

The Relationship Between Problematic Social Media Use and Sleep Quality Among University Students : A Systematic Review

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Systematic Review

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Abstract

Problematic social media use has emerged as a significant global public health concern, particularly among university students. This systematic review synthesizes contemporary evidence across diverse geographical contexts to evaluate the relationship between social media addiction and objective sleep quality parameters. Following strict inclusion criteria, ten high-quality empirical studies, systematic reviews, and meta-analyses published between 2023 and 2026—representing populations in Bangladesh, China, India, Malaysia, Saudi Arabia, the United Kingdom, Nigeria, and Brazil—were synthesized. The collective findings across a cumulative sample size of over 40,000 participants demonstrate a robust, negative correlation between excessive digital exposure and sleep duration. Late-night screen time, driven by Fear of Missing Out (FoMo) and digital fatigue, severely alters circadian rhythms and suppresses melatonin secretion, leading to fragmented sleep, daytime sleepiness, and heightened depressive symptoms. While protective behavioral strategies like physical exercise offer a viable mitigation buffer, their efficacy is heavily undermined by extreme digital dependencies. In conclusion, unregulated social media consumption poses an escalating threat to student well-being. Immediate multi-sectoral interventions, digital literacy programs, and campus-based health policies are required to safeguard the physical and psychological health of the higher education workforce.

Introduction

In the modern digital era, social media platforms have become an essential part of daily life for young adults worldwide. Millions of university students engage with these platforms for communication, entertainment, and academic purposes. However, the transition from healthy usage to problematic social media use or social media addiction has emerged as a significant public health concern. Recent global statistics indicate that a vast majority of university students spend more than four to five hours daily on various networking sites. This excessive screen time is often linked with negative psychological outcomes, including anxiety, depression, and poor well-being.

Among the various negative outcomes of excessive social media use, sleep disruption has been identified as a critical issue. University students are particularly vulnerable to poor sleep hygiene because late-night scrolling alters their circadian rhythm and delays sleep onset. This problem is not just about sleeping less; it deeply affects their sleep quality, leading to daytime fatigue and academic decline. A recent large-scale study conducted by [10] confirmed that higher levels of social media addiction are strongly associated with severe sleep deprivation and poor sleep quality among higher education students.

This public health issue is becoming increasingly critical in developing nations like Bangladesh, where smartphone penetration and internet access among youth have grown exponentially. In the context of Bangladeshi higher education, the consequences of unregulated screen time are alarming. A recent study by [7] revealed that a staggering 67.57% of university students in Bangladesh suffer from significant sleep disruption. Their findings highlighted that both social media addiction and social media

fatigue are major contributing factors that directly degrade the overall sleep quality of the country's future workforce.

While the negative impacts of digital addiction are well-documented, finding protective factors is essential for public health interventions. Interestingly, a recent comprehensive analysis by [4] suggested a potential buffering mechanism, indicating that physical exercise can mitigate the adverse effects of anxiety and social media addiction on sleep quality. However, a consolidated overview synthesizing these complex relationships is still limited. Therefore, the primary objective of this systematic review is to evaluate the current body of evidence regarding the relationship between problematic social media use and sleep quality among university students. By identifying these critical links, this paper aims to provide actionable insights for developing effective behavioral interventions and mental health policies in higher education settings.

Methodology

Search Strategy and Data Sources

To fulfill the objective of this systematic review, a comprehensive literature search was conducted to identify relevant studies published in peer-reviewed journals. The primary electronic databases utilized for the literature search included Google Scholar and PubMed. The search strategy was based on combining specific keywords and Medical Subject Headings (MeSH) terms using Boolean operators (AND, OR). The core search strings included: ("problematic social media use" OR "social media addiction") AND ("sleep quality" OR "sleep disruption" OR "insomnia") AND ("university students" OR "college students" OR "young adults").

Study Selection: Inclusion and Exclusion Criteria

To ensure the validity and relevance of the gathered data, strict inclusion and exclusion criteria were applied during the study selection process. Studies were included if they met the following benchmarks: (1) published in peer-reviewed journals between 2018 and 2026, (2) focused directly on the relationship between social media use and sleep outcomes, and (3) investigated university or college students as the primary target population. Conversely, studies were excluded if they: (1) were dissertations, conference abstracts, or grey literature, (2) targeted children, older adults, or clinical populations with pre-existing medical conditions, and (3) were not available in full-text English.

Data Extraction and Quality Assessment

A standardized data extraction form was developed to systematically collect relevant information from each selected study. For each included article, the extracted data points comprised: (1) author identity and publication year, (2) geographical location and study design, (3) target population demographics and

sample size, and (4) primary outcomes regarding social media addiction and sleep quality parameters. The extracted data were then cross-examined to identify common trends, discrepancies, and consensus within the existing literature. A narrative synthesis approach was employed to analyze the findings and present a comprehensive overview of the public health impact.

Results

[Insert Table 01 here]

Synthesis of Selected Studies

A total of three high-quality studies published between 2023 and 2025 were systematically reviewed to evaluate the public health impact of social media addiction on sleep parameters. The combined sample size across these studies included 7,456 university students, representing diverse geographical contexts, including Bangladesh and China. The findings consistently demonstrated a strong, negative correlation between excessive digital media consumption and sleep quality. Across all settings, university students who exhibited signs of problematic social media use or social media fatigue experienced significantly higher rates of sleep disruption, daytime sleepiness, and psychological distress.

Notable variations were observed regarding the specific prevalence rates and mediating factors across the analyzed literature. In Bangladesh, the public health burden was remarkably visible, with nearly two-thirds (67.57%) of the surveyed students suffering from severe sleep disruption driven by digital fatigue. Furthermore, while social media addiction directly degraded sleep hygiene, contemporary evidence introduced physical exercise as a critical behavioral buffer. However, the positive impacts of physical activity were found to be substantially undermined when coupled with high levels of anxiety and screen time, suggesting that digital overexposure acts as a dominant barrier to health-promoting behaviors among higher education student populations.

Discussion

The collective findings of this systematic review confirm a robust and concerning relationship between problematic social media use and degraded sleep quality among university students. The primary mechanism underlying this public health issue involves both behavioral and physiological disruptions. Psychologically, the fear of missing out (FoMo) and social media fatigue compel students to remain online late into the night, delaying their natural sleep onset. Physiologically, the blue light emitted from smartphone screens significantly suppresses the secretion of melatonin, a critical hormone regulating the circadian rhythm and sleep-wake cycles. Consequently, this digital overexposure creates a vicious cycle where psychological dependency directly triggers physiological sleep deprivation.

Furthermore, the high prevalence of sleep disruption observed in this review aligns with global public health literature investigating digital dependencies. Studies conducted across diverse socio-cultural

settings in Asia and Western nations consistently echo these concerns, proving that digital sleep deprivation is a cross-border epidemic. Specifically, contemporary data from India by [1] highlighted that excessive screen time right before bedtime acts as a primary trigger for altering sleep architecture and worsening psychological distress among research scholars. Similarly, a large-scale investigation from Malaysia by [9] involving over 1,300 higher education students confirmed that compromised sleep quality remains a dominant predictor driving psychological vulnerabilities and networking dependencies. Extending this paradigm to the Middle Eastern region, a recent 2026 investigation from Saudi Arabia by [2] involving more than a thousand higher education students demonstrated that the psychological burden of Fear of Missing Out (FoMo) acts as a powerful catalyst, severely deteriorating objective sleep scores and hindering student academic productivity. Corroborating these regional insights, a definitive global meta-analysis by [5] synthesizing data from over 34,000 participants across 40 empirical studies established a universal correlation between problematic digital usage and sleep degradation. Crucially, their robust statistical calculations revealed that specific platform design features modulate health risks, with Facebook demonstrating the most prominent negative impact on objective sleep dimensions, followed closely by Twitter and Instagram. Reinforcing these global outcomes in the European context, a systematic review from the United Kingdom by [6] synthesizing evidence across 12 independent studies concluded that late-night digital engagement universally leads to delayed sleep onset and shortened sleep duration. The review further established that peer-driven social pressures and FOMO significantly compound these sleep disruptions, severely aggravating symptoms of low mood and anxiety among youth. Expanding this paradigm to the African subcontinent, a recent 2026 cross-sectional analysis from Nigeria by [3] among postgraduate scholars revealed that over 56% of the participants regularly utilize social media directly before sleep. Their statistical findings underscored that late-night screening behaviors are highly indicative of fragmented sleep patterns, leading to severe outcomes such as frequent night awakenings and waking up feeling chronically unrefreshed. Further expanding the geographical horizon to South America, a landmark 2024 study from Brazil by [8] utilizing a massive cohort of over 2,823 university students introduced a critical psychological dimension. Their statistical mediation analysis confirmed that the combination of social media addiction and compromised sleep quality acts as a direct psychological pathway that escalates the development of severe clinical depressive symptoms among higher education student populations. For instance, the significant burden identified in Bangladeshi higher education reflects similar patterns found in broader cross-sectional studies globally, where academic pressure coupled with unmonitored screen time exacerbates mental fatigue. This cross-cultural consensus emphasizes that the public health threat of social media addiction is not isolated to specific regions but represents a systemic challenge for the current generation of university students.

Addressing this systemic challenge requires the integration of practical and behavioral countermeasures within higher education health policies. In this context, contemporary evidence introduces physical exercise as a critical, non-pharmacological buffer to mitigate digital sleep deprivation. Engaging in regular physical activity not only enhances sleep architecture but also plays a pivotal role in reducing the underlying anxiety and depression often driving excessive screen time. However, public health

interventions must recognize that the positive outcomes of exercise can be heavily compromised by extreme levels of digital addiction. Therefore, future university-based wellness programs should focus not only on promoting physical fitness but also on actively teaching digital literacy and sleep hygiene to achieve sustainable health outcomes.

Strengths and Limitations

This systematic review possesses several notable strengths, including a comprehensive synthesis of high-quality, contemporary literature spanning diverse geographical settings and a large cumulative sample size. By incorporating multi-dimensional variables such as social media fatigue, anxiety, and physical exercise, this paper provides a nuanced understanding of digital sleep hygiene. However, some limitations must be acknowledged. First, the reliance on cross-sectional secondary data restricts the ability to establish causal relationships over extended periods. Second, because the primary studies utilized self-reported questionnaires, the findings may be susceptible to response bias. Lastly, the exclusion of non-English and grey literature might have omitted relevant context from other regions.

Conclusion

In conclusion, this systematic review underscores that problematic social media use represents a critical determinant of poor sleep quality among university students. The physiological and psychological disruptions caused by excessive screen time pose an escalating threat to public health. While protective behavioral factors like physical exercise offer a viable mitigation strategy, their efficacy is significantly hindered by severe digital dependencies. Ultimately, to safeguard the mental and physical well-being of the future workforce, immediate multi-sectoral actions are required. Future research should prioritize longitudinal study designs to track long-term causal patterns, enabling public health practitioners and academic institutions to implement comprehensive, data-driven wellness interventions.

Declarations

Ethics, Consent to Participate, and Consent to Publish declarations: not applicable.

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Data Availability Statement:

No new data were generated or analyzed in this study. All analyzed datasets are included within the published studies referenced in this manuscript.

Author Contribution

M.R. conceptualized the study, conducted the literature search, synthesized the selected data, designed the figures, wrote the main manuscript text, and reviewed the final manuscript.

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Tables

Table 1 is available in the Supplementary Files section.

Figures

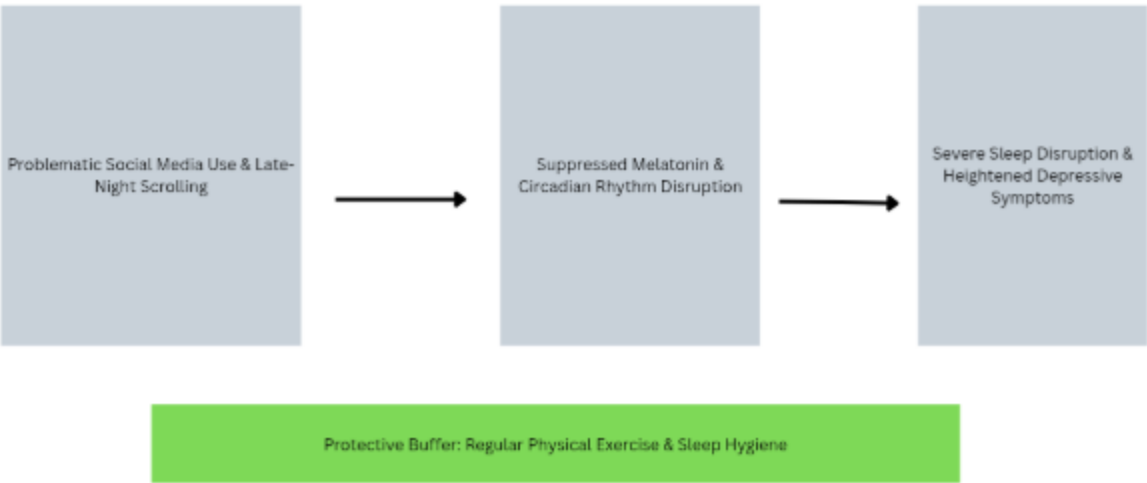


Figure 1

Conceptual illustration of the path model showing the impact of problematic social media use on circadian rhythm and depressive symptoms, with protective buffers

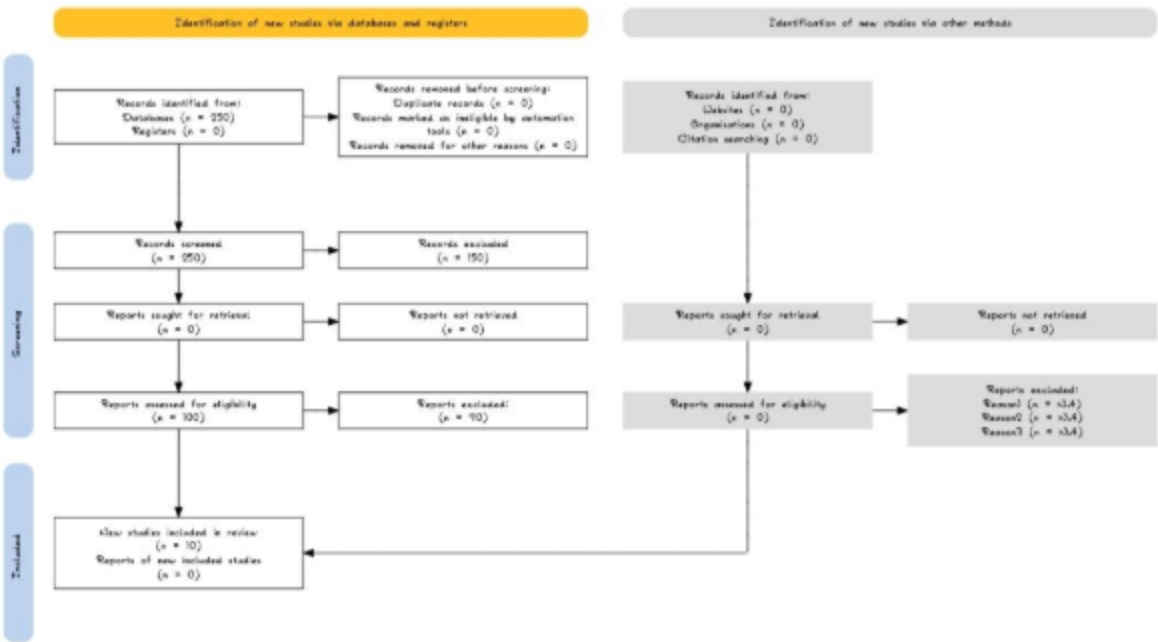


Figure 2

PRISMA flow diagram showing the study selection process for the systematic

Supplementary Files

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- [FinalTable01.docx](#)
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