



# INFLUENCE OF MOBILE PHONES ON THE SLEEP PATTERN AMONG YOUNG ADULTS

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## ABSTRACT

Mobile phones have become indispensable in modern society, especially among young adults, who are the most frequent users. However, their increasing use has raised concerns about adverse effects on sleep patterns. Excessive mobile phone use before bedtime can delay sleep onset, shorten total sleep duration, and reduce sleep quality. Blue light emission from screens suppresses melatonin production, while late-night cognitive stimulation and social interactions disrupt circadian rhythms. Furthermore, frequent notifications and dependence on mobile devices contribute to fragmented sleep and daytime fatigue. Young adults, already vulnerable due to academic stress, social pressures, and lifestyle habits, are particularly at risk of developing insomnia, irregular sleep patterns, and poor mental health outcomes. Research indicates strong associations between mobile phone overuse at night and impaired academic performance, reduced concentration, and mood disturbances. This paper examines the influence of mobile phone use on the sleep patterns of young adults and emphasizes the need for awareness, preventive strategies, and healthier digital habits.

**Keywords:** Sleep pattern, Mobile phones, Blue light, Young adults

## INTRODUCTION

Sleep is a state of rest, where the mental and physical activity was reduced and is essential for the body to function properly. Scientifically, sleep has two stages that acts as two phases of a cycle and includes REM

(Rapid Eye Movement) and NREM (Non-Rapid Eye Movement) sleep. Brain cell or neuronal activities varies in both of these stages. A person's metabolism, normal mental as well as physical functioning requires quality sleep. Quality sleep can be defined on the basis of how easily fall asleep and how much time stays asleep. When quality of sleep reduces, it may leads to insomnia and related health conditions.

Young adults require 7 hours or more sleep per night. Sleeping less than 7 hours per night for a continuous manner can adversely affect health and cause hypertension, stroke, obesity, reduced immunity and other cardiac issues. The United States of Census Bureau, defines young adults as those having ages from 18-34. The effects of sleep were same for men and women. Young adults are the healthiest age category and requires much sleep for better strength and physical activity.

Smart phones become irreplaceable and inevitable in these days and it has many deteriorating effects on sleep quality. Since cell phone screen exposure leads to radiofrequency electromagnetic field exposure (RF-EMF). Smart phone screen emits blue light that was in short wavelength region (380 nm to 495 nm) and this light is found to suppress the melatonin hormone that regulates the sleep wake cycle. Thus, a delay in circadian rhythm is found by the use of cell phones near to bedtime.

Eventually, the smart phone addiction can lead to insomnia, a chronic sleep deprivation. Not only that, it may disturb drastically the mental as well as physical well being of a human. Various physical conditions such as glucose intolerance, obesity and other metabolic syndromes happens as a result. More than that, it impairs the cognitive functions of the brain leading to depression, anxiety and stress. Therefore, it is necessary to maintain a good quality sleep in order to keep the mental and physical health in a balancing state.

## LITERATURE REVIEW

*Safa Hyder et al*, **Effect of Smartphone usage during Night Time on Sleep Patterns of Young Adults: A Cross-sectional Observational Study**, Journal of Clinical and Diagnostic Research 10.7860/JCDR/2024/66874.19291 conducted a cross-sectional observational study and the result obtained was Among those who used smartphones regularly at night time, 20 participants (66.67%) had PSQI score >5 and poor sleep quality, 24 participants (80%) had prolonged sleep latency, 18 participants (60%) had poor sleep duration, 27 participants (90%) had sleep disturbances, and 22 participants (73.33%) had increased daytime dysfunction. Hypnogram abnormalities were seen in >15 participants (50%) of subjects.

*Asmaa Abdelghany Elsheikh et al*, **Impact of smartphone use at bedtime on sleep quality and academic activities among medical students at Al -Azhar University at Cairo**, Journal of Public Health 32, 2091–2100 (2024). <https://doi.org/10.1007/s10389-023-01964-8> conducted a cross-sectional study included 1184 male and female undergraduate medical students at Al-Azhar University in Cairo and data was collected using self structured questionnaire. The result obtained was bedtime smartphone use was highly prevalent (96.5 %), with nearly half (46.9%) of studied medical students using them for more than 2 hours. Social media was at the top of the usage list (74.2%), followed by communication (48.8%). Smartphone users at bedtime had a significantly higher prevalence of poor sleep quality, increased sleep latency, difficulty in maintaining sleep, and shorter sleep duration compared to non-user (p-value<0.05).

*Sanjeev Sinha et al*, **A study on the effect of mobile phone use on sleep**, Indian Journal of Medical Research 155(3-4):380-386 doi:10.4103/ijmr.ijmr\_2221\_21 conducted at two tertiary care hospitals at North India. Sleep quality was assessed with the help of the Pittsburgh Sleep Quality Index (PSQI) questionnaire. The result obtained was of the 566 participants, 128 (22.61%) had PSQI  $\geq 5$ , reflecting poor sleep quality. A higher use of mobile phone was significantly associated with a poor sleep quality as a component of PSQI questionnaire ( $P=0.01$ ) and higher overall PSQI score ( $P=0.01$ ).

## MATERIALS AND METHODS

The study was conducted among young adults aged 18-34 years in South Kerala.

### EXPERIMENTAL DESIGN

The study was a Knowledge, Aptitude and Practices (KAP) approach, which was carried out for a period of 1 month. The study included participants aged 18-34 years.

### SAMPLE SIZE

The sample size of the cross-sectional study is calculated by the following formula

$$\text{Sample Size } n = \frac{Z_{\alpha}^2 (1-P)}{d^2}$$

Where:

$Z_{\alpha}$  – The standard normal variate with  $\alpha\%$  level of significance

P- Estimated proportion of the characters

d- Precision or margin of errors.

The required sample size is estimated as 100.

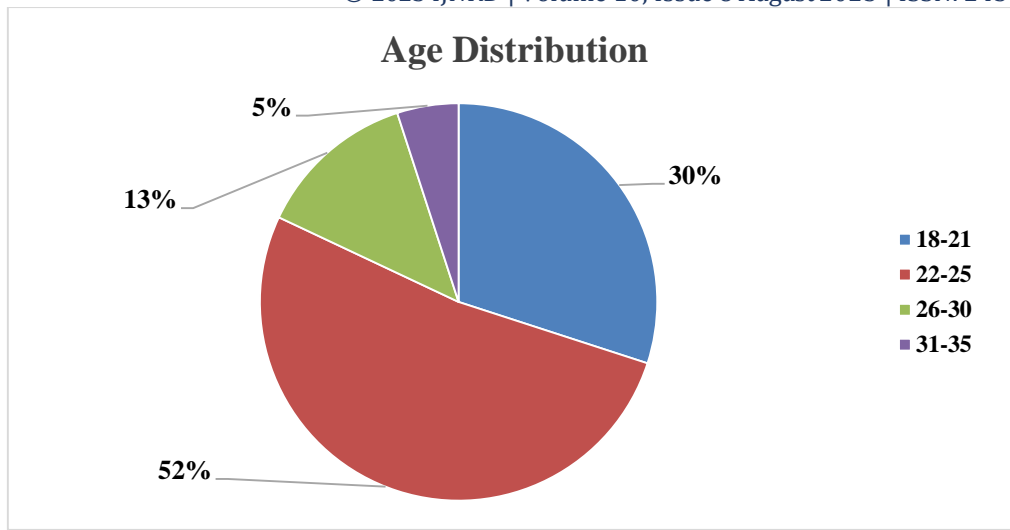
**STUDY VARIABLES:** Gender, sleep quality, screen time

**STUDY TOOL:** Self structured questionnaire

## RESULTS AND DISCUSSIONS

Total number of participants: 100

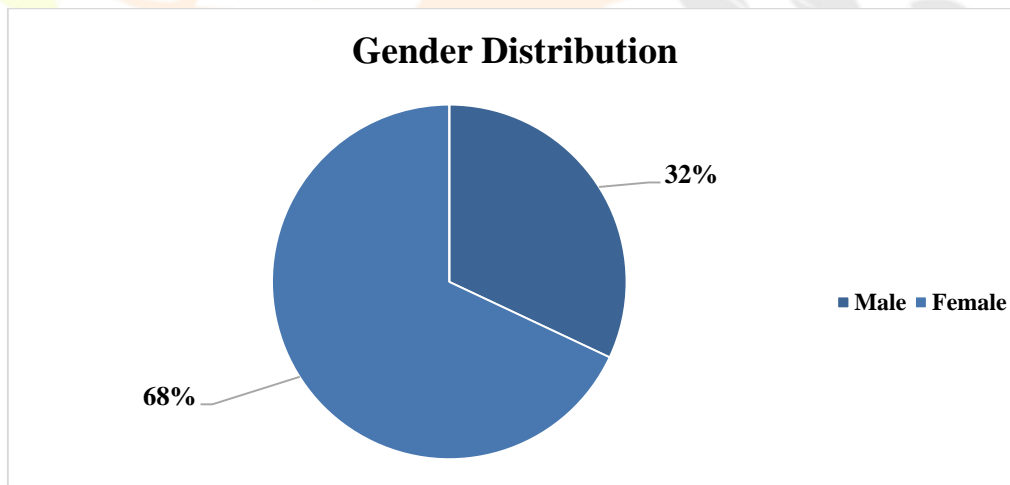
### AGE WISE DISTRIBUTION

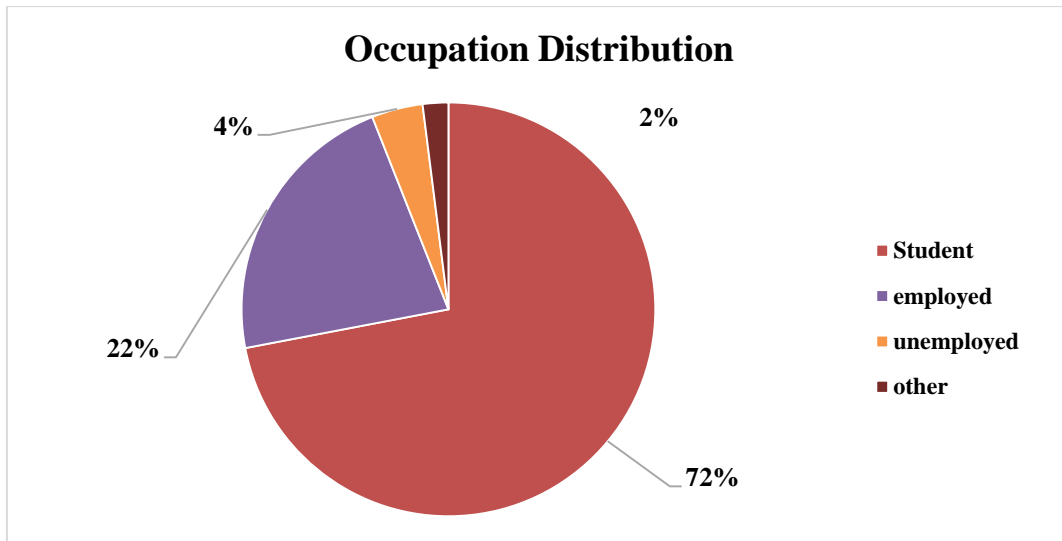


The chart shows the spread of respondents across age groups, highlighting the predominance of young adults. This suggests that mobile phone usage and sleep patterns were mainly studied within a younger demographic, making the findings particularly relevant to lifestyles, habits, and health outcomes in early adulthood.

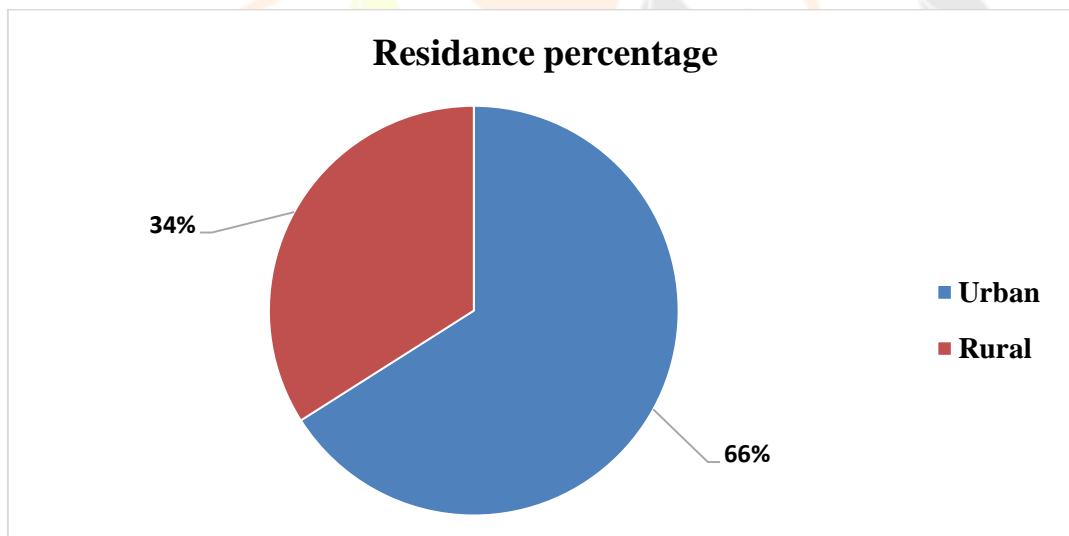
**GENDER DISTRIBUTION**

The chart reflects the proportion of male and female participants. Balanced representation indicates inclusivity, whereas skewed distribution may influence findings by emphasizing trends in one gender. Understanding gender ratios helps assess whether sleep and phone use behaviors are more strongly associated with males, females, or equally distributed. In this study, female participants are more than that of males.



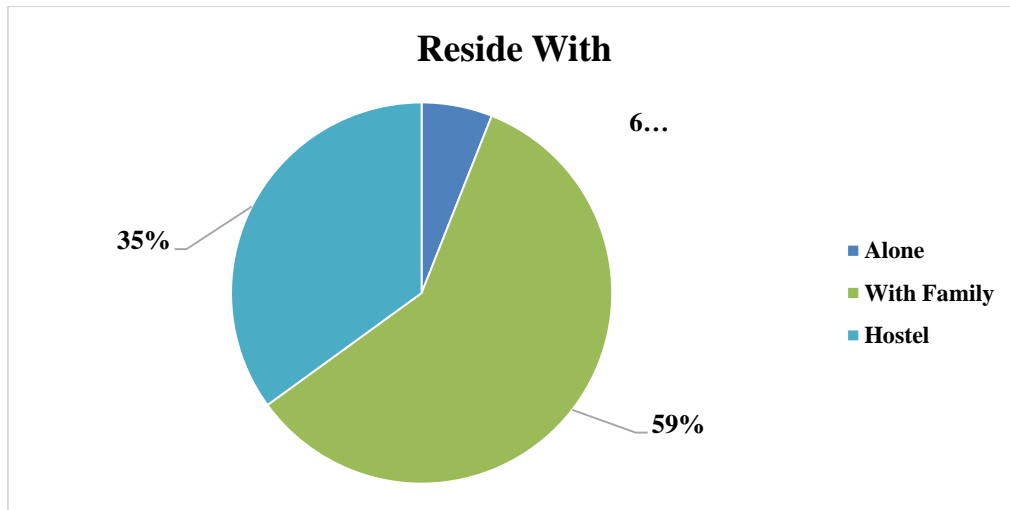
OCCUPATION

The chart outlines the occupational status of respondents, distinguishing between students, employed individuals, and others. A larger student population may indicate academic demands and lifestyle factors influencing mobile phone use at night. Occupation-based patterns reveal how professional or educational commitments affect sleep behaviors and dependence on mobile phones. Here, larger student population can be observed.

RESIDANCE PERCENTAGE

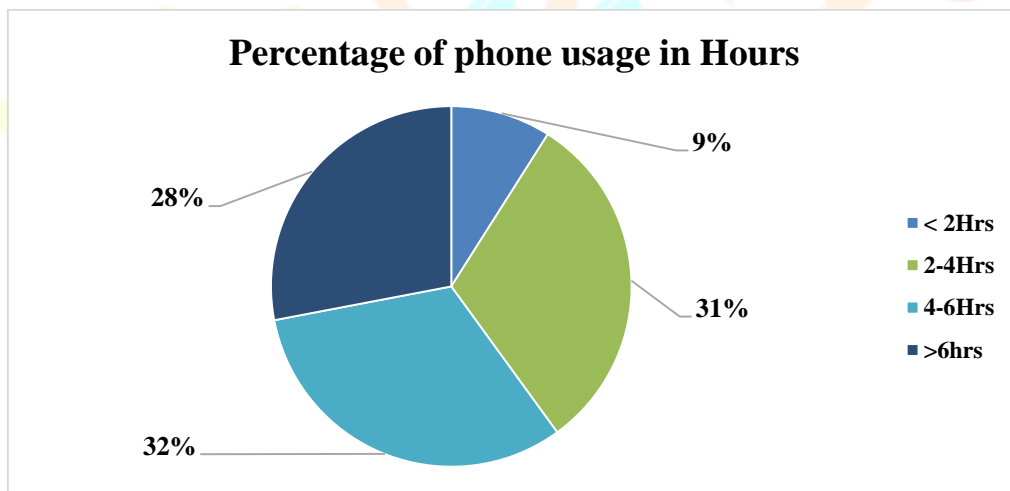
This chart categorizes participants by urban or rural settings. A higher proportion of urban dwellers may suggest greater exposure to technology and higher mobile phone dependency. Comparisons between areas can highlight how lifestyle, infrastructure, and digital access influence bedtime phone usage and its effects on sleep quality.

WHOM RESIDE WITH



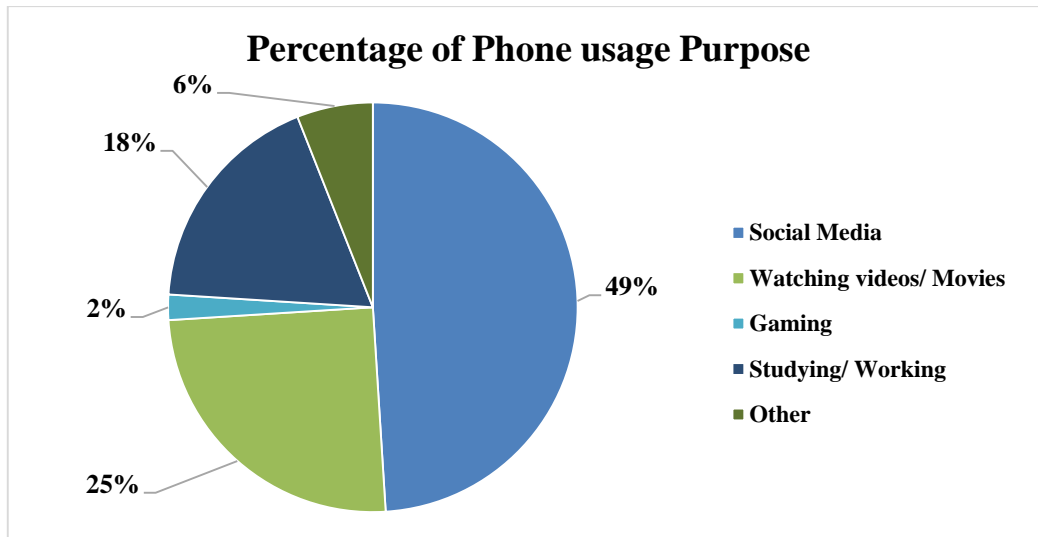
The distribution indicates whether respondents live with family, friends, or alone. Living conditions influence mobile phone use, as those living alone may rely more on phones for social interaction, while family or peer environments might shape bedtime habits differently. These findings contextualize environmental factors impacting sleep and technology use. But here most of the participants reside with family.

DAILY PHONE USAGE

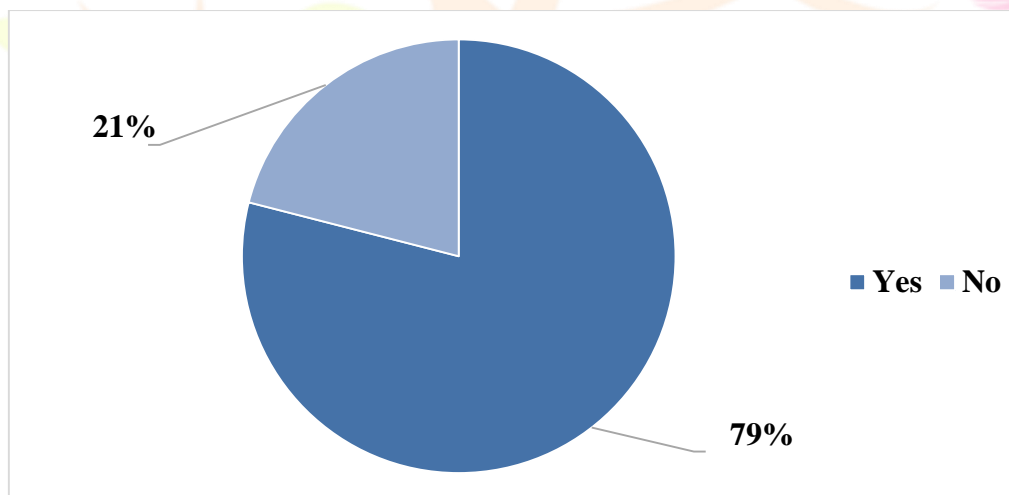


This chart quantifies time spent on mobile phones daily. High usage hours highlight strong digital engagement, with potential consequences for sleep quality. Understanding whether most respondents fall in moderate or excessive use categories provides insight into the extent of dependence and its role in delayed or disturbed sleep patterns. Most of the participants spend 4-6 hours in mobile phones.

Research Through Innovation

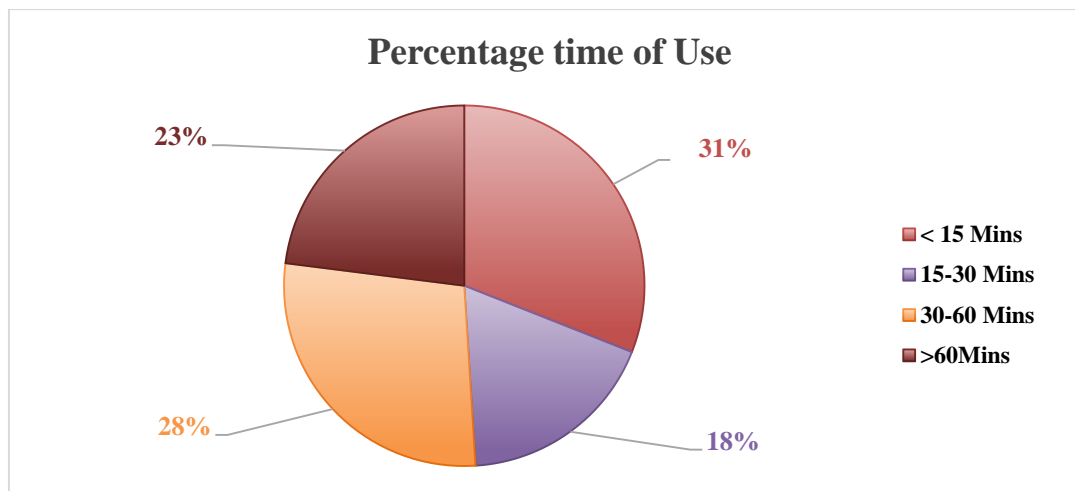
PURPOSE OF PHONE USAGE

The chart identifies dominant purposes—social media, communication, study, or entertainment. High preference for leisure or social networking emphasizes recreational dependence, while academic or professional use indicates necessity-driven engagement. This distinction clarifies whether bedtime phone use is habit-driven or need-based, influencing interventions for healthier night time technology practices. 49 % of the participants use mobile phones extremely for social media.

USING MOBILE IN BED BEFORE SLEEPING

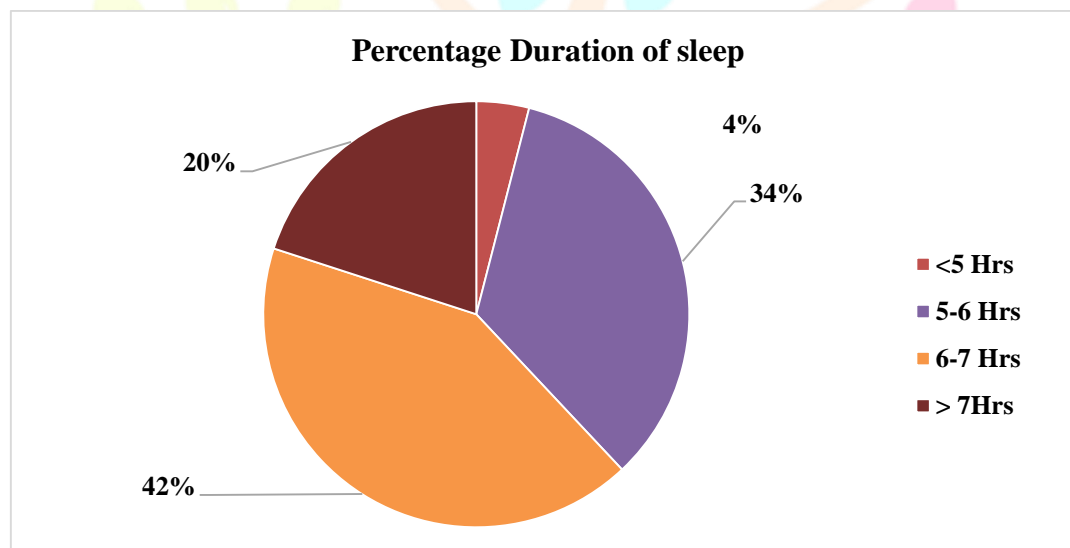
The distribution reveals how many participants actively use phones in bed. A large proportion indicates that bedtime screen exposure is common, reinforcing its significance as a sleep-disrupting habit. This practice prolongs wakefulness, delays melatonin release, and contributes to poorer sleep hygiene among young adults in the study.

**TIME OF PHONE USAGE BEFORE SLEEP**



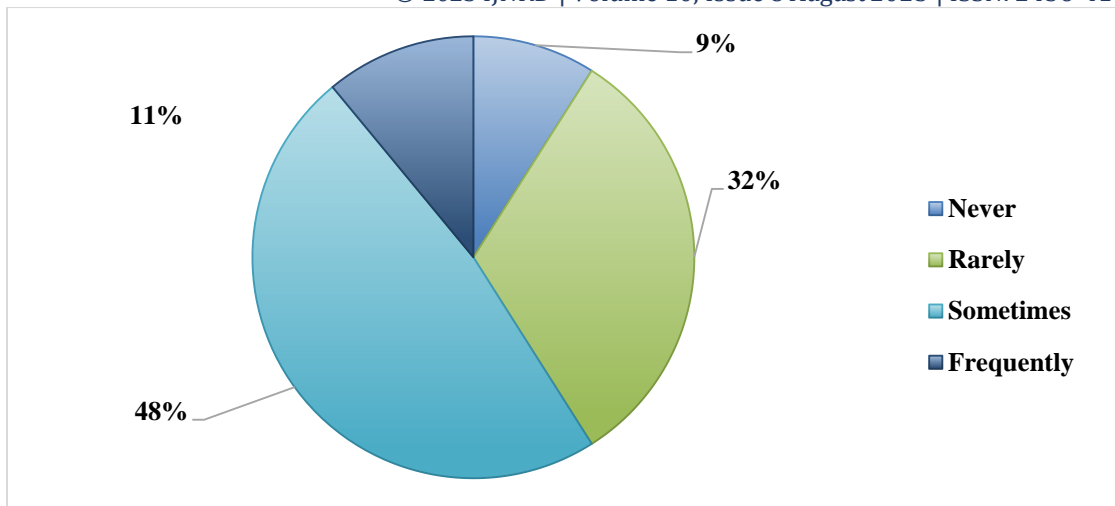
This chart categorizes usage duration before falling asleep. Longer use suggests delayed sleep onset and stronger night time engagement. Shorter usage indicates better control over habits. Analyzing this helps establish the critical threshold beyond which mobile phone exposure significantly contributes to insomnia, reduced rest, and compromised sleep quality. Most of the participants use mobile phones less than 30 minutes before sleep.

**AVERAGE SLEEP DURATION**



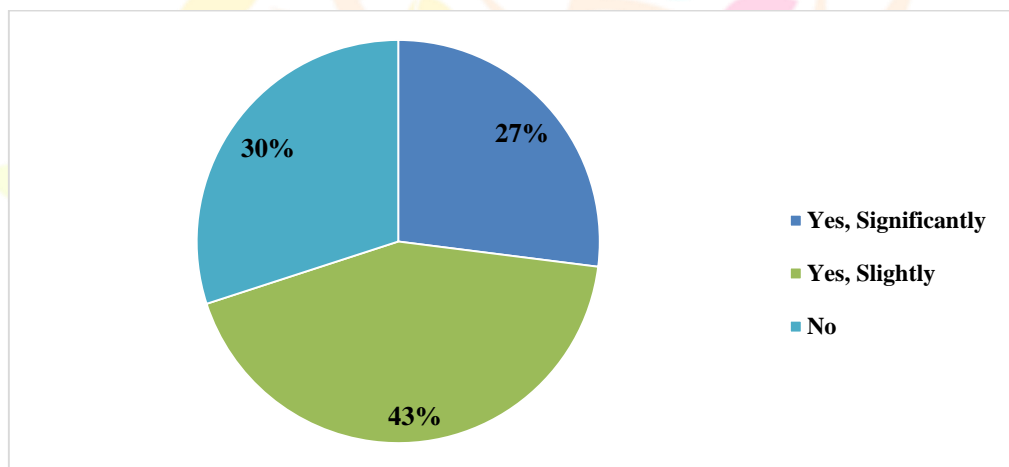
The chart shows hours of sleep respondents typically get. Lower averages highlight the negative impact of prolonged mobile use, while adequate sleep in some groups suggests better regulation. This metric directly links phone habits with health outcomes, reflecting whether participants achieve recommended sleep duration for young adults. Most of the participants gets an average of five to seven hours of sleep.

**FEELING TIRED IN THE MORNING**



The distribution reflects how many respondents feel unrested after sleep. Higher tiredness prevalence suggests direct consequences of night time phone use, such as disrupted sleep cycles and poor recovery. Lower fatigue levels indicate resilience or better control over technology use. This chart emphasizes the health burden of digital overexposure. Most of the participants feels tiredness in the morning.

#### MOBILE PHONE AFFECTING SLEEP ONSET



This chart assesses perceived difficulty falling asleep due to phone use. A high proportion affirming this demonstrates strong behavioral links between technology and sleep delay. Conversely, fewer affirmations would imply minimal perceived disruption. The findings emphasize how subjective recognition of phone-related sleep issues can guide awareness and intervention.

#### **CONCLUSION**

The results of this study highlight a strong association between mobile phone usage patterns and the sleep quality of young adults. Most respondents were from younger age groups, with students forming a significant proportion, indicating that this population is particularly vulnerable to the influence of digital habits on their sleep routines. Gender and area distribution further demonstrate that these behaviors are widespread and not confined to a single demographic or living arrangement.

Daily usage patterns revealed a high prevalence of prolonged phone use, particularly for social networking and entertainment. A considerable number of individuals reported keeping their phones next to them during sleep and actively using them in bed before falling asleep. This behavioral trend points to an ingrained reliance on mobile phones as part of nighttime routines, which inevitably disrupts natural sleep cycles. The majority of

participants acknowledged that mobile use delays sleep onset, shortens sleep duration, and contributes to feelings of tiredness or unrest in the morning.

Psychological and physiological consequences were also evident. Many respondents experienced anxiety if unable to check their phones, and some reported nightmares, vivid dreams, or health-related issues such as eye strain, headaches, and insomnia linked to excessive nighttime usage. These findings underscore the dual impact of mobile phones—not only on physical rest but also on mental well-being. Despite awareness of harmful effects, many participants admitted to waking up during the night to check their devices, demonstrating addictive tendencies and fragmented sleep patterns.

On a positive note, a proportion of individuals have attempted to mitigate these effects by limiting phone use before bedtime, adopting alternatives such as reading or meditation, or using screen filters and night modes. However, adoption of such measures was inconsistent, suggesting that awareness has not fully translated into effective behavioral change. Encouragingly, most participants expressed willingness to reduce phone usage if advised, highlighting an opportunity for interventions.

Overall, the findings indicate that mobile phone addiction and its negative impact on sleep are highly prevalent among young adults. While some coping strategies exist, the results call for stronger awareness campaigns, behavioral interventions, and guidance from healthcare professionals. Addressing these issues is crucial to improving sleep hygiene, reducing digital dependence, and safeguarding the long-term health and productivity of young populations.

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