**ORIGINAL RESEARCH**

# The Impact of Daily Smartphone Use on Mental Well-Being and Sleep Patterns Among Young Adults

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**ABSTRACT**
**Background:** Smartphones are integral to modern life, especially among young adults, offering numerous benefits but also raising concerns about their impact on mental well-being and sleep patterns. This study examines how daily smartphone use affects these aspects, focusing on usage patterns, mental health, and sleep quality.**Methods:** A quantitative study was conducted with 250 young adults aged 18–30 years. Data on smartphone use, mental well-being, and sleep patterns were collected via a self-administered questionnaire. Mental health was assessed using the Depression, Anxiety, and Stress Scale (DASS-21), and sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI). Correlation and regression analyses were performed to identify relationships and predictors.**Results:** Excessive smartphone use (>7 hours/day) was strongly associated with higher levels of depression ($r = 0.62$), anxiety ($r = 0.58$), and stress ($r = 0.53$). Pre-sleep smartphone use was significantly correlated with poor sleep quality ($r = 0.68$) and reduced sleep duration ($r = -0.55$). Social media was the most time-consuming activity, linked to negative mental health outcomes. Regression analysis showed that smartphone use patterns accounted for 48% of the variance in mental well-being and 55% in sleep quality ($p < 0.01$).**Conclusion:** It is concluded that balanced smartphone use is crucial to preserving mental well-being and sleep quality among young adults. Promoting mindful habits can maximize benefits while minimizing risks associated with excessive use. Further research is needed to explore long-term impacts and intervention effectiveness.
**Keywords:**Smartphone Use, Mental Well-Being, Sleep Patterns, Young Adults, Depression, Anxiety, Stress, Sleep Quality, Social Media, Screen Time.



## INTRODUCTION

Smartphones have transformed how people communicate, access information, and manage daily life. For young adults, in particular, these devices are indispensable tools for education, work, socialization, and entertainment [1]. However, alongside their benefits, smartphones have introduced challenges that can impact mental well-being and sleep patterns. With young adults spending significant portions of their day on smartphones, concerns have emerged about their long-term effects on mental health and physical well-being. This study examines the nuanced relationship between daily smartphone use, mental health outcomes, and sleep quality, aiming to shed light on the broader implications of this modern lifestyle habit [2].The widespread adoption of smartphones has paralleled a rise in mental health concerns among young adults, such as anxiety, depression, and stress [3]. Social media platforms, instant messaging, and other smartphone applications are highly engaging but can foster unhealthy comparisons, cyberbullying, and excessive reliance on digital interactions. Young adults often feel pressured to maintain an idealized digital persona, leading to stress and self-esteem issues. Moreover, the constant influx of notifications and alerts can create a sense of urgency and hyper-connectivity, contributing to mental fatigue and reduced focus [4].

Sleep patterns are another critical area of concern. Smartphones emit blue light, which suppresses

melatonin production, a hormone responsible for regulating sleep cycles. Many young adults use their phones late into the night, whether for browsing social media, watching videos, or completing academic tasks, which can lead to delayed sleep onset and reduced overall sleep duration [5]. Moreover, the habit of keeping phones nearby during sleep can result in interrupted rest due to notifications or the temptation to check messages. Poor sleep quality, in turn, has a direct impact on mental health, exacerbating feelings of stress, irritability, and fatigue.This research delves into the behavioral and psychological aspects of smartphone use among young adults. It explores how the frequency, timing, and type of smartphone activities influence mental well-being and sleep [6]. For instance, the compulsive checking of social media platforms, prolonged exposure to negative news, and multitasking between applications can increase cognitive load and emotional strain. At the same time, the convenience of smartphones can foster positive habits, such as using wellness apps or maintaining connections with loved ones [7]. Understanding these dual aspects of smartphone use is crucial for developing balanced strategies to enhance their benefits while minimizing harm.Smartphones have revolutionized the way young adults interact with the world, becoming essential tools for communication, entertainment, and productivity. However, their ubiquitous presence raises significant concerns regarding their impact on mental well-being and sleep patterns [8]. Young adults, who are among the most avid smartphone users, often spend hours daily engaging with these devices, which can lead to both positive and negative consequences for their mental and physical health.The effects of daily smartphone use on mental well-being are complex and multifaceted. On one hand, smartphones offer access to social support networks, mental health resources, and entertainment, which can enhance mood and reduce feelings of isolation. On the other hand, excessive use has been linked to increased levels of anxiety, depression, and stress. Social media platforms, which dominate smartphone usage, often promote unrealistic standards of beauty, success, and lifestyle, fostering negative self-comparisons and diminished self-esteem [9]. Furthermore, the constant connectivity enabled by smartphones can lead to "digital burnout," where individuals feel overwhelmed by the relentless stream of notifications, messages, and obligations.Sleep patterns are another critical area influenced by smartphone use. Young adults frequently use their phones late into the night for social media, gaming, streaming, or academic purposes. This behavior not only delays the onset of sleep but also reduces the quality and duration of rest [10]. Blue light emitted by smartphone screens interferes with the production of melatonin, a hormone essential for regulating sleep cycles. As a result, prolonged exposure to screens before bedtime can lead to sleep disturbances, such as difficulty falling asleep, frequent awakenings, and waking up feeling unrefreshed. Poor sleep quality exacerbates issues related to mental health, creating a vicious cycle where stress and anxiety further disrupt sleep [11].Despite these challenges, smartphones also hold potential as tools for promoting mental well-being and improving sleep. Mental health apps offering mindfulness exercises, cognitive-behavioral therapy (CBT), and stress management techniques have become increasingly popular. Similarly, sleep tracking apps and blue-light filter settings can help users monitor and improve their sleep hygiene. However, the effectiveness of these solutions depends on how they are integrated into daily routines and whether users can adopt disciplined habits regarding smartphone use [12].

**Objective**

This study aims to contribute to the ongoing discourse on smartphone use and its implications for young adults. By investigating the interplay between mental well-being and sleep patterns, it seeks to identify actionable recommendations for individuals, families, and institutions.

**Methodology**

This quantitative study was conducted at----------
----------during----------.
The study included a total of 250 young adults aged between 18 and 30 years. Participants were recruited through online platforms, university bulletin boards, and community outreach programs to ensure a diverse and representative sample. The inclusion criteria required participants to own a smartphone, use it daily for at least three hours, and have no diagnosed mental health conditions or sleep disorders that could independently affect the outcomes of interest. Both male and female participants were included, as well as individuals from various socioeconomic backgrounds.

**Data Collection**

Data was collected using a self-administered online questionnaire designed to measure smartphone use patterns, mental well-being, and sleep quality. The questionnaire was divided into three sections. Questions focused on daily screen time, frequency of smartphone activities (e.g., social media, gaming, messaging), and smartphone dependency behaviors.Participants reported their screen time using their smartphone’s usage tracking features.Mental well-being was assessed using the Depression, Anxiety, and Stress Scale (DASS-21), a validated tool for measuring psychological distress.Additional questions explored feelings of self-esteem, social connectedness, and digital burnout.Sleep patterns were measured using the Pittsburgh Sleep Quality Index (PSQI), which evaluates sleep duration, latency, and disturbances.Participants were also asked about pre-sleep smartphone use, such as engaging in social media or watching videos, and the presence of

notifications during sleep.Participants were invited to complete the questionnaire over three weeks. They were informed about the purpose of the study and provided their consent to participate. The survey was anonymous to ensure honest and unbiased responses. Upon completion, data was automatically logged into a secure database for analysis.

**Data Analysis**

Data were analyzed using SPSS v11. Descriptive statistics were used to summarize demographic information and general trends in smartphone use, mental health, and sleep patterns.

**RESULTS**

The results indicated that the participants' average age was 23.5 ± 3.2 years, representing a diverse group of young adults. Gender distribution included 54 percent females, 45 percent males, and 1 percent non-binary individuals. The mean daily smartphone screen time was 6.5 ± 1.8 hours, emphasizing the significant role of smartphones in the daily routines of the participants. These metrics provide a baseline for analyzing the relationships between smartphone usage, mental health, and sleep quality.

**Table 1: Demographics Summary**

| Category | Details |
|---|---|
| Age (mean ± SD) | 23.5 ± 3.2 years |
| Gender | 54% Female, 45% Male, 1% Non-Binary |
| Daily Screen Time (mean ± SD) | 6.5 ± 1.8 hours |

The findings revealed that 35 percent of participants experienced depression, with a mean score of 9.2 ± 3.1, which exceeds the normal range of ≤4. Anxiety affected 42 percent of participants, with a mean score of 7.8 ± 2.9, above the normal threshold of ≤3. Additionally, 40 percent of participants reported experiencing stress, with a mean score of 10.5 ± 3.4, surpassing the normal range of ≤7.

**Table 2: Mental Well-Being Summary**

| Measure | Percentage of Participants Affected | Mean Score (Normal Range) |
|---|---|---|
| Depression | 35% | 9.2 (≤4) |
| Anxiety | 42% | 7.8 (≤3) |
| Stress | 40% | 10.5 (≤7) |

The study revealed that 72 percent of participants experienced poor sleep quality, as indicated by PSQI scores greater than 5. The average sleep duration among participants was 5.8 hours, which falls below the recommended 7–9 hours for young adults. Additionally, 65 percent reported sleep latency of more than 30 minutes, while 55 percent experienced interrupted sleep during the night.

**Table 3: Sleep Quality Summary**

| Measure | Percentage of Participants Affected |
|---|---|
| Poor Sleep Quality (PSQI > 5) | 72% |
| Average Sleep Duration | 5.8 hours |
| Sleep Latency (>30 min) | 65% |
| Interrupted Sleep | 55% |

Screen time showed a correlation coefficient of 0.62 with depression, 0.58 with anxiety, and 0.53 with stress, indicating that higher screen time is associated with increased psychological distress. Additionally, pre-sleep smartphone use exhibited a strong positive correlation with poor sleep quality ($r = 0.68$) and a moderate negative correlation with sleep duration ($r = -0.55$), demonstrating that frequent pre-sleep use adversely affects both sleep quality and duration.

**Table 4: Correlations Summary**

| Correlation | Correlation Coefficient (r) |
|---|---|
| Screen Time - Depression | 0.62 |
| Screen Time - Anxiety | 0.58 |
| Screen Time - Stress | 0.53 |
| Pre-Sleep Use - PSQI | 0.68 |
| Pre-Sleep Use - Sleep Duration | -0.55 |

The regression analysis demonstrated that daily screen time and pre-sleep smartphone use significantly predicted mental well-being, accounting for 48 percent of the variance in DASS-21 scores ($R^2 = 0.48$, $p < 0.01$).

Additionally, notification frequency was a strong predictor of sleep quality, explaining 55 percent of the variance in PSQI scores ($R^2 = 0.55$, $p < 0.01$).

**Table 5: Regression Analysis Summary**

| Predictor Variables | Dependent Variable | R-Squared Value | Significance (p-value) |
|---|---|---|---|
| Daily Screen Time | Mental Well-Being (DASS-21) | 0.48 | < 0.01 |
| Pre-Sleep Smartphone Use | Mental Well-Being (DASS-21) | 0.48 | < 0.01 |
| Notification Frequency | Sleep Quality (PSQI) | 0.55 | < 0.01 |

## DISCUSSION

The findings of this study highlight significant insights into the relationship between daily smartphone use, mental well-being, and sleep patterns among young adults. With 250 participants, the study revealed trends that align with existing literature, shedding light on the potential risks and benefits associated with smartphone use [13] .The results indicate a strong correlation between excessive smartphone use and higher levels of psychological distress, as measured by depression, anxiety, and stress scores. Participants with screen time exceeding 7 hours daily exhibited significantly worse mental health outcomes compared to those with lower usage [14]. This aligns with theories suggesting that excessive exposure to social media and constant connectivity can lead to negative self-comparisons, cyberbullying, and "fear of missing out" (FOMO), all of which contribute to mental health challenges.While smartphones offer avenues for positive mental health reinforcement, such as access to support groups and mindfulness apps, this study underscores the importance of balanced use. Young adults might benefit from structured interventions, including digital detox programs, to reduce dependency and improve mental resilience [15]. Educational campaigns emphasizing the impact of excessive screen time on mental health could also play a crucial role in fostering healthier habits.The study also highlighted the detrimental effects of pre-sleep smartphone use on sleep quality. A significant portion of participants reported using their phones within 30 minutes before bedtime, resulting in delayed sleep onset, reduced sleep duration, and poor sleep quality. The strong correlation between pre-sleep smartphone use and higher PSQI scores emphasizes the role of blue light exposure and the stimulating nature of digital activities in disrupting sleep cycles [16].

Poor sleep quality has compounding effects on mental health, creating a cycle where stress and anxiety contribute to further sleep disturbances. These findings suggest a need for promoting better sleep hygiene among young adults, such as establishing screen-free zones in bedrooms, using blue light filters, and implementing "digital curfew" policies.The activity distribution data revealed that social media is the most time-consuming smartphone activity, followed by video streaming and messaging [17]. Social media platforms, in particular, have been identified as both a source of connection and a contributor to mental distress due to their highly engaging but often stressful nature.The findings suggest that targeted interventions should focus on managing social media habits, such as limiting time spent on these platforms and encouraging meaningful offline interactions [18]. For instance, integrating features that encourage users to take breaks or track their screen time may mitigate the negative impact.The strong predictive value of smartphone use patterns on mental well-being and sleep quality ($R^2 = 0.48$ for mental well-being; $R^2 = 0.55$ for sleep quality) underscores the importance of monitoring and regulating smartphone behavior [19]. While the study provides valuable insights, it is not without limitations. The reliance on self-reported data may introduce biases, as participants may underreport or overreport their screen time and psychological symptoms. Additionally, the cross-sectional design limits causal inferences, necessitating longitudinal studies to better understand the long-term effects of smartphone use.

## CONCLUSION

It is concluded that daily smartphone use has a significant impact on the mental well-being and sleep patterns of young adults. Excessive screen time, particularly when dominated by activities such as social media browsing and late-night usage, is strongly associated with higher levels of depression, anxiety, and stress. Furthermore, pre-sleep smartphone use negatively affects sleep quality, leading to delayed sleep onset, reduced duration, and poor overall rest.

## REFERENCES

1. Smartphone and medical related app use among medical students and junior doctors in the United Kingdom (UK): a regional survey. Payne KB, Wharrad H, Watts K. BMC Med Inform Decis Mak. 2012;12:121. doi: 10.1186/1472-6947-12-121
2. Evidence-based policy? The use of mobile phones in hospital. Ettelt S, Nolte E, McKee M, et al. J Public Health (Oxf) 2006;28:299–303. doi: 10.1093/pubmed/fdl067
3. Quality of sleep among university students: effects of nighttime computer and television use. Mesquita G, Reimão R. ArqNeuropsiquiatr. 2010;68:720–725. doi: 10.1590/s0004-282x2010000500009.
4. Impact of singular excessive computer game and television exposure on sleep patterns and memory performance of school-aged children. Dworak M, Schierl T, Bruns T, Strüder HK. Pediatrics. 2007;120:978–985. doi: 10.1542/peds.2007-0476.

5. Translating the Pittsburgh Sleep Quality Index into Arabic. Suleiman KH, Yates BC, Berger AM, Pozehl B, Meza J. West J Nurs Res. 2010;32:250–268. doi: 10.1177/0193945909348230.
6. 20.The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Buysse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. Psychiatry Res. 1989;28:193–213. doi: 10.1016/0165-1781(89)90047-4.
7. Online social networking and addiction--a review of the psychological literature. Kuss DJ, Griffiths MD. Int J Environ Res Public Health. 2011;8:3528–3552. doi: 10.3390/ijerph8093528.
8. Exposure to radiofrequency electromagnetic fields and sleep quality: a prospective cohort study. Mohler E, Frei P, Fröhlich J, Braun-Fahrländer C, Röösli M. PLoS One. 2012;7:0. doi: 10.1371/journal.pone.0037455.
9. Bert F, Giacometti M, Gualano MR, Siliquini R. Smartphones and health promotion: a review of the evidence. J Med Syst. 2014;38:9995. doi:10.1007/s10916-013-9995-7.
10. Al-Khlaiwi T, Meo SA. Association of mobile phone radiation with fatigue, headache, dizziness, tension and sleep disturbance in Saudi population. Saudi Med J. 2004;25:732–6.
11. Khan MM. Adverse effects of excessive mobile phone use. Int J Occup Med Environ Health. 2008;21:289–93. doi:10.2478/v10001-008-0028-6.
12. McCartt AT, Hellinga LA, Bratiman KA. Cell phones and driving: review of research. Traffic Inj Prev. 2006;7:89–106. doi:10.1080/15389580600651103.
13. Merlo LJ, Stone AM, Bibbey A. Measuring problematic mobile phone use: development and preliminary psychometric properties of the PUMP scale. J Addict. 2013;2013:912807. doi:10.1155/2013/912807.
14. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington (VA): American Psychiatric Publishing; 2013.
15. Pedrero Pérez EJ, Rodríguez Monje MT, Ruiz Sánchez, De León JM. Mobile phone abuse or addiction: a review of the literature. Adicciones. 2012;24:139–52. Spanish.
16. Davey S, Davey A. Assessment of smartphone addiction in Indian adolescents: a mixed method study by systematic-review and meta-analysis approach. Int J Prev Med. 2014;5:1500–11.
17. McGorry PD, Purcell R, Goldstone S, Amminger GP. Age of onset and timing of treatment for mental and substance use disorders: implications for preventive intervention strategies and models of care. Curr Opin Psychiatry. 2011;24:301–16. doi:10.1097/YCO.0b013e3283477a09.
18. Meo SA, Al-Drees AM. Mobile phone related-hazards and subjective hearing and vision symptoms in the Saudi population. Int J Occup Med Environ Health. 2005;18:53–7.
19. Jamal A, Sedie R, Haleem KA, Hafiz N. Patterns of use of “smart phones” among female medical students and self-reported effects. J Taibah Univ Med Sci. 2012;7:45–9.