

Original Article

Assessing the Effects of Mobile Device Usage on Academic Performance, Sleep Quality, and Lifestyle Habits of College Students in Kudal District, Sindhudurg

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Abstract

This study explores mobile device use among 200 students aged 18-21 at Sant Rawool Maharaj Mahavidyalaya, Kudal, Sindhudurg, from June 2023 to May 2024. Students average 4-6 hours daily, mainly during the day and late evening. Excessive use is linked to lower academic performance, poor concentration, sleep disruption, and health issues like headaches and eye strain. Unhealthy habits such as fast food and sedentary routines worsen health. The study calls for awareness and behavioral changes to improve students' health and academic success.

Keywords: Mobile, academic performance, sleep, health, students, Sindhudurg.**Introduction**

The advent of smartphones, tablets, and other portable digital gadgets has revolutionized how young adults communicate, learn, and entertain themselves. As of 2023, mobile devices are integral to daily life, especially among university students, who utilize these gadgets for academic purposes, social interaction, entertainment, and information gathering. However, the rapid increase in reliance on these devices has prompted researchers and health professionals to examine potential negative consequences. Young adulthood is a critical period characterized by significant physical, psychological, and social development. Excessive exposure to screens during this phase can interfere with natural sleep cycles, impair cognitive functions, and lead to unhealthy lifestyle choices. Studies indicate that high screen time is associated with decreased attention span, poor academic scores, sleep disturbances, and mental health issues such as anxiety and depression (Lepp et al., 2014; Turel et al., 2018). In the context of Kudal District, Sindhudurg, anecdotal observations suggest that students devote considerable time to mobile devices, often at the expense of their studies and health. This study aims to systematically evaluate these patterns, understand their implications, and recommend strategies to mitigate adverse effects.

Research Objectives:

1. To quantify the daily mobile device usage among university students.
2. To assess the impact of mobile usage on academic performance.
3. To explore the relationship between screen time and sleep patterns.
4. To evaluate the health and lifestyle implications of excessive device use.
5. To propose intervention strategies for healthier habits.

Literature Review

The correlation between mobile device usage and various aspects of student health and academic performance has been extensively studied in recent years.

1 Mobile Usage and Academic Performance

Excessive screen time can impair cognitive functions such as attention, memory, and executive functioning, which are essential for academic success (Cain & Gradisar, 2010). A study by Lepp et al. (2014) observed that students who spent more than 3 hours daily on their phones had significantly lower GPA scores compared to peers with less usage. Distractions caused by

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notifications, social media, and entertainment applications can reduce study efficiency, leading to poorer academic outcomes.

2 Impact on Sleep Patterns

Blue light emitted from screens inhibits melatonin production, delaying sleep onset and reducing sleep duration (Harvard Medical School, 2012). Sleep deprivation among students affects concentration, memory consolidation, and overall mental health (Levenson et al., 2017). A survey by Turel et al. (2018) found that students engaging in late-night device use reported higher levels of fatigue and decreased academic engagement.

3 Physical and Psychological Health

Prolonged device use is linked to physical ailments such as eye strain, headaches, neck pain, and musculoskeletal issues (Rosenfield, 2011). Psychologically, excessive social media and gaming contribute to anxiety and depression (Kuss & Griffiths, 2017). Sedentary lifestyles compounded by device dependence also elevate risks for obesity and related health conditions.

4 Lifestyle and Behavioural Patterns

Studies highlight that heavy device use often correlates with unhealthy dietary habits, such as fast-food consumption, and reduced physical activity (Turel et al., 2018). The social influence of peer groups and digital trends further reinforce dependency, often at the expense of personal health and academic sincerity.

Despite these insights, there remains a regional gap in research focusing on Indian university students, particularly within rural and semi-urban contexts like Sindhudurg. This study seeks to fill that gap by providing localized data and tailored recommendations.

Methodology

1 Study Area and Population

The research was conducted at Sant Rawool Maharaj Mahavidyalaya in Kudal, Sindhudurg district, Maharashtra. The college serves students from diverse socio-economic backgrounds, primarily from rural and semi-urban communities.

2 Sample Size and Selection

A random sampling technique was employed to select 200 students aged between 18 and 21 years. Participants represented various faculties, ensuring a balanced demographic distribution.

3 Data Collection Instruments

Data collection involved multiple methods:

- **Structured Questionnaires:** Designed to gather quantitative data on daily mobile usage, sleep habits, dietary preferences, physical activity, and lifestyle behaviors.
- **Academic Records:** Retrieval of students' recent test scores and attendance records to evaluate academic impact.
- **Interviews and Focus Group Discussions:** Facilitated qualitative insights into students' perceptions, motivations, and behavioral patterns regarding device use.
- **Observation:** Researchers observed students' engagement during classroom sessions and social interactions.

4 Data Analysis

Quantitative data were processed using statistical software (SPSS), applying descriptive statistics, correlation analysis, and regression models to identify relationships between variables such as screen time, academic scores, and sleep duration.

Results

1 Mobile Device Usage Patterns

Analysis revealed that students spent an average of **4 to 6 hours daily** on mobile devices, with some reporting up to 8 hours during weekends. The usage was predominantly during daytime, with peak hours between 6 pm and 11 pm. Many students reported using their phones late into the night, often past midnight, which disrupted their sleep routines.

2 Academic Performance and Concentration

Students with higher mobile usage exhibited a noticeable decline in academic performance. The average GPA of students spending more than 5 hours daily on mobile devices was **0.8 points lower** than peers with less than 2 hours of usage. Classroom observations indicated decreased attention spans, frequent distractions, and reduced participation among high-usage students.

Correlation analysis showed a **significant negative relationship** ($r = -0.65, p < 0.01$) between daily screen time and academic scores. Regression models suggested that every additional hour spent on mobile devices predicted a decrease of approximately 0.15 points in GPA.

3 Sleep Patterns and Health

Most students reported sleeping after midnight, with **only 20%** achieving the recommended 7-8 hours of sleep. The average sleep duration among high mobile users was **less than 6 hours**. Many students experienced symptoms such as headaches, eye strain, neck pain, and fatigue.

Sleep quality was assessed using standardized questionnaires, revealing that students with late-night device use experienced poorer sleep quality and higher daytime drowsiness. These factors contributed to decreased concentration and motivation in academic pursuits.

4 Lifestyle and Psychological Well-being

Dietary analysis indicated a preference for fast foods like burgers, fries, and fried snacks, often consumed during late-night sessions. Physical activity levels were low, with most students engaging in less than 30 minutes of exercise per week.

Qualitative data revealed that students felt less enthusiastic and cheerful, attributing their mood to sleep deprivation and unhealthy lifestyle habits. Peer influence and social media trends played significant roles in fostering gadget dependency.

Discussion

The findings underscore a compelling association between extensive mobile device use and adverse academic, health, and lifestyle outcomes among university students in Kudal.

1 Impact on Academic Performance

The negative correlation between screen time and GPA aligns with previous research (Cain & Gradisar, 2010; Lepp et al., 2014). Distractions from social media, gaming, and entertainment apps reduce study focus, while sleep deprivation further impairs cognitive functions necessary for learning and memory consolidation.

2 Sleep Disruption and Health Consequences

Prolonged exposure to blue light emitted from screens suppresses melatonin, delaying sleep onset (Harvard Medical School, 2012). Students often sacrifice sleep time to engage with their devices, leading to sleep deprivation, which affects attention, mood, and immune function. The physical complaints observed—headaches, eye strain, and neck pain—are consistent with sedentary behavior and poor ergonomic habits (Rosenfield, 2011).

3 Lifestyle and Mental Health

Unhealthy dietary patterns and sedentary lifestyles exacerbate physical health risks. The tendency to prefer fast foods and reduce physical activity increases vulnerability to obesity, cardiovascular issues, and metabolic disorders. Psychologically, dependency on gadgets and social media can lead to anxiety, depression, and social withdrawal, as highlighted in recent studies (Turel et al., 2018; Kuss & Griffiths, 2017).

4 Regional and Cultural Context

In the rural and semi-urban setting of Sindhudurg, limited awareness about healthy device use and lifestyle habits amplifies these issues. Societal norms, peer influence, and easy access to affordable smartphones contribute to high usage levels.

Conclusions

This study demonstrates that excessive mobile device usage among university students in Kudal significantly hampers academic performance, disturbs sleep patterns, and deteriorates health and lifestyle quality. The interplay of these factors fosters a cycle of fatigue, reduced motivation, and declining well-being, which can have long-term consequences if unaddressed.

The findings emphasize the urgent need for educational institutions, parents, and policymakers to collaborate in promoting responsible device usage, healthy lifestyle choices, and sleep hygiene.

Recommendations:

1 Awareness & Education

- Run campaigns on screen time risks
- Include digital well-being in curricula
- Hold workshops on sleep, ergonomics, and healthy eating

2 Behavioural Interventions

- Encourage daily device limits
- Support peer groups for healthy habits

3 Infrastructure & Support

- Offer counselling for behavioural change
- Provide sports and activity facilities

4 Policy

- Restrict late-night device use during exams
- Monitor and guide students' digital habits

Future Research Directions

Further studies could explore longitudinal impacts of mobile usage on mental health, academic trajectories, and physical health. Investigating socio-economic and cultural factors influencing gadget dependency in rural Indian contexts will enrich understanding and inform tailored interventions.

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Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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