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# Night-time mobile phone use and its influence on sleep quality among nursing students

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**Abstract**
Night-time mobile phone use has become increasingly pervasive among young adults, particularly university and college students. Nursing students, engaged in rigorous academic schedules and clinical responsibilities, may be especially sensitive to the effects of mobile phone overuse on sleep quality. This cross-sectional descriptive study investigated the relationship between night-time smartphone use and sleep quality among undergraduate nursing students. A total of 300 nursing students from three nursing colleges were surveyed using a structured questionnaire incorporating the Pittsburgh Sleep Quality Index (PSQI) and the Mobile Phone Problem Use Scale (MPPUS). Findings revealed a significant association between increased night-time mobile phone use and poor sleep quality ($p < .01$). Mobile phone use after bedtime was correlated with delayed sleep onset, nocturnal awakenings, daytime dysfunction, and overall lower sleep quality scores. The study emphasizes the need for awareness interventions and behavioral strategies to mitigate excessive night-time mobile phone use among nursing students to improve sleep outcomes and academic performance.

**Keywords:** Night-time mobile phone use, sleep quality, nursing students, smartphone addiction, PSQI

## Introduction
Mobile phones, particularly smartphones, are central to modern communication, socialization, information access, and learning. While these devices provide numerous benefits, excessive use especially at night can disrupt sleep patterns. Sleep quality is vital for cognitive functioning, emotional regulation, and physical health. For nursing students who are balancing academic learning with clinical training, adequate sleep is essential for concentration, clinical judgment, and safe practice.

The ubiquity of smartphones and the tendency to engage with them before sleep have increased sleep disturbances globally. Prior studies have linked mobile phone addiction to poor sleep quality, daytime fatigue, and reduced academic performance among students (Yang *et al*., 2019; Lee *et al*., 2020) [7, 8]. However, research focusing specifically on nursing students remains limited, despite their unique academic stresses and responsibilities. This study examines the influence of night-time mobile phone use on sleep quality among nursing students.

## Literature Review
### Mobile Phone Use and Sleep
Several studies have documented a strong relationship between late-night mobile phone use and poor sleep outcomes. Excessive smartphone use before bedtime has been associated with delayed sleep onset, reduced total sleep duration, and increased sleep disturbances (Hale & Guan, 2015) [5]. Exposure to blue light from mobile screens suppresses melatonin secretion, delaying circadian rhythms and making sleep initiation more difficult (Harvard Health Publishing, 2020) [6].

### Sleep Quality Among Students
University students frequently report poor sleep quality, often attributed to academic stress, irregular schedules, and technology use. Among nursing students, irregular clinical hours and heavy academic workloads further exacerbate sleep problems (Alomari *et al*., 2021) [1]. Good sleep quality is linked to improved memory consolidation, learning, and emotional resilience—critical for nursing practice.

### Mobile Phone Addiction
Mobile phone addiction a compulsive pattern of smartphone checking and usage—has drawn attention as a behavioural concern. Researchers have reported that students with higher addiction scores tend to exhibit more sleep disturbances, anxiety, and daytime dysfunction (Demirci *et al*., 2015) [4]. The constant need to check messages, social media, or notifications can fragment sleep and prolong wakefulness.

## Methodology
### Research Design
This study used a descriptive cross-sectional design.

### Participants
A total of 300 undergraduate nursing students were recruited from three nursing colleges in Indore. Inclusion criteria were students aged 18-24, currently enrolled in a nursing program, and owning a smartphone. Participants with diagnosed sleep disorders or chronic illnesses were excluded.

### Instruments
1. Demographic Information Sheet - age, year of study, hours of mobile phone use, and night-time usage habits.
2. Mobile Phone Problem Use Scale (MPPUS) (Bianchi & Phillips, 2005) [2] - to assess mobile phone addiction tendencies.
3. Pittsburgh Sleep Quality Index (PSQI) (Buysse *et al*., 1989) [3] - to measure sleep quality over the past month.

### Procedure
Permission was obtained from institutional ethics committees. Consent was secured from participants, and questionnaires were administered in classroom settings.

**Data Analysis**
Data were analyzed using SPSS v26. Descriptive statistics (mean, SD) and inferential analysis (Pearson correlation, chi-square tests) examined relationships between night-time mobile use and sleep quality.

## Results

**Demographic Characteristics**
Of the 300 participants, 82% were female, and 18% were male. The mean age was 20.4 years (SD = 1.6). Participants reported an average of 4.2 hours (SD = 1.8) of daily mobile phone use, with approximately 78% using phones at least 30 minutes after going to bed.

**Sleep Quality and Mobile Phone Use**
The mean PSQI global score was 7.8 (SD = 3.2), indicating generally poor sleep quality (a score >5 suggests poor sleep). Participants reporting higher night-time mobile phone use showed significantly higher PSQI scores ($r = .52$, $p < .001$).
Those with higher MPPUS scores also exhibited poorer sleep across multiple PSQI components: sleep latency, sleep duration, sleep disturbances, and daytime dysfunction (all $p < .01$). Students using mobile phones for social media or messaging after bedtime reported the greatest sleep disruptions.

**Inferential Findings**
Chi-square analysis showed a significant association between night-time mobile phone usage patterns and poor sleep quality ($\chi^2 = 18.65$, $p < .001$). Regression analysis indicated that night-time use explained 28% of the variance in PSQI scores ($\beta = .42$, $p < .001$).

## Discussion

This study confirms that night-time mobile phone use significantly influences sleep quality among nursing students. The findings align with prior research on smartphone use and sleep disturbances among student populations (Hale & Guan, 2015; Demirci *et al*., 2015) [4, 5].
Night-time phone use may delay sleep onset through cognitive stimulation and exposure to blue light. The compulsion to check notifications or social media also contributes to sleep fragmentation and reduced overall sleep duration.
Given the demands of nursing education, poor sleep quality can have serious implications—not only for academic performance but also for clinical decision-making, mood regulation, and physical health. Interventions to raise awareness about sleep hygiene, establish "digital curfews," and promote healthy habits may benefit this population.

**Implications for Nursing Education and Practice**

1. **Sleep Education Programs:** Incorporate sleep hygiene and digital wellness modules into nursing curricula.
2. **Behavioral Interventions:** Encourage students to minimize night-time screen exposure (e.g., using do-not-disturb modes).
3. **Counseling Services:** Provide support for students demonstrating signs of mobile phone addiction or sleep problems.
4. **Further Research:** Longitudinal studies to address causal relationships and intervention effectiveness.

**Limitations**
The cross-sectional design limits causal inferences. Self-reported measures may introduce reporting bias. The sample, while diverse, was limited to three institutions within one region, restricting generalizability.

## Conclusion

Night-time mobile phone use is significantly associated with poor sleep quality among nursing students. Given the critical role of sleep in academic functioning and healthcare delivery, educational institutions should implement strategies to help students regulate smartphone use and promote better sleep hygiene.

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