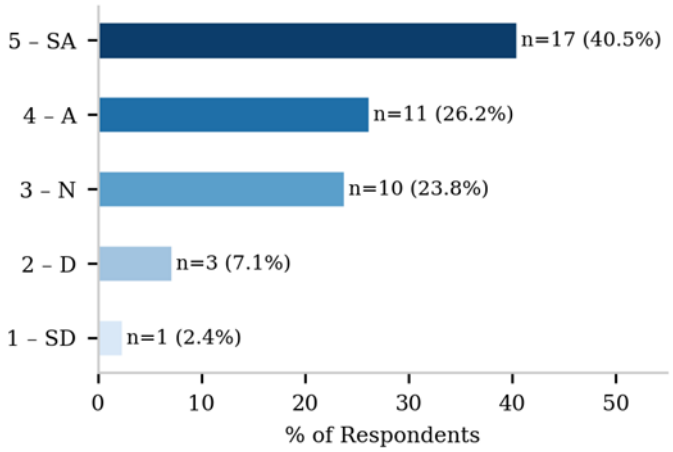


Fig. 2. Stress After Prolonged Smartphone Use — Likert Distribution (N = 42).

C. Academic Performance

An identical mean score of M = 3.95 was recorded for "Excessive smartphone use negatively impacts my academic performance." Fig. 3 shows 42.9% (n = 18) strongly agreed and 21.4% (n = 9) agreed — a combined 64.3%. Only three students disagreed in any respect. It is noteworthy that students themselves acknowledge this academic impact, which corroborates prior findings on phone-induced distraction reducing learning quality [3], [7].

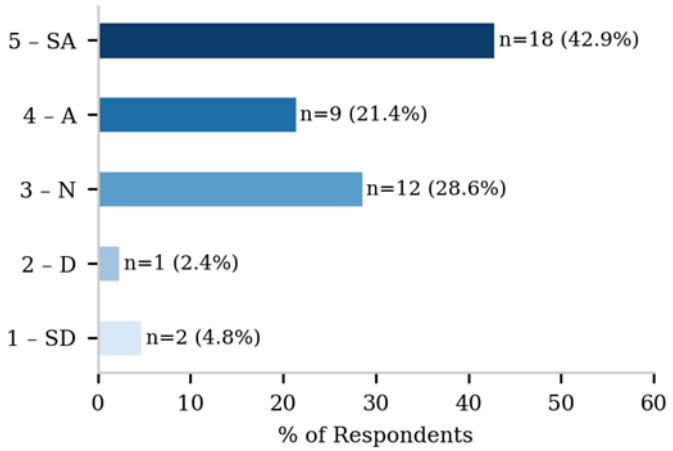


Fig. 3. Academic Performance Negatively Affected by Smartphone Overuse (N = 42).

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D. Concentration and Distraction

A mean score of M = 3.71 was recorded for "Smartphone use negatively influences my academic performance" (Fig. 4), with 59.5% of respondents in agreement. The statement "I feel distracted when studying because of smartphone use" yielded the same agreement rate (M = 3.69). Additionally, 64.3% of students reported frequently checking their phones during class or study time (M = 3.67). These results indicate a widespread pattern of attention disruption in academic settings, consistent with the cognitive disruption model proposed by Rosen [3].

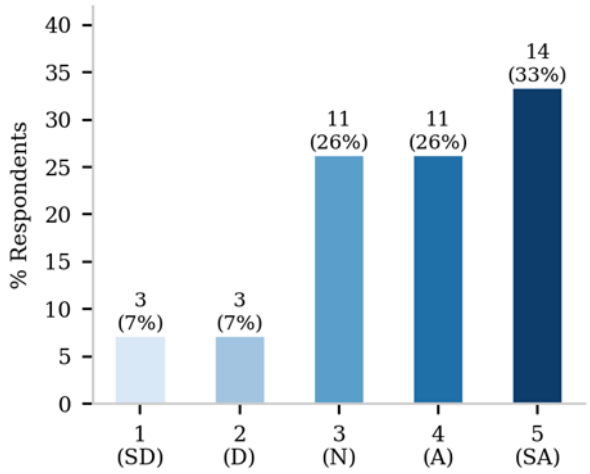


Fig. 4. Concentration Disruption During Studies — Likert Distribution (N = 42).

E. Sleep Disturbance

"Smartphone usage affects my sleep schedule" recorded M = 3.62, with 57.1% agreeing or strongly agreeing (Fig. 5). Within this group, 33.3% of all respondents selected 5 (Strongly Agree). This finding is directly tied to the behavioural data: 80.9% of students use their phones always or often before sleeping. These results are directly consistent with the mechanisms identified by Lee et al. [4], whereby screen exposure before sleep suppresses melatonin and sustains cognitive alertness, thereby disrupting natural sleep onset.

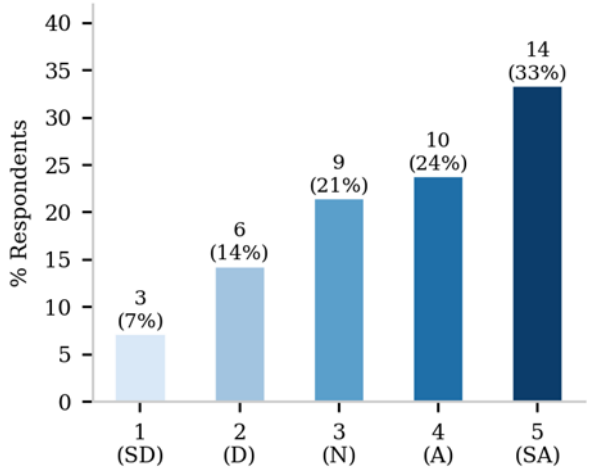


Fig. 5. Sleep Schedule Disruption — Likert Distribution (N = 42).

F. Nomophobia and Smartphone Dependency

"I feel anxious when I am not using my smartphone" was agreed upon by 50.0% (n = 21, M = 3.29). Discomfort without the phone was associated with the item that received 47.6% (n = 20, M = 3.38) agreement. Although they are the lowest scores out of the nine variables, the fact that almost half of the respondents feel uncomfortable or anxious when they are not attached to their device is a significant indicator of the developing dependency [2], [5].

G. Awareness Versus Behaviour

75% of respondents strongly agreed they were aware that smartphone overuse negatively impacts mental health. However, only 64.3% (n = 27) had ever attempted to reduce their usage. On whether restricting phone use would positively impact academic performance, 47.6% responded yes, 28.6% responded maybe, and 23.8% responded no. The combined 76.2% affirmative-or-uncertain response indicates that most students believe reduction would help, yet a substantial proportion do not act on this belief. This awareness–behaviour gap is consistent with patterns observed in digital health research [5], [6].

TABLE III. Summary of Likert-Scale Results (N = 42)

Statement	Mean	Agree (n)	%
Stress after prolonged use	3.95	28	66.7
Academic performance affected	3.95	27	64.3
Checks phone during study	3.67	27	64.3
Concentration disrupted	3.71	25	59.5
Distracted from studies	3.69	25	59.5
Sleep schedule disturbed	3.62	24	57.1
Spends more time than planned	3.50	21	50.0
Anxious without phone	3.29	21	50.0
Uncomfortable without phone	3.38	20	47.6

Mean is on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree). "Agree" = ratings of 4 or 5.

VII. DISCUSSION

All findings point in the same direction: smartphone overuse is associated with stress, sleep disturbances, reduced concentration, and poor academic performance among Indian students. These findings are consistent with the broader international literature [1], [2], [3], [4] and contribute locally grounded quantitative evidence from an Indian sample.

Of clear interest is the awareness–behaviour gap. This study demonstrates that awareness alone is insufficient to drive behaviour change: only 64.3% had attempted to reduce usage despite 92.9% being aware of the risks. This is consistent with patterns documented in digital health behaviour research [5], [6], which indicate that structural support — such as institution-driven initiatives or app-based intervention tools — must complement awareness campaigns.

Of particular concern is the pre-sleep phone use pattern (80.9% always or often). Together with the sleep disturbance result (57.1%), this supports the mechanism documented by Lee et al. [4] and indicates that sleep hygiene education should be a core component of any digital well-being programme targeting students.

The small sample size of 42 students, convenience sampling, and use of self-reported data are some of the study limitations. These restrict generalizability. The next generation of study will involve bigger and stratified samples and longitudinal designs to monitor the changes with time.

VIII. SUGGESTIONS

Based on the findings, the following measures are recommended. To minimise distractions, students should designate phone-free study periods and utilise built-in screen time controls or focus mode applications. Students should avoid smartphone use for at least 30 minutes before sleeping, allowing the brain to transition into rest. Institutions should integrate digital well-being training into regular student programmes, with an emphasis on sustained skill-building rather than one-off awareness sessions. Students are encouraged to replace passive scrolling with intentional physical or social activities.

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Faculty can contribute to this by upholding phone-free classroom standards. Students with serious mental health issues related to the phone must be referred to counselling services in the institution.

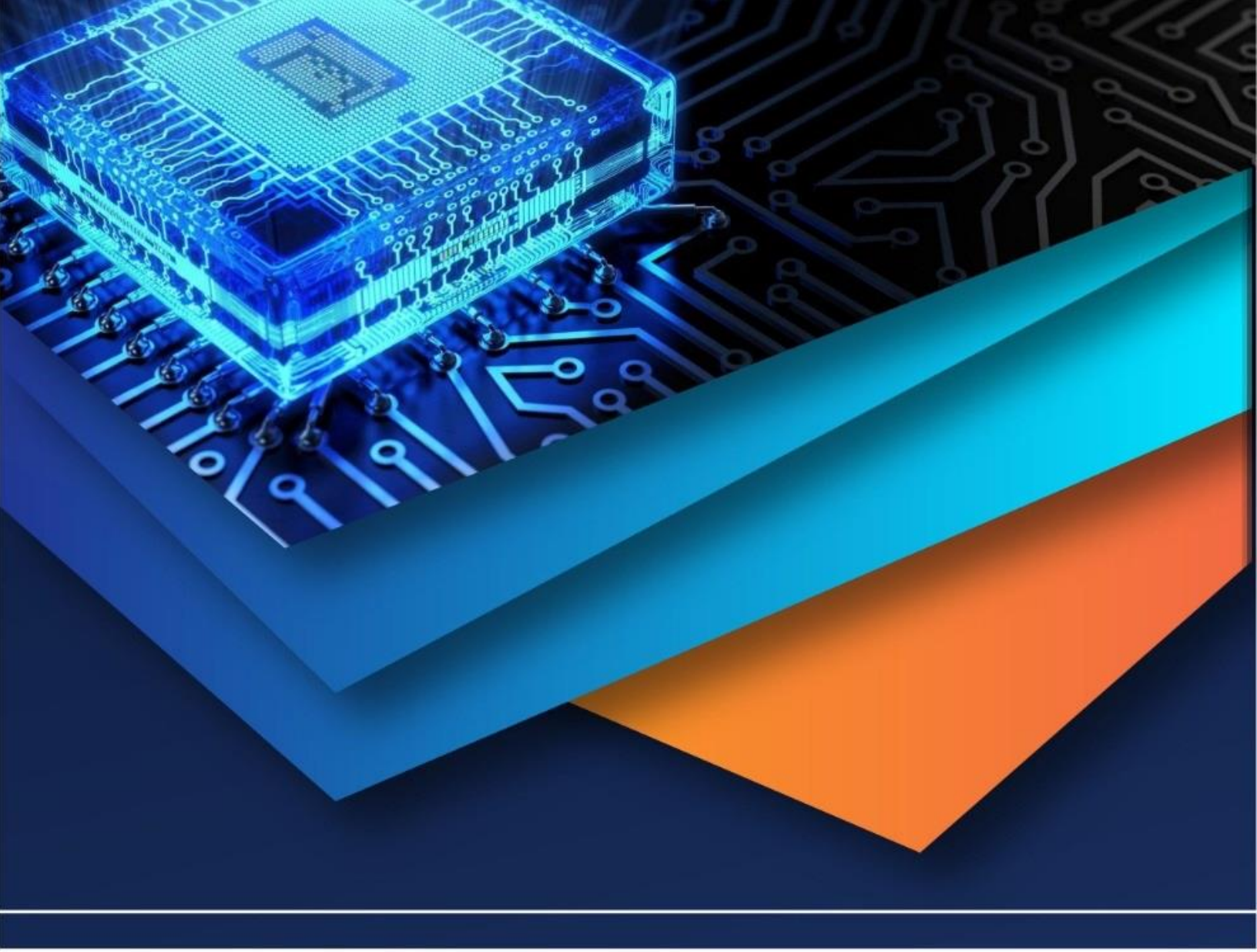
IX. CONCLUSION

This study examined the influence of smartphones on the mental health and academic performance of 42 students across various programmes. The data consistently indicate that high smartphone use is associated with elevated stress, sleep disturbance, reduced concentration, and self-reported academic decline. Stress and academic impact emerged as the most significant concerns, with nearly two-thirds of respondents endorsing each. The awareness–behaviour gap — where almost everyone acknowledges the harm but many fail to act — underscores the need for institutional support beyond awareness campaigns alone. Smartphones are valuable tools, but their unregulated use — particularly during study time and before sleep — poses real risks. With the adoption of healthy usage habits and adequate institutional support, students can benefit from their devices without compromising their health or academic development. Future research with larger, stratified samples and longitudinal designs is required to track the development of these patterns and evaluate the effectiveness of intervention strategies.

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