

PROBLEMATIC SMARTPHONE USE, SLEEP QUALITY, AND BEDTIME PROCRASTINATION AMONG YOUNG ADULTS IN ABAKALIKI: A QUALITATIVE STUDY

Eze Ogbonnia Eze, Igwe Prince & Obinna Onuorah

Ebonyi State University Abakaliki

Correspondence Email: eze.ogbonnia@ebsu.edu.ng

Abstract

This study explored problematic smartphone use, sleep quality, and bedtime procrastination among young adults in Abakaliki metropolis. A qualitative phenomenological design was adopted to gain an in-depth understanding of participants' lived experiences. Twenty young adults aged 18–35 years were selected using a convenience sampling technique. Data were collected through semi-structured interviews and analyzed using thematic analysis. Findings revealed that participants engaged in frequent and prolonged smartphone use, particularly at night, driven by entertainment, social interaction, and emotional coping needs. Bedtime procrastination was a common behavior, as participants often delayed sleep despite intending to sleep early. The study further showed that poor sleep quality was widespread, characterized by delayed sleep onset, reduced sleep duration, and daytime fatigue. Participants acknowledged a strong relationship among excessive smartphone use, bedtime procrastination, and poor sleep quality, although behavioral change remained limited. The study concludes that problematic smartphone use significantly contributes to bedtime procrastination and poor sleep quality among young adults. It recommends increased awareness of digital well-being, sleep hygiene education, and interventions aimed at improving self-regulation among young adults.

Keywords: Problematic smartphone use, sleep quality, bedtime procrastination, young adults, Abakaliki.

1. Introduction

Sleep is a fundamental biological process that plays a vital role in maintaining physical health, cognitive functioning, and psychological well-being. Adequate sleep supports memory consolidation, emotional regulation, immune functioning, and overall quality of life. Conversely, poor sleep quality has been associated with a wide range of adverse outcomes, including impaired concentration, reduced academic performance, and increased risk of mental health problems such as anxiety and depression (Alimoradi et al., 2023; Scott et al., 2021). Among young adults, sleep disturbances have become increasingly prevalent, raising concerns about long-term health and psychosocial consequences.

In recent years, the rapid advancement and widespread adoption of digital technologies, particularly smartphones have significantly altered daily routines and behavioral patterns. Smartphones have become indispensable tools for communication, entertainment, education, and social networking. However, excessive and uncontrolled smartphone use has given rise to what is commonly referred to as problematic smartphone use (PSU). PSU is characterized by compulsive engagement, difficulty in regulating use, and negative impacts on daily functioning (Busch & McCarthy, 2021; Elhai et al., 2020).

A growing body of empirical research has identified problematic smartphone use as a significant predictor of poor sleep quality. For example, a meta-analysis by Alimoradi et al. (2023) found a strong and consistent association between problematic smartphone use and sleep disturbances, including reduced sleep duration and increased sleep latency. Similarly, Demirci et al. (2022) reported that excessive smartphone use,

particularly during nighttime, disrupts circadian rhythms and contributes to poor sleep outcomes. These disruptions are often attributed to factors such as blue light exposure, cognitive stimulation, and emotional engagement associated with smartphone activities.

One of the key behavioral mechanisms through which problematic smartphone use affects sleep quality is bedtime procrastination. Bedtime procrastination refers to the voluntary delay of going to bed despite having no external constraints preventing sleep (Kroese et al., 2014). It is considered a form of self-regulation failure, where individuals prioritize short-term gratification (e.g., smartphone use) over long-term health benefits (e.g., adequate sleep). Recent studies have shown that bedtime procrastination is increasingly prevalent among young adults, particularly in the context of digital media use (Maier et al., 2023).

Emerging evidence suggests that bedtime procrastination plays a mediating role in the relationship between problematic smartphone use and sleep quality. For instance, a study by Zhang and Wu (2024) found that individuals with higher levels of problematic smartphone use were more likely to engage in bedtime procrastination, which in turn predicted poorer sleep quality. Similarly, Exelmans and Van den Bulck (2021) demonstrated that media use before bedtime contributes to delayed sleep onset through procrastination behaviors.

Furthermore, the concept of “revenge bedtime procrastination” has gained attention in recent literature. This phenomenon describes a situation in which individuals intentionally delay sleep to reclaim personal time that was lost during the day due to work or other obligations (Kühnel et al., 2023). Smartphones often facilitate this behavior by providing easily accessible and engaging content, such as social media, streaming platforms, and online communication. While this behavior may provide temporary psychological relief, it often leads to chronic sleep deprivation and reduced sleep quality.

Despite the increasing volume of research on problematic smartphone use, sleep quality, and bedtime procrastination, most existing studies have employed quantitative methods. While these studies provide valuable statistical relationships, they often fail to capture the lived experiences, subjective meanings, and contextual factors influencing these behaviors. Qualitative approaches are therefore necessary to gain deeper insights into how individuals perceive and interpret their smartphone use and sleep patterns.

In the Nigerian context, smartphone penetration has increased significantly over the past decade, particularly among young adults. In cities such as Abakaliki, smartphones have become central to social interaction, entertainment, and information access. However, there is limited research examining how these technological changes influence sleep behaviors within the Nigerian cultural and socioeconomic context. Cultural norms, lifestyle patterns, and environmental factors may shape smartphone use and sleep behaviors differently compared to Western contexts, where most studies have been conducted.

No doubt, there is extensive research on bedtime procrastination, but most of the existing research in this area has relied heavily on quantitative methods, which may not adequately capture the complexity of these behaviors. There is limited qualitative evidence exploring how individuals experience and interpret their smartphone use, sleep habits, and bedtime procrastination. In Nigeria, and particularly in Abakaliki, there is a lack of empirical research examining these issues. Given the rapid increase in smartphone usage and changing lifestyle patterns among young adults, it is important to understand how these factors interact within this specific context. Therefore, this study addresses the lack of an in-depth and context-specific understanding of how problematic smartphone use influences sleep quality and bedtime procrastination

among young adults in Abakaliki. This study explores the relationship between problematic smartphone use, sleep quality, and bedtime procrastination among young adults in Abakaliki using a qualitative approach.

Hence, the objectives of the study are to:

1. Explore patterns of smartphone use among young adults in Abakaliki.
2. Examine participants' experiences of sleep quality.
3. Investigate factors contributing to bedtime procrastination.
4. Explore the relationship between problematic smartphone use, bedtime procrastination, and sleep quality.
5. Discover the subjective meanings attached to smartphone use and sleep behaviors.

2. Review of Related Literature

2.1 Problematic Smartphone Use (PSU)

Problematic smartphone use (PSU) has emerged as a significant behavioral concern in the digital age. It is generally defined as excessive or poorly controlled smartphone use that leads to negative consequences in daily life (Elhai et al., 2020). Unlike normal use, PSU is characterized by compulsive checking, withdrawal symptoms when the device is inaccessible, and interference with social, academic, or occupational functioning.

Scholars have conceptualized PSU within the broader framework of behavioral addiction. Although it is not formally classified as a disorder in diagnostic manuals, its features resemble those of addictive behaviors, including salience, tolerance, mood modification, and relapse (Busch & McCarthy, 2021). Young adults are particularly vulnerable due to their high engagement with digital technologies and developmental tendencies toward sensation-seeking and social validation.

Recent studies indicate that PSU is strongly associated with psychological variables such as anxiety, depression, loneliness, and stress (Elhai et al., 2020; Sohn et al., 2019). The interactive nature of smartphones especially through social media platforms creates continuous engagement loops that make disengagement difficult.

Furthermore, PSU has been linked to disruptions in daily routines, particularly sleep patterns. Nighttime smartphone use is especially problematic, as it delays bedtime and exposes users to stimulating content that interferes with the natural sleep cycle (Demirci et al., 2022). The portability and accessibility of smartphones make them a constant presence, increasing the likelihood of overuse.

2.2 Sleep Quality

Sleep quality refers to an individual's subjective and objective evaluation of how well they sleep. It encompasses several dimensions, including sleep duration, sleep latency (time taken to fall asleep), sleep efficiency, and perceived restfulness (Buysse, 2014).

Good sleep quality is essential for optimal functioning, while poor sleep quality has been linked to cognitive impairments, emotional instability, and physical health problems. Among young adults, poor sleep is

increasingly common due to lifestyle factors such as academic demands, social activities, and digital media use (Alimoradi et al., 2023).

Research has shown that exposure to blue light emitted by smartphone screens suppresses melatonin production, thereby delaying sleep onset (Chang et al., 2015). Additionally, engaging with stimulating content such as social media or video streaming can increase cognitive arousal, making it more difficult to fall asleep.

Sleep quality is not only influenced by physiological factors but also by behavioral and psychological processes. For instance, stress and rumination have been shown to negatively affect sleep quality (Harvey, 2011). In the context of smartphone use, both physiological (light exposure) and psychological (emotional engagement) mechanisms contribute to sleep disturbances.

2.3 Bedtime Procrastination

Bedtime procrastination is a relatively recent concept in psychological research, defined as the voluntary delay of going to bed despite having no external reasons to do so (Kroese et al., 2014). It represents a failure of self-regulation, where individuals prioritize immediate gratification over long-term well-being.

Unlike other forms of procrastination, bedtime procrastination does not involve task avoidance but rather the postponement of a beneficial activity – sleep. This behavior is particularly common among young adults, who often engage in leisure activities such as smartphone use during late hours.

Studies have identified several factors contributing to bedtime procrastination, including poor self-control, stress, and a desire for personal time (Kühnel, et al., 2023). The concept of “revenge bedtime procrastination” highlights how individuals delay sleep to compensate for a lack of autonomy during the day.

Smartphones play a central role in facilitating bedtime procrastination. Their accessibility and engaging content make it easy for users to lose track of time, leading to delayed sleep onset. Research indicates that individuals with higher levels of smartphone use are more likely to engage in bedtime procrastination (Maier et al., 2023).

2.4 Relationship among PSU, Sleep Quality, and Bedtime Procrastination

The relationship among these three variables is complex and interrelated. Problematic smartphone use has been consistently associated with poor sleep quality, and bedtime procrastination has been identified as a key mediating factor in this relationship.

Empirical evidence suggests that individuals who engage in excessive smartphone use are more likely to delay bedtime, which in turn reduces sleep duration and quality (Zhang & Wu, 2024). This relationship is often explained through both behavioral and physiological mechanisms.

Behaviorally, smartphone use provides immediate gratification, making it difficult for individuals to disengage. Physiologically, exposure to blue light disrupts circadian rhythms. Together, these factors create a cycle of delayed sleep and poor sleep quality.

Recent empirical studies provide strong evidence for the relationships among the key variables. For instance, Alimoradi et al. (2023) conducted a meta-analysis and found that problematic smartphone use is significantly associated with poor sleep quality. Similarly, Demirci et al. (2022) reported that higher smartphone use is linked to reduced sleep duration and increased sleep disturbances. Further, Maier et al. (2023) found that bedtime procrastination is strongly associated with digital media use, particularly among young adults. Their findings suggest that smartphone use contributes to delayed sleep through loss of time awareness.

Other studies by Zhang and Wu (2024) demonstrated that bedtime procrastination mediates the relationship between problematic smartphone use and sleep quality. This finding highlights the importance of behavioral mechanisms in understanding sleep problems. Likewise, Kühnel et al. (2023) explored revenge bedtime procrastination and found that individuals who experience high daily stress are more likely to delay sleep intentionally. However, most of these studies were conducted in Western or Asian contexts, with limited representation from Africa. Additionally, the majority used quantitative methods, leaving a gap in qualitative understanding.

3. Theoretical Linkage

3.1 Self-Regulation Theory

Self-regulation theory explains how individuals control their thoughts, emotions, and behaviors to achieve long-term goals (Baumeister & Heatherton, 1996). Bedtime procrastination is viewed as a failure of self-regulation, where individuals are unable to resist the temptation of immediate rewards (e.g., smartphone use). Young adults often experience self-regulation challenges due to developmental and environmental factors. When self-control resources are depleted, individuals are more likely to engage in behaviors such as excessive smartphone use and delayed sleep. This theory is particularly relevant as it explains why individuals continue to use smartphones despite knowing the negative consequences for their sleep.

3.2 Uses and Gratifications Theory

Uses and Gratifications Theory posits that individuals actively choose media to satisfy specific needs, such as entertainment, social interaction, and escapism (Katz et al., 1973). Smartphones fulfill multiple psychological needs, making them highly attractive. At night, individuals may use smartphones to relax, connect with others, or escape from stress. However, this intentional use can inadvertently lead to prolonged engagement and delayed sleep. This theory helps explain the motivations behind smartphone use and why it is difficult to limit usage at bedtime.

3.3 Cognitive Arousal Theory of Insomnia

This theory suggests that heightened cognitive activity such as worry, rumination, or emotional engagement interferes with sleep (Harvey, 2011). Smartphone use often involves cognitively stimulating activities, such as reading messages, watching videos, or engaging in social media interactions. These activities increase mental alertness, making it difficult to transition into sleep. The theory provides a psychological explanation for how smartphone use affects sleep quality beyond physiological mechanisms. Despite extensive research, several gaps remain such as **lack of qualitative studies** exploring lived experiences, **limited African context research**, particularly Nigeria and **insufficient focus on subjective meanings** of smartphone use and sleep. This study addresses these gaps by adopting a qualitative approach in Abakaliki.

4. Methods

4.1 Participants

The study involved 20 young adults residing in Abakaliki metropolis, Ebonyi State, Nigeria. Participants were within the age range of 18 to 35 years, reflecting a demographic group known for high engagement with smartphones and dynamic sleep behaviours. Both male and female participants were included to ensure diversity in perspectives. All participants owned and regularly used smartphones and were able to provide detailed accounts of their experiences related to smartphone use and sleep. A convenience sampling technique was employed in selecting participants for the study. Participants who were readily accessible and willing to participate were recruited from various locations within Abakaliki metropolis, including educational institutions, workplaces, and residential areas. This sampling method was appropriate for the study as it facilitated access to participants within the available time and resource constraints while allowing for the collection of rich qualitative data.

4.2 Instrument

Data were collected using a semi-structured interview guide developed by the researchers. The interview guide consisted of open-ended questions designed to elicit detailed responses regarding participants' smartphone use, sleep experiences, and bedtime behaviors. The instrument covered key areas such as patterns of smartphone use, nighttime phone activities, perceptions of sleep quality, and reasons for delaying bedtime. The semi-structured format allowed for flexibility, enabling the researcher to probe further and explore emerging issues during the interviews. The interview guide was reviewed to ensure clarity and relevance, and minor adjustments were made following initial interactions to improve the flow of questions.

4.3 Procedure

Ethical standards were strictly adhered to throughout the study. Participants were informed about the purpose of the study, and prior to data collection, ethical approval for the study was obtained from the relevant institutional research ethics committee. Respondents were assured of confidentiality, anonymity, and their right to withdraw from the study at any point without any consequences. Participants were recruited through personal contacts and social networks within Abakaliki metropolis. Data were collected through in-depth, face-to-face interviews, conducted in locations that were convenient and comfortable for the participants. Each interview lasted between 30 and 60 minutes. With the consent of the participants, interviews were audio-recorded to ensure accurate data capture. The recordings were subsequently transcribed verbatim. All identifying information was removed during transcription to maintain participants' anonymity.

4.4 Design

This study adopted a qualitative research design, specifically a phenomenological approach, to explore the lived experiences of young adults regarding problematic smartphone use, sleep quality, and bedtime procrastination. The qualitative design was considered appropriate because the study sought to obtain an in-depth understanding of participants' subjective experiences, meanings, and interpretations rather than to quantify variables. The phenomenological approach enabled the researcher to examine how participants perceived and made sense of their smartphone use behaviors and sleep patterns within their everyday lives. This approach provided rich, detailed insights into the underlying motivations and contextual factors influencing bedtime procrastination and sleep quality.

4.5 Data Analysis

The data were analyzed using thematic analysis, following the six-step procedure outlined by Braun and Clarke (2006). First, the researchers became familiar with the data by reading and re-reading the transcripts. Initial codes were then generated by identifying meaningful segments of the data relevant to the research questions. These codes were systematically organized and grouped into potential themes. Subsequently, the themes were reviewed and refined to ensure coherence and consistency with the data. Each theme was clearly defined and named to reflect its essence. Finally, the themes were organized into a coherent narrative, supported by verbatim excerpts from participants to illustrate key findings. The use of thematic analysis allowed for the identification of patterns and meanings within the data, providing a comprehensive understanding of the relationship between problematic smartphone use, bedtime procrastination, and sleep quality among young adults.

4.6 Trustworthiness of the Study

To ensure the rigor and credibility of the findings, several strategies were employed. Credibility was enhanced through prolonged engagement with the data and careful interpretation of participants' responses. Dependability was ensured by maintaining a clear and consistent research process, including detailed documentation of procedures. Confirmability was achieved by grounding interpretations in the data and using direct quotations from participants to support findings. Transferability was facilitated by providing detailed descriptions of the research context and participants, allowing readers to assess the applicability of the findings to other settings.

5. Results

Data were collected from 20 participants on problematic smartphone use, sleep quality, and bedtime procrastination among young adults in Abakaliki metropolis through in-depth interviews and analyzed using thematic analysis. The findings are presented under key emergent themes that reflect participants' lived experiences and perceptions.

Four major themes emerged from the analysis:

1. Patterns of problematic smartphone use
2. Bedtime procrastination and loss of time control
3. Sleep quality experiences and consequences
4. Perceived relationship between smartphone use and sleep behaviour

Each theme is supported with verbatim excerpts from some of the participants to ensure authenticity and depth of interpretation.

5.1 Theme One: Patterns of Problematic Smartphone Use

The first theme captures the nature and patterns of smartphone use among participants. The findings revealed that smartphone use was constant, habitual, and often excessive, particularly during evening and nighttime hours.

Most participants reported spending long hours on social media platforms such as WhatsApp, TikTok, Instagram, and Facebook. Others engaged in video streaming, gaming, and online chatting, often losing track of time.

One participant explained:

“Once I pick my phone at night, I don't even notice the time again. I start with WhatsApp, then TikTok, and before I know it, it is already past 2 a.m.” (Participant 4)

Another participant stated:

“My phone is like my companion. Even when I am tired, I still scroll through Instagram or chat with friends until I sleep off.” (Participant 11)

The data also showed that smartphone use was often driven by boredom, loneliness, and the desire for entertainment after daily activities.

5.2 Theme Two: Bedtime Procrastination and Loss of Time Control

The second theme reflects participants' tendency to intentionally or unintentionally delay bedtime despite awareness of the consequences. This behaviour was widely reported and described as a daily habit.

Participants acknowledged that they often intended to sleep early but ended up postponing sleep due to smartphone engagement.

One participant noted:

“I always tell myself I will sleep by 10 p.m., but once I start using my phone, I just keep postponing it.” (Participant 2)

Another participant explained:

“It is not like I don't want to sleep early, but I keep saying ‘just five more minutes,’ and suddenly it becomes hours.” (Participant 7)

Some participants described this behaviour as a lack of self-control, while others saw it as a form of personal time or relaxation after a stressful day.

A participant stated:

“It is the only time I feel free. During the day I am busy, so at night I use my phone to relax even if it means sleeping late.” (Participant 15)

This theme highlights the presence of self-regulation failure and intentional sleep delay, consistent with bedtime procrastination behavior.

5.3 Theme Three: Sleep Quality Experiences and Consequences

The third theme captures participants' experiences of sleep quality. The majority reported poor or irregular sleep patterns, including difficulty falling asleep, reduced sleep duration, and frequent tiredness during the day.

Participants described feeling physically and mentally exhausted due to insufficient sleep.

One participant reported:

“Most times I sleep very late and wake up tired. Even in class, I struggle to concentrate because I did not sleep well.” (Participant 9)

Another participant stated:

“My sleep is not stable. Sometimes I sleep at 3 a.m. and wake up early for work. It affects my whole day.” (Participant 1)

Some participants also reported experiencing restlessness and difficulty disconnecting from phone activities even when they felt sleepy.

“Even when I am already sleepy, I still feel like checking one more thing on my phone.” (Participant 13)

The findings indicate that sleep quality among participants was generally compromised, with noticeable effects on daily functioning.

5.4 Theme Four: Perceived Relationship between Smartphone Use and Sleep Behaviour

The final theme reflects participants' perceptions of the relationship between smartphone use, bedtime procrastination, and sleep quality. Most participants recognized a direct link between excessive smartphone use and poor sleep outcomes.

Participants acknowledged that smartphone use was the primary factor delaying their sleep.

One participant stated:

“Honestly, my phone is the reason I don’t sleep on time. If not for it, I would sleep earlier.” (Participant 6)

Another participant explained:

“The more I use my phone at night, the less I sleep. It affects my body the next day.” (Participant 18)

Some participants also identified emotional and psychological influences, such as stress relief and escapism, as reasons for nighttime phone use.

“After a stressful day, I use my phone to forget my problems, but it ends up affecting my sleep.” (Participant 10)

Overall, participants demonstrated awareness of the negative impact of smartphone use on sleep, even though many continued the behaviour.

5.5 Summary of Findings

The findings of the study revealed that:

- (a). Smartphone use among young adults in Abakaliki is frequent and often excessive, particularly at night.
- (b). Bedtime procrastination is a common behavioural pattern driven by entertainment, relaxation, and loss of self-control.
- (c). Sleep quality among participants is generally poor, with delayed sleep onset and reduced sleep duration.
- (d). Participants recognize a clear relationship between smartphone use and sleep disturbance, although behavioural change remains limited.

6. Discussion

6.1 Patterns of Problematic Smartphone Use among Young Adults

The first objective of the study was to explore patterns of smartphone use among young adults in Abakaliki. Findings revealed that participants engaged in frequent and prolonged smartphone use, particularly during nighttime hours. Activities such as social media browsing, chatting, video streaming, and online entertainment were dominant. This finding aligns with Elhai et al. (2020), who reported that problematic smartphone use is characterized by compulsive engagement and difficulty disengaging from devices. Similarly, Busch and McCarthy (2021) noted that smartphones have become highly integrated into daily routines, often leading to excessive and habitual use.

The present study also found that boredom, loneliness, and stress were key drivers of smartphone use. This supports Sohn et al. (2019), who found that emotional factors such as anxiety and loneliness significantly predict problematic smartphone use among young adults. The findings therefore confirm that smartphone use is not only technological but also emotionally driven. From the perspective of Uses and Gratifications Theory, individuals actively use smartphones to satisfy needs such as entertainment and emotional relief (Katz et al., 1973). The findings of this study reinforce this theory, as participants used smartphones to cope with stress and fill idle time.

6.2 Sleep Quality Experiences among Young Adults

The second objective examined participants’ experiences of sleep quality. Findings revealed that most participants experienced poor sleep quality, including delayed sleep onset, reduced sleep duration, and daytime fatigue. This finding is consistent with Alimoradi et al. (2023), whose meta-analysis confirmed a strong association between problematic smartphone use and poor sleep quality. Similarly, Demirci et al. (2022) found that excessive smartphone use significantly reduces sleep quality and increases sleep

disturbances among young adults. Participants also reported difficulty falling asleep due to continued phone engagement, which aligns with Chang et al. (2015), who found that exposure to light from smartphone screens suppresses melatonin production and delays sleep onset.

The findings further support Harvey's (2011) cognitive model of insomnia, which explains that cognitive arousal such as mental stimulation from smartphone content can interfere with sleep initiation and maintenance. Participants' continued mental engagement with digital content before bedtime reflects this mechanism. Thus, the study confirms that sleep quality among young adults is significantly compromised by nighttime smartphone use.

6.3 Bedtime Procrastination among Young Adults

The third objective explored the reasons for bedtime procrastination. Findings revealed that participants frequently delayed bedtime despite intending to sleep early. This delay was often unintentional and linked to prolonged smartphone engagement. This finding is consistent with Kroese et al. (2014), who defined bedtime procrastination as the voluntary delay of going to bed without external justification. Participants in this study exhibited similar self-regulation failures, consistent with **Self-Regulation Theory** (Baumeister & Heatherton, 1996), which explains that individuals often fail to control immediate impulses in favor of long-term goals.

The findings also align with Maier et al. (2023), who found that digital media use contributes significantly to bedtime procrastination among young adults. Similarly, Kühnel et al. (2023) reported that individuals often delay sleep to reclaim personal time after stressful daily routines, a phenomenon described as "revenge bedtime procrastination." Participants in this study similarly reported using nighttime as personal leisure time, often sacrificing sleep for relaxation and entertainment. This suggests that bedtime procrastination is both a behavioral and emotional coping strategy.

6.4 Relationship between Smartphone Use, Bedtime Procrastination, and Sleep Quality

The fourth objective examined the perceived relationship between smartphone use, bedtime procrastination, and sleep quality. Findings revealed a strong perceived and experiential link among the three variables. Participants acknowledged that excessive smartphone use led to delayed bedtime, which subsequently resulted in poor sleep quality. This finding is supported by Zhang and Wu (2024), who found that bedtime procrastination mediates the relationship between problematic smartphone use and sleep quality.

Similarly, Exelmans and Van den Bulck (2021) reported that media use before bedtime contributes to delayed sleep through procrastination behaviors. The present study confirms this pathway in a real-life context among Nigerian young adults. The cyclical nature of the relationship observed in this study also aligns with Elhai et al. (2020), who noted that problematic smartphone use is reinforced by psychological dependency and habitual behavior, making behavioral change difficult. From a theoretical standpoint, the findings support Self-Regulation Theory, as participants demonstrated difficulty controlling nighttime smartphone use. They also align with Uses and Gratifications Theory, as smartphone use was motivated by emotional satisfaction and entertainment needs.

7. Conclusion

Based on the findings of the study, it is concluded that problematic smartphone use plays a significant role in shaping sleep behaviors among young adults in Abakaliki metropolis. The study revealed that excessive smartphone use, particularly at night, contributes to bedtime procrastination, which in turn negatively affects sleep quality. Young adults in the study demonstrated awareness of the negative impact of their smartphone habits on sleep; however, behavioral control remained limited due to emotional, social, and recreational motivations. The qualitative approach provided deeper insight into the lived experiences and motivations underlying smartphone-related sleep behaviors among young adults. The study therefore concludes that sleep disturbance among young adults is not merely a biological issue but is strongly influenced by behavioral and technological factors embedded in daily lifestyle practices.

8. Recommendations

Based on the findings of the study, the following recommendations are made:

- (a) Sleep Hygiene Education: Health educators and counselors should design programs that educate young adults on proper sleep hygiene practices, including limiting smartphone use before bedtime.
- (b) Digital Well-being Awareness Campaigns: Institutions and policymakers should promote awareness on the effects of excessive smartphone use on sleep and mental health.
- (c) Cognitive-behavioral and self-regulation interventions: Psychological interventions aimed at improving self-control and time management should be introduced to help young adults reduce bedtime procrastination.
- (d) Parental and Institutional Guidance: Families and educational institutions should encourage healthy digital habits among young adults, especially regarding nighttime smartphone use.
- (e) Further Research: Future studies should explore larger and more diverse populations and may adopt mixed-method approaches to deepen understanding of the phenomenon.

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