

**INFLUENCE OF SOCIAL MEDIA USAGE ON
SLEEP QUALITY AND ACADEMIC
PERFORMANCE AMONG BASIC MEDICAL
SCIENCES STUDENTS AT THE UNIVERSITY OF
BENIN**

BY

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CERTIFICATION

This dissertation by Aor Kamimi Frank accepted in its present form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin.

SUPERVISOR

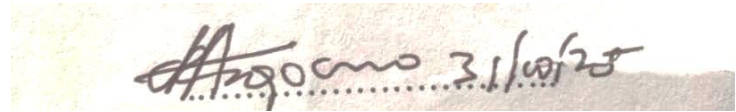
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DEDICATION

This work is dedicated to my beloved family for their unwavering love, encouragement, and support throughout the course of my study. Their prayers, sacrifices, and belief in my dreams have been my greatest source of strength and inspiration.

ABSTRACT

Introduction: There is growing concern over the impact that social media use by university students could have on their academic performance due to its effect on sleep. The study assessed the influence of social media use, sleep quality and academic performance of students of the School of Basic Medical Sciences of the University of Benin.

Methods: A descriptive survey research design was utilized in the study. Stratified random sampling technique was adopted for selecting 344 undergraduates. The data collection instrument included a structured questionnaire, which contained SMUS, PSQI and academic performance measure (CGPA). Descriptive analysis of participants' profile was undertaken using simple statistics and Pearson correlation was used to test the hypotheses at 0.05 alpha level.

Results: Amongst all the respondents, 60.5% were female. The average SMUS was 10.09 ± 1.72 , implying high levels of social media engagement, while the mean PSQI score was 7.73 ± 4.14 , depicting fair to poor sleep quality. With respect to academic performance, 55.8% of the respondents scored between 3.50 and 4.49 CGPA. A strong negative correlation between social media usage and academic performance ($r = -0.244$, $p < 0.001$) was found. There was, however, no significant association between social media usage and sleep quality ($p = 0.813$) nor between sleep quality and academic performance ($p = 0.391$).

Conclusion: This study reveals that social media usage adversely impacts academic performance, and sleep quality does not act as a mediator in this relationship. The students are advised to adopt healthy social media practices and concentrate on academics. The institution should consider raising awareness about this issue through appropriate digital literacy programs.

Keywords: Social media usage, sleep quality, academic performance, undergraduates, Basic Medical Sciences, University of Benin

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Social media has taken the world by storm in modern times, becoming an inseparable part of life, particularly for younger generations. Such applications as WhatsApp, Facebook, Instagram, Twitter, Snapchat, and TikTok have revolutionized interactions. Social media provides university students with affordable means of socializing, having fun, and exchanging information (Oche et al., 2019). This phenomenon is changing the way people interact, gather information, and communicate by breaking down spatial limitations and fostering immediate collaboration and interaction (Kaplan & Haenlein, 2010). Beyond recreation and social networking, university students also leverage social media platforms for academic activities, including knowledge sharing, project collaborations, and accessing academic materials (Pempek et al., 2009). However, social media usage can differ significantly in scope and intensity and may even pose challenges to other critical tasks such as studying, resting, and personal interactions (Kuss & Griffiths, 2011).

Undergraduates in Nigeria use social media extensively and often. Although such media serve as social outlets where individuals can interact and communicate, its overuse has generated concerns regarding possible effects on their academic performance and sleep quality (Oche et al., 2019; Nwazor et al., 2024; Seun-Fadipe & Mosaku, 2021). University students in Nigeria extensively use social media. According to a study conducted in Sokoto State

(Oche et al. 2019), 97.9% of students use social media, with Facebook (81.7%) and WhatsApp (84.9%) being the most popular social media sites. It is interesting to note that 92% of these students used social media at night, and among those spending more than two hours on it at night, there was a much higher likelihood of having sleeping problems.

The concept of “quality of sleep” is the measure of quality of people’s sleep, which includes such elements as duration of sleep, sleep latency, continuity, and sensation of freshness upon waking (Ohayon et al., 2017). Falling asleep easily, staying asleep through the night, and waking refreshed are among examples of the qualities that demonstrate good sleep quality. For keeping their physical wellbeing, emotions, cognition, and studying skills balanced, young people, especially those who study at universities, require getting quality sleep (Hirshkowitz et al., 2015). However, considering irregular sleep behavior, university students are one of the most vulnerable categories of people.

Lund et al. (2010) note that they often face unpredictable schedules, academic pressure, night time reading, social life, and higher exposure to screens, all of which may impact their sleeping cycles. Lack of adequate sleep or poor-quality sleep among students has been associated with poor academic achievements, difficulty focusing, loss of memory, as well as mental disorders such as depression and anxiety (Beattie et al., 2015). Several studies show that there is a notable percentage of students attending universities in Nigeria who find it difficult to fall asleep, and this problem is mostly associated with their usage of media. According to Seun-Fadipe & Mosaku (2021), many

undergraduate students in Nigeria suffer from lack of sleep and fatigue during the day.

In a similar manner, Nwazor et al. (2024) discovered that increased use of social media among medical students during nighttime was linked to low quality of sleep, which adversely affected their overall well-being and performance in class. Performance improved considerably among Nigerian undergraduate students who enjoyed quality sleep than those who did not. As such, it may be inferred that there is a possible trickle-down effect on academic success because of social media use and any other factor related to low quality of sleep (Seun-Fadipe & Mosaku et al., 2021). Social media can be used effectively as an academic resource for debates and collaboration, but its misuse may harm students academically (Tess, 2013).

Regular alerts, constant scrolling, and entertaining content may take up the attention of many students, resulting in reduced time and energy spent on academic pursuits (Kirschner & Karpinski, 2010). Numerous studies have shown that over-reliance on social media is associated with poorer academic outcomes. As an illustration, regular Facebook users showed significantly lower GPAs than their counterparts who refrained from using it (Kirschner & Karpinski, 2010). Moreover, Junco (2012) revealed a negative relationship between academic achievement and social networking sites utilization, especially in cases where it was not related to academics, whereas there was a positive relationship with academic communication. According to Osharive (2015), Nigerian university students often access applications such as WhatsApp and Instagram while in class or very late into the night, causing them to lose focus and depriving them of time for studying and relaxing.

Fragmented attention often leads to low academic productivity among students who engage in social media multitasking (Olufadi, 2015).

The objective, extent, and regularity of the use of social media are what dictate the impact of the latter on the academic performance of students. To counteract possible drawbacks and instill proper and beneficial practices among learners, an understanding of how such learners use their time in terms of social media is vital. This applies to students in Nigerian institutions like the ones studying Basic Medical Sciences at the University of Benin. According to many Nigerian university students, several hours daily are dedicated to exploring social media sites even during lessons or at night.

1.2 Statement of the Problem

While social media was instrumental in creating avenues for communication, sociability, and scholarly engagement, there were serious worries about its adverse effects on the learning outcomes and sleeping patterns of students enrolled in universities. Students at Nigerian universities such as the University of Benin tended to spend extended periods of time on social media applications like Facebook, Instagram, TikTok, and WhatsApp (Osharive, 2015; Olufadi, 2015). There had been evidence that frequent usage of social media sites, particularly late into the night, contributed to cognitive arousal as well as screen exposure, leading to delayed onset of sleep, decreased sleep duration, and poor-quality sleep (Levenson et al., 2017; Alhassan et al., 2019). In addition, it was observed that students engaged in multitasking involving both study and social media activities were prone to experiencing difficulties concentrating, procrastinating, and fragmented learning, all of which could

negatively influence their academic results (Kirschner & Karpinski, 2010; Junco, 2012).

Although there is increasing evidence from around the world on these matters, there existed a significant void in scholarly work dedicated solely to the students enrolled in Basic Medical Sciences at the University of Benin. Due to the intense academic pressures faced by these students, it was necessary to study the impact of social media use on their academic achievement and sleep patterns. This information was key in devising strategies aimed at ensuring healthy social media use and fostering academic excellence.

This study was therefore aimed to answer the following questions;

- i. What are the patterns and frequency of social media usage among students of Basic Medical Sciences at the University of Benin?
- ii. How does the duration and timing of social media usage affect the sleep quality of students of Basic Medical Sciences?
- iii. Is there a significant difference in academic performance between students of Basic Medical Sciences with high and low levels of social media usage?
- iv. To what extent is sleep quality associated with academic performance among students of Basic Medical Sciences?
- v. Does sleep quality mediate the relationship between social media usage and academic performance among students of Basic Medical Sciences?

1.3 Aim of the Study

The aim of this study is to assess the relationship between social media usage, sleep quality, and academic performance among students of Basic Medical Sciences at the University of Benin. The goal is to understand how patterns of social media engagement may affect students' well-being, particularly in terms of sleep quality, and their academic success.

1.3.1 Specific Objectives

- i. To assess the frequency and pattern of social media usage among students of Basic Medical Sciences at the University of Benin.
- ii. To evaluate the sleep quality of students of Basic Medical Sciences in relation to their social media usage.
- iii. To determine the academic performance of students of Basic Medical Sciences with varying levels of social media usage.
- iv. To examine the relationship between sleep quality and academic performance among students of Basic Medical Sciences.
- v. To explore whether social media usage indirectly affects academic performance through its influence on sleep quality.

1.4 Hypotheses

1.4.1 Main Hypotheses

There would be no significant relationship between social media usage, sleep quality, and academic performance among students of Basic Medical Sciences at the University of Benin.

1.4.2 Sub Hypotheses

- i. There would be no significant relationship between social media usage and sleep quality among students of Basic Medical Sciences.

- ii. There would be no significant relationship between sleep quality and academic performance among students of Basic Medical Sciences.
- iii. There would be no significant relationship between social media usage and academic performance among students of Basic Medical Sciences.

1.5 Scope of the Study

The current research study sought to examine the relationship between the use of social media sites and its effect on sleep quality and academic performance among undergraduate students in the field of Basic Medical Sciences at the University of Benin. The limitations of the study involved examining the effect of frequency, duration, timing, and patterns of social media sites use and the relationship with sleep quality and academic performance.

1.6 Limitations of the Study

1. Sleep quality and academic performance information was based on self-reporting and might be biased in terms of social desirability or memory problems of respondents.
2. The research study is limited to students of Basic Medical Sciences at the University of Benin, which means that findings cannot be generalized to other schools/universities.
3. Findings of the study do not take into consideration confounding factors affecting sleep quality and academic performance, such as mental condition, stress, socioeconomic background, etc.
4. As opposed to distinguishing the purpose of using social media, it is a general term in the study.

1.7 Significance of the Study

- i. The results would raise awareness of the possible impacts of excessive and untimely social media usage concerning sleep hygiene and its academic implications. This knowledge could assist the respondents in developing better digital practices to benefit them not only academically but also physically.
- ii. These results may help academics and academic counselors come up with an intervention or a campaign to sensitize students on how to use technology to maximize both their sleep and grades.
- iii. The findings of the research are vital for administrators and policy makers who wish to develop policies and/or services regarding digital wellbeing of students, counseling, and academic support services.
- iv. The research serves as a resource for digital wellness initiatives in academic environments. By emphasizing the possible academic and psychological impact of improper social media use, the findings would enable the students to advocate for such campaigns aimed at increasing digital literacy and sleep awareness among them.
- v. For other scholars, this study adds literature on issues concerning student digital behavior and its impact on mental and academic wellbeing, especially within the scope of Nigeria and Basic Medical Science students in particular.

1.8 Definition of Terms

i. **Concept of Influence:** In this case, influence can be viewed as a quantitative measure of how much influence one factor (use of social media) can have on another factor (sleep quality and academic performance). It implies that there is an ability to affect or alter something through something else, either directly or indirectly (Creswell, 2014).

ii. **Social Media Usage:** Social media usage relates to the interaction between students and different digital media such as WhatsApp, Facebook, Instagram, TikTok, Twitter (X), Snapchat, among others. This concept is based on how often, why and for what purpose the students interact with these digital media (Kuss & Griffiths, 2011).

iii. **Sleep Quality:** Sleep quality can be viewed as the way an individual sleeps or his/her capacity to fall asleep. This concept focuses on variables such as duration, continuity of sleeping and arousal after sleep onset. For this study, sleep quality is determined by the screen exposure and psychological arousal from social media usage (Levenson et al., 2017).

iv. **Academic performance:** Academic performance can be defined as how well a learner performs academically when undertaking an academic task, usually through GPA or examination scores. According to Kirschner and Karpinski (2010), and Junco (2012), academic performance has been viewed as an indicator of the efficiency and productivity of learning.

v. **Undergraduate:** Undergraduate is an individual who has been admitted to a university or college for his or her first degree program, usually bachelor's degree program.

1.9 List of Abbreviations

- GPA: Grade point average

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The omnipresence of social media has fundamentally transformed the way undergraduate students engage with academic materials, communicate, and acquire information, although it may introduce novel lifestyle practices that might influence academic achievement and sleep (Pew Research Center, 2022; Apuke & Iyendo, 2018). Although social media facilitates various intellectual and social benefits, its overutilization and inappropriate timing, particularly during nighttime hours, have been linked to disruptions of circadian rhythms and reduced sleep quality (Wolniczak et al., 2013; Alharthi et al., 2019). Sleep, in turn, facilitates learning, memory consolidation, and concentration processes required for academic achievement (Medic, Wille, & Hemels, 2017; Hirshkowitz et al., 2015). Various studies have explored the relationship between the variables mentioned above, resulting in mixed findings, such as negative correlations and variable outcomes depending on the context, suggesting that the effect of social media on the health and academic achievement of university

students is rather complicated and multidimensional (Junco, 2012; Becker et al., 2018). Therefore, analyzing existing literature is crucial for gaining a more profound understanding of the variables mentioned above and identifying strategies that will facilitate student wellness and academic success.

2.2 Social Media

2.2.1 Definition and types of Social Media

Social media refers to internet-based systems that allow users to generate, share, and exchange information and ideas within virtual networks or communities. Social media provides for interaction and real-time communications, thus transforming the ways in which people communicate, learn, and access information (Kaplan & Haenlein, 2010; Kietzmann et al., 2011). According to the Oxford English Dictionary (2023), social media are defined as “websites and applications that enable users to create and share content or participate in social networking.” The term highlights the participative nature of the aforementioned websites, distinguishing them from other non-participative mediums such as TV and newspapers.

The categorization of social media platforms is largely based on their main function and the type of content provided by them. Kaplan & Haenlein (2010) identified six categories of social media: collaborative projects (such as Wikipedia and Google Docs); blogs and microblogs (including Twitter/X and Tumblr); content communities (for instance, YouTube and TikTok); social networking sites (such as Facebook and LinkedIn); virtual game worlds (for example, Fortnite and World of Warcraft); and virtual social worlds (such as

Second Life). Undergraduate students typically make use of social networking and content sharing websites.

Classification systems that have been developed in more recent times consider the functions served by the platforms. According to Boyd and Ellison (2007), social networking websites like Facebook, Instagram, and Snapchat enable users to establish public or semi-public accounts, define their relationships with other users, and keep tabs on the activities of their contacts, fostering community formation and self-expression. In contrast, applications like YouTube and TikTok concentrate on video dissemination and viewing, with the user engaging through liking, commenting, and subscribing to others' channels (Montag et al., 2021). Moreover, instant messaging apps such as WhatsApp and Telegram facilitate immediate communication and group-based interaction, playing dual roles as social and educational tools (Church & de Oliveira, 2013).

With the proliferation of portable electronic gadgets and the expansion of Internet connectivity, especially amongst young individuals from developing countries, social media usage has become an integral aspect of everyday living. Undergraduate students enrolled at Nigerian universities, including the University of Benin, utilize numerous social media platforms, alternating between them based on need, situational relevance, and preference (Odukoya et al., 2020; Apuke & Iyendo, 2018). The platforms are increasingly being employed for leisure and communication purposes, as well as academic collaboration, information-seeking, and education.

2.2.2 Patterns and Purposes of usage among Undergraduates

Undergraduate students employ social media in varied ways to cater to their academic, social, emotional, and recreational needs. Such trends are dependent on factors like age, educational level, peer group effect, availability of internet access, and individual preferences (Alwagait et al., 2015; Okereke & Nnadozie, 2021). According to Gómez et al. (2017), most undergraduate students regularly use social media, particularly during free time, night hours, and weekend days. The leading social media platforms include WhatsApp, Instagram, Twitter/X, Facebook, Telegram, Snapchat, and TikTok, and mobile phones remain the primary channel of access due to its convenience and portability (Ajewole & Fasola, 2015; Apuke & Iyendo, 2018).

Undergraduate students commonly indulge in multitasking by accessing social media platforms while studying, attending lectures, and engaging in other related academic tasks. Students presume that multitasking will improve performance by eliminating boredom and enhancing attentiveness, but empirical studies prove otherwise; multitasking may affect their concentration negatively and impair cognitive abilities (Junco, 2012; Kirschner & Karpinski, 2010). Additionally, social media usage significantly increases during periods of less academic stress or relaxation, suggesting that it is also employed as an escape tool or mechanism

With regards to intentionality, social media serves several functions among undergraduate students. This includes keeping in touch with their loved ones, forming study groups, disseminating academic information, connecting with peers, investigating job opportunities, and keeping abreast with global happenings (Manca & Ranieri, 2016; Boateng & Amankwah, 2016). Some

students use education-related social media sites like WhatsApp, Telegram, and Facebook groups to exchange class notes, collaborate on class projects, and receive notifications from their teachers and departmental groups (Ochai & Ode, 2019). On the other hand, some social media sites, including Instagram, Snapchat, and TikTok, are mainly for entertainment and leisure activities, hence causing distractions when unchecked (Kuss & Griffiths, 2015; Nesi, 2020).

However, the reasons why people engage on social networking sites also differ. Some students use these platforms for learning purposes while others are driven by FOMO, the need to fit in socially or even to feel emotionally supported (Przybylski et al., 2013; Oberst et al., 2017). Hence, distinguishing healthy use from unhealthy use becomes difficult since the use of social media is deeply entrenched in the daily activities of students. Additionally, the rise of algorithmically tailored content and endless scrolling increases engagement duration unconsciously, causing digital burnout or compulsive social media use (Montag, Sindermann, & Becker, 2021; van den Eijnden et al., 2016).

Knowing these patterns and purposes of using social media is vital in deciding whether the use of social networking sites enhances or deteriorates the quality of sleep and academic achievement, taking into consideration timing, frequency, and purposeful intentions as moderation factors.

2.2.3 Time spent and addictive tendencies

Time allocation among university students in using social media sites has generated considerable attention, especially due to the influence of such usage on their mental well-being, sleep quality, and educational performance. Various research findings have shown that college students often use social

media sites for a few hours every day, sometimes even exceeding three to five hours (Al-Menayes, 2015; Olufadi, 2016). Such consistent usage is often facilitated by the availability of smartphones and the desire to remain connected and informed (Twenge et al., 2018). The mobile nature of TikTok, Instagram, and Snapchat social media apps makes users prone to constant scrolling, thus leading to excessive screen time usage, often without their realization (Montag et al., 2019).

As per scientific evidence, social media usage has been found to be linked to addiction, especially among young adults and college-going students. Social media addiction is described as preoccupation with social media, a strong urge to engage with social media, and dedicating so much time and energy into it that it impacts other important areas of one's life (Andreassen et al., 2012). Under these circumstances, social media addiction could manifest itself in the form of negligence towards studies, changes in sleeping patterns, distress at being unable to access social media sites, and constant checking of notifications (Kuss & Griffiths, 2015; Ryan et al., 2014). These actions have been noted to resemble behavioral addiction in many ways, including mood change, salience, tolerance,

The signs of addiction include withdrawal, conflicts, and relapse (Griffiths, 2005).

An addiction to social media use in undergraduate students is linked to the inability to manage time, procrastination, decreased academic motivation, and higher levels of stress and anxiety (Pantic, 2014; Błachnio et al., 2015). The problem is even more severe in relation to the "Fear of Missing Out" (FOMO)

syndrome that compels people to be online all the time because of the risk of not being able to receive any updates. The compulsiveness of such behavior may go along with the sense of productivity that arises while engaging in passive activities on social networks (Meier & Schäfer, 2018).

Research conducted in Nigeria universities reflects similar global patterns. Olatunde & Balogun (2020) found out that over 60% of the students examined checked social media platforms while in class, whereas about 45% accessed these sites at late hours leading to inadequate sleep time. Additionally, many students are unable to manage themselves concerning screen time, indicating a growing addiction to these platforms (Afolabi & Asuzu, 2020).

The right amount of usage of social media plays an important role in fostering academic cooperation as well as reducing stress. However, too much use is harmful to mental activities, sleep, and academic achievements.

2.3 Sleep quality

Sleeping is a natural physiological state necessary for recovery of physical and mental resources, brain functioning, and mood management. This process is dynamic and complex in its nature and manages many different physiological and psychological processes (Carskadon & Dement, 2011; Hirshkowitz et al., 2015). The National Sleep Foundation (2014) considers that high-quality sleep can be defined as a person's satisfaction with his/her sleep experience, including such characteristics as sleep onset, retention, duration, and time awake after falling asleep.

Sleep quality is determined by quantitative and qualitative aspects. Quantitative sleep quality is characterized by sleep duration recommended to

be from 7 to 9 hours per day for people aged 18 to 25 years old and sleep latency defined as a period required to fall asleep (Hirshkowitz et al., 2015). Qualitatively, high-quality sleep involves waking up feeling well-rested, experiencing minimal interruptions at night, and falling asleep quickly after nocturnal awakenings (Buysse, 2014). In addition, it should be highlighted that regular sleep/wake times are considered significant for optimizing circadian rhythms (Ohayon et al., 2017).

A number of components have been used in determining the quality of sleep, such as well-established methods like Pittsburgh Sleep Quality Index (PSQI). Such components comprise the following: Sleep latency (the period taken to fall asleep) Sleep duration (hours slept) Sleep efficiency = (total hours of sleep / total hours in bed) * 100 Sleep disturbances (awakening during nighttime) Self-reported sleep quality (subjective experience of sleep quality) and Daytime dysfunction (impact of insufficient sleep on daytime activities) (Buysse et al., 2014).

Quality sleep is necessary for proper functioning of the brain such as memorizing, attention span, learning, and emotional regulation. On the contrary, inadequate sleep quality has been shown to negatively impact cognitive performance, mood disorders, poor immunity, and health problems (Walker, 2017; Medic, Wille, & Hemels, 2017). Regular quality sleep is crucial for achieving academic excellence and building resilience among undergraduate students, but existing research indicates that a significant proportion of students suffer from disrupted sleep due to poor lifestyle choices, academic stress, and digital media usage (Lund et al., 2010; Hershner & Chervin, 2014).

2.4 Academic Performance

2.4.1 Definition and indicators of Academic Performance

Academic achievement refers to how much the learner has attained his or her educational goals, usually assessed through various measures, including exams, GPA, course assignment evaluations, and standardized tests (York et al., 2015). Academic achievements offer both quantitative and qualitative evaluations of a student's understanding, absorption, and application of academic material through academic assignments.

Academic achievement goes beyond exam scores. It entails other components such as participation in class discussions, project activities, practical performance, and academic involvement. According to Credé et al. (2010), academic performance indicators include GPA, academic motivation, attendance rate, time management skills, and cognitive engagement. Within the college context, GPA is among the most widely accepted standardized measures because it allows for a comprehensive evaluation of the student's academic achievement over multiple semesters and courses (Trockel et al., 2000).

The academic performance of students can be assessed by:

Cognitive indicators: The cognitive indicators comprise marks, comprehension, and reasoning capabilities.

Behavioral indicators: The behavioral indicators include class attendance, assignment submission, and participation.

Affective indicators: The affective indicators consist of attitudes to learning and motivational levels (Wang et al., 2013).

In Nigeria and other nations, the academic performance of university undergraduates is formally assessed through CGPA (Cumulative Grade Point Average), which determines the academic standing and graduation status of the students (Ogunleye et al., 2014).

2.4.2 Determinants of Academic Performance

There are multiple factors that affect students' academic performance, such as personal, institutional, sociological, and technological elements. Personal variables that determine success include IQ level, motivation, study behavior, psychological and physiological well-being, and quality of sleep.

Peer pressure, parent involvement, socio-economic status, and emotional wellbeing constitute some of the major psychological factors (Ali et al., 2013). Distraction due to technology, including social media use, has increased. The over-reliance on social media such as Instagram, WhatsApp, and TikTok leads to procrastination, lack of focus, and poor academic output (Junco, 2012; Paul et al., 2012). Poor time management skills due to technological diversions can predict poor academic performance (Al-Menayes, 2015).

Another important factor that affects the performance of students is sleep. Lack of sleep or poor sleep quality has proven through scientific studies that it hinders memory consolidation, attention, and cognitive skills which are needed to excel academically (Lund et al., 2010; Gilbert & Weaver, 2010). Students lacking sleep are likely to experience problems with retaining information and controlling emotions which impact their learning process (Hershner & Chervin, 2014).

Besides this, personal traits that include self-discipline, self-efficacy, and goal setting have a positive correlation with good academic performance, while too much stress, anxiety, and internet addiction affect negatively. There is a range of external factors that determine how successful students perform academically.

2.5 Epidemiology

2.5.1 Prevalence of Social Media Usage

The number of people who use social media has risen sharply globally, especially among young adults and university students. According to DataReportal's Digital 2024 world Overview Report, there were more than 5 billion people, or over 60% of the world's population, using the internet by the end of 2023, out of which almost 4.95 billion were social media users, with a year-on-year increase of 5.6% (Kemp, 2024). Some of the commonly used social media networks include WhatsApp, Facebook, Instagram, TikTok, Snapchat, and X (formerly known as Twitter), where many individuals spend up to 2.5 hours daily on each social media platform.

Social media networks have been integrated into university students' everyday routine. As per research, a high percentage of undergraduate students in Nigeria are active on social media networks. For instance, in their study, (Oluwole & Oluwatayo 2020) found that 92% of undergraduate students at the university level in southern Nigeria frequently used social media platforms, and a significant portion accessed them more than five times daily. In another study, 89.7% of undergraduate students at the University of Nigeria, Nsukka, were active social media users, especially WhatsApp, Facebook, and Instagram (Ezeah et al., 2014).

The increased usage of social media by Nigerian undergraduates has been linked to the rise in smartphone ownership, reduced cost of internet data packs, and growth in digital communication culture. From the study conducted by Okon (2020) among University of Uyo students, 86% of students used social media severally in a day, whereby social media was used for chatting, recreation, and academic work.

Young adults between 18-24 years are the most active users of social media across the world (Auxier & Anderson, 2021). According to the findings of the Pew Research Center, young adults between the ages of 18 and 24 years were found to be the most active users of social media platforms, where 84% used at least one social media platform regularly. The three most popular social media sites used by young adults are YouTube, Instagram, and TikTok.

2.5.2 Prevalence of Poor Sleep quality

The issue of poor sleep quality is a prevalent one for undergraduate students worldwide. It is becoming more widespread due to academic pressure, behavioral habits, and higher rates of digital interaction. There are several features of sleep quality, which include sleep latency, sleep duration, sleep efficiency, and sleep interruptions (Buysse et al., 2014). Research that used standardized instruments, like the Pittsburgh Sleep Quality Index (PSQI), has shown that undergraduates generally sleep poorly.

International research has demonstrated that many undergraduate students suffer from poor sleep quality. For instance, a study involving university students across 26 countries revealed that more than 60 percent of undergraduates had poor sleep quality, and African and Asian students were particularly affected (Alfonsi et al., 2020). In the United States, Lund et al.

(2010) have noted that about 60 percent of undergraduates had poor sleep quality, and their irregular sleep patterns, stress, and technology usage at night were contributing factors.

In Nigeria, several studies have shown worrying trends of poor sleep among university undergraduates. The results of a study carried out at the University of Nigeria, Nsukka, revealed that 59.2% of the undergraduate students experienced poor sleep quality, noting that they slept for less than 6 hours every night (Ogunsemi et al., 2021). Also, Nyerere & Nnamani (2020) reported that over 70% of the students in a Southern Nigerian university had poor sleep quality, which was attributed to academic workload and social media engagement.

The widespread adoption of smartphones and social media among the youth is contributing to the poor sleep experiences of the students. Studies reveal that exposure to artificial light from screens at night interferes with the natural melatonin secretion process, thereby disrupting the circadian rhythm (Hershner & Chervin, 2014). Also, the stimulation of the mind by social media at night has been found to increase sleep latency and nighttime awakenings (Levenson et al., 2017).

Undergraduate students are highly susceptible to poor sleep due to their unique transition stage in life, characterized by academic stressors, peer pressure, and heavy consumption of digital media. Poor sleep has been associated with low academic performance, excessive stress, impaired attention, and emotional problems.

2.5.3 Trends in Academic Performance

Scholarly achievement in the academic progress of college students has been a subject of global educational discussion, with declining academic performance being one of the rising concerns along with the associated psychological, social, environmental, and behavioral factors. Scholarly achievement is usually quantified through the CGPA, examination results, or assignments, and it is a key determinant of the academic success of learners as well as their prospects for the future (Olatoye & Adekoya, 2010).

In recent times, several studies have reported a drop in scholarly achievements amongst students enrolled in colleges, especially in developing countries. According to Yusuf & Al-Banawi (2013), many undergraduate students in Nigeria do not meet the necessary academic benchmarks due to diversions like poor study habits, academics-related stress, finance, and social media distractions. Likewise, Aina et al. (2020) note that about 40% of undergraduates in south-western Nigeria have GPAs below 3.0 on a scale of 5.0, which reflects underachievement.

Another emerging trend involves the growing association between overuse of social media sites and poor academic performance. Several researchers have established a negative correlation between time invested in social networking websites, including Instagram, TikTok, and WhatsApp, and students' engagement in academic work (Karpinski et al., 2013; Okereke et al., 2021). When students spend excessive time online, they may experience reduced concentration, delay in work completion, and loss of study hours, which negatively affects their test grades.

Furthermore, students' mental state influences their academic performance trends. Recent studies have indicated that stress, anxiety, and lack of sleep, which are typical among university learners and directly correlate with academic underperformance (Owusu-Acheaw & Larson, 2015; Adegboyega & Oladeji, 2022), affect students' test results. This trend aligns with the global trend identified by the World Health Organization regarding the importance of mental well-being for successful academic work (WHO, 2022).

Though issues are still being experienced, there are certain schools that have shown consistency or improvement in their performance trends, which can be attributed to the shift in pedagogy, student support services, and the introduction of digital learning systems (Akinsola & Tella, 2007). Nevertheless, disparities are evident, especially in terms of differences between urban and rural institutions and public and private schools in Nigeria.

2.6 Relevant Anatomy and Physiology of Sleep

2.6.1 Sleep Process and Phases

Sleeping is a highly complicated neurophysiological phenomenon characterized by the intricate network of connections of the central nervous system with various neurotransmitter systems, notably the brain stem, hypothalamus, and thalamus (Saper et al. 2010). The hypothalamus, especially its suprachiasmatic nucleus (SCN), plays an essential role in regulating the circadian rhythms, which dictate the wake-sleep cycle through environmental stimuli (Colwell, 2011; Buijs & Kalsbeek, 2020).

The two main systems that control the process of sleeping are the homeostatic sleep drive and the circadian rhythm. The homeostatic drive increases with

sleep deprivation and is primarily related to an increase in the concentration of adenosine in the basal forebrain, increasing the sleep pressure (Porkka-Heiskanen et al., 2013; Zhang et al., 2019). On the other hand, the SCN is responsible for the circadian rhythm, which is synchronized with the light-dark cycle and helps to regulate sleep timing and the secretion of some hormones, such as melatonin (Czeisler & Buxton, 2017).

The two types of sleep are the non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep, both occurring periodically every 90-110 minutes at night (Scammell et al., 2017). NREM sleep is subdivided into three stages called N1, N2, and N3, depending on the depth of the sleep and distinct waves visible on the EEG. N1 is light sleep, N2 is sleep spindle and K complex sleep, while N3 is slow-wave sleep (SWS) and the deepest stage of sleep (Brown et al., 2012; Watson et al., 2016).

REM sleep, which usually happens around 90 minutes after the onset of sleep, includes vivid dreams, rapid eye movements, muscle atonia, and increased neural activity that resembles wakefulness (Dinges et al., 2018). The levels of acetylcholine increase during this stage, while monoamines such as serotonin and norepinephrine are suppressed, facilitating the development of the unique features of REM (Weber & Dan, 2016; Zamboni et al., 2023).

Brainstem, particularly pons and medulla oblongata, regulate REM/NREM sleep transitions by means of ascending and descending projections stimulating the activity of GABA, orexin, and histamine neurotransmitters (Silvani et al., 2020). In addition, thalamus regulates cortical activity and

sleep spindles production, particularly during NREM sleep stage N2 (Fernandez & Lüthi, 2020).

This complex interaction between brain structures and chemical mediators enables the maintenance of sleep structure contributing to the restoration of both body and mind processes during NREM and REM stages correspondingly (Lo et al., 2016; Galbiati et al., 2020). Any alteration in these factors may lead to disrupted sleep resulting in negative outcomes for memory, mood regulation, and academic achievement (Mander et al., 2017; Xie et al., 2021).

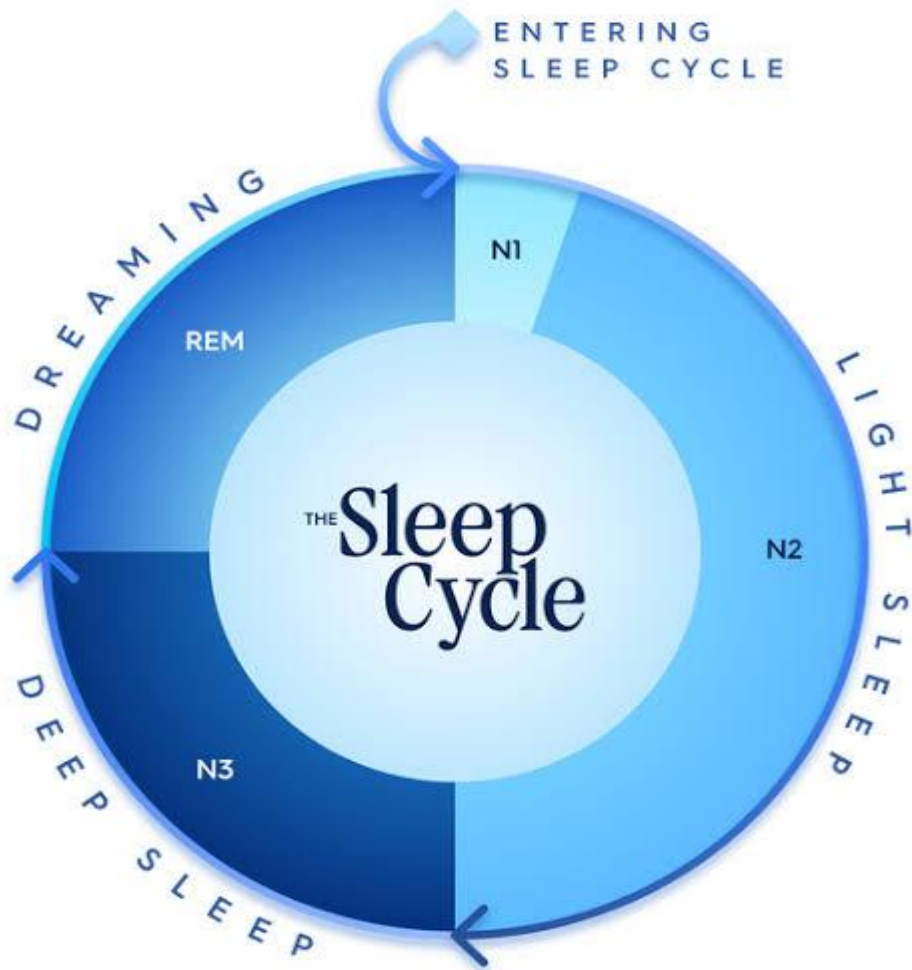


Figure 1: Understanding Sleep Stages.

2.6.2 Neurobiology of Sleep and wakefulness

The neurophysiology of sleep and waking is known to involve a balance between brain regions, neurotransmitter functions, and hormones that act together to initiate, maintain, and regulate sleep-wake homeostasis through the balance of arousal and sleep-promoting mechanisms (Saper et al., 2010; Scammell et al., 2017).

Waking states are known to be regulated by ARAS, which consists of the nucleus coeruleus, nuclei raphe, tuberomammillary nucleus, and pontine tegmentum (Brown et al., 2012). These brain areas stimulate cerebral cortical neurons by secreting norepinephrine, serotonin, histamine, acetylcholine, and orexin (hypocretin) (Weber & Dan, 2016; Silvani et al., 2020).

On the other hand, initiation and regulation of sleep rely on inhibitory mechanisms, specifically the ventrolateral preoptic nucleus (VLPO) within the hypothalamus that produces GABA (gamma-aminobutyric acid) and galanin, which reduce the excitatory activity of wake-promoting areas (Saper et al., 2010; Fernandez and Lüthi, 2020). The aforementioned neurotransmitters contribute to the entry into NREM (non-rapid eye movement) sleep by suppressing arousal systems, leading to reduced sensory and metabolic activities of the brain.

Another significant component of sleep physiology is hormone-dependent processes. Melatonin, a hormone produced by the pineal gland, is crucial for the regulation of circadian rhythms. Its production is induced by darkness and inhibited by light, exerting effects on the suprachiasmatic nucleus (SCN) of the hypothalamus and inducing sleep according to night rhythm (Czeisler &

Buxton, 2017). An increase in melatonin in the evening informs the organism to enter the sleeping mode (Zamboni et al., 2023).

Blue light exposure from technology such as smartphones, tablets, and computers has emerged as one of the most important environmental factors disrupting melatonin release in today's times. Blue light in the wavelength of 460-480 nm has been found to inhibit melatonin synthesis through the activation of ipRGCs that transfer light signals to the SCN (Chang et al., 2015). In addition, blue light exposure in the evenings can lead to disruption of circadian rhythm, reduction in the amount of sleep and poor sleep quality (Tosini et al., 2016; Brown, 2020). The importance of blue light exposure in the context of reduced sleep is particularly relevant to college students because of their excessive exposure to technology in the night (Minges & Redeker, 2016; Xie et al., 2021).

In addition, adenosine, which is a neuromodulator and rises with wakefulness, causes sleep pressure by inhibiting wake-promoting neurons and triggering sleep-promoting neurons in the VLPO (Zhang et al., 2019). Caffeine, a common stimulant, acts as an antagonist of adenosine receptors and thus causes drowsiness to reduce and sleep delay due to use at late hours of the day (Roehrs & Roth, 2018).

To conclude the above, it is clear that the neurophysiology of both wakefulness and sleep is regulated by neurotransmitters such as GABA, acetylcholine, serotonin, and norepinephrine; melatonin as a hormone; as well as neuromodulators such as adenosine. Artificial factors such as blue light can

interfere with this regulation process, thereby causing sleep disorders and impacting physical, psychological, and mental wellbeing.

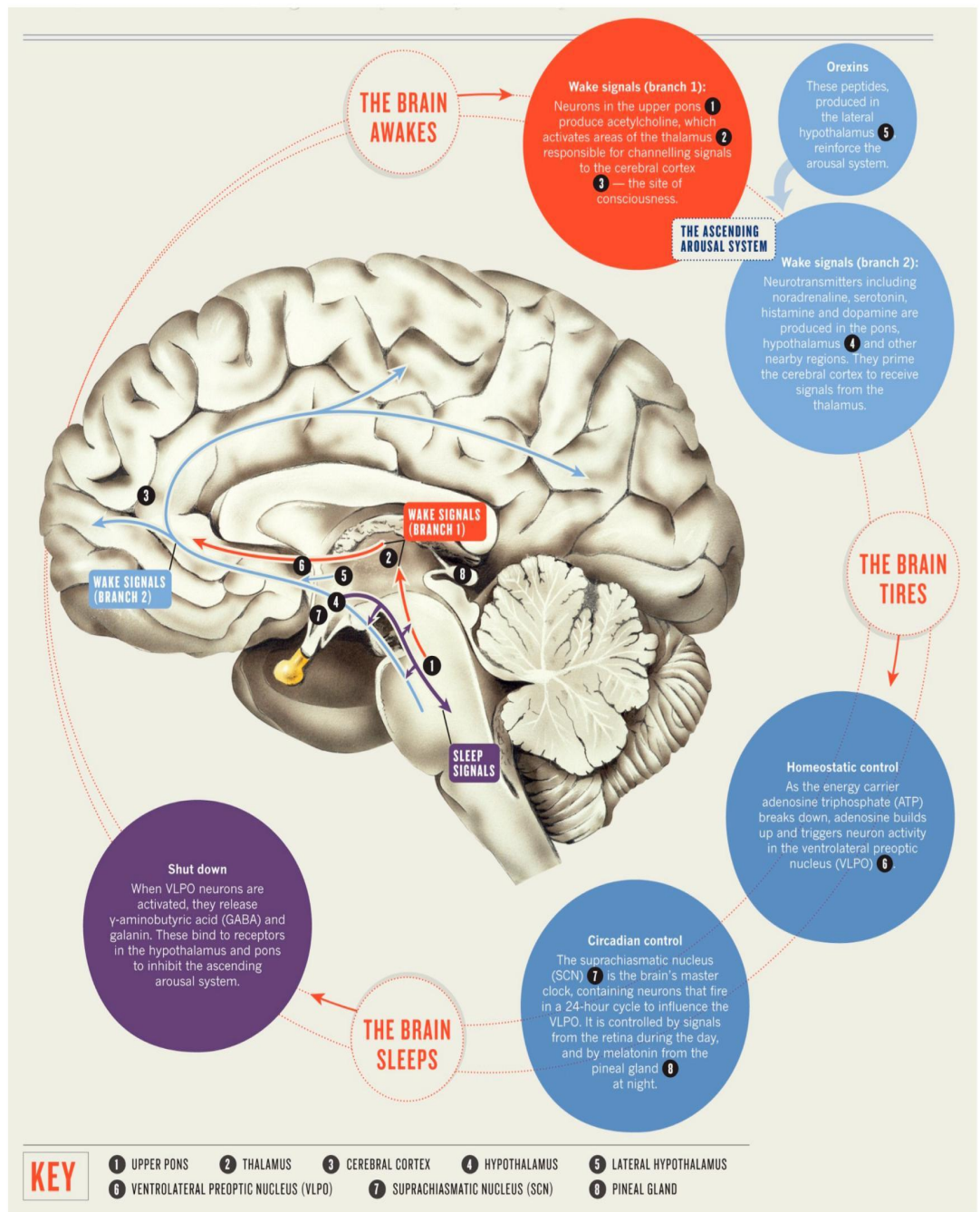


Figure 2: The Anatomy of Sleep.

2.6.3 Impact of Sleep on Brain Functions

Sleep helps in keeping the brain healthy by facilitating memory consolidation, learning, optimal cognitive performances and mental and physical well-being. Restoring processes that occur in sleep are important for synapses plasticity, regulation of emotions and elimination of waste from the brain (Diekelmann & Born, 2010; Xie et al., 2013).

Firstly, memory consolidation, which refers to stabilization of the newly formed memories, is one of the main functions of sleep. In SWS phase, memories are transferred from the hippocampus to the neocortex where memory traces are rearranged. This process is important for declarative memory that refers to recall of events and facts (Stickgold & Walker, 2013).

REM sleep, on the other hand, is associated with procedural memories that involve skills and knowledge acquisition (King et al., 2017).

As regards students' performance and learning process, adequate sleep positively impacts attention, executive functions, problem-solving skills and memory retention. Sleep-deprived students perform worse than their peers who sleep enough (Gilbert & Weaver, 2010; Becker et al., 2018).

In comparison, lack of sleep negatively influences several aspects of brain function. Lack of sleep negatively affects the prefrontal brain, which affects attention, decision making, and emotional control (Killgore, 2010; Krause et al., 2017). Even limited sleep deprivation (sleep for four to five hours daily) significantly reduces cognitive efficiency and increases mental fatigue (Lo et al., 2016). Chronic lack of sleep is also related to weaker immune system activity, higher risks of obesity, diabetes, cardiovascular diseases, and mental

health problems, such as anxiety and depression (Medic et al., 2017; Freeman et al., 2017).

Also, insufficient sleep impacts the functioning of the glymphatic system, which is responsible for the removal of neurotoxic waste from the brain, including beta-amyloid. The activity of this system is highest when sleeping, and its malfunctioning has been associated with elevated risks of neurodegenerative diseases, such as Alzheimer's (Xie et al., 2013; Ju et al., 2014).

Studies using neuroimaging show that lack of sleep impairs the connections of the prefrontal cortex with other parts of the brain, like the amygdala and thalamus, which regulate one's mood and alertness levels (Shao et al., 2020). Moreover, individuals who are deprived of sleep have changes in their glucose metabolism in parts of the brain related to memory and learning (Mander et al., 2013).

It has been found that erratic sleep schedules and inadequate sleep duration are extremely dangerous to teenagers and young adults, including college students, since the prefrontal cortex continues to develop at this stage (Paruthi et al., 2016; Gradisar et al., 2014). Such issues not only affect their academic performance but also, if untreated, pose health risks to them.

2.7 Theoretical Framework

2.7.1 Cognitive Load Theory (CLT)

The Cognitive Load Theory (CLT) posits that humans have limited processing and storage capabilities in their working memories. As per the theory, learning

happens best when unnecessary cognitive load is reduced to enable learners' attention to be devoted to the learning process itself (Sweller et al., 2011).

With regard to the use of social media and its effect on learning, CLT comes into play in explaining how learning is affected by multitasking using various forms of digital technology. For instance, switching between academic activities and social media browsing increases unnecessary cognitive load, which may inhibit both intrinsic load (academic content difficulty) and germane load (construction of knowledge) (Mayer, 2014; Kalyuga, 2011).

Various studies have shown that excessive task switching, which is often induced by the simultaneous use of social media during studying, negatively affects working memory efficiency and academic outcomes (Junco, 2012; Sana et al., 2013). The presence of notifications and a requirement for constant connectivity may result in distractions and additional cognitive processing stress, leading to superficial learning and poor academic results (Rosen et al., 2013; Carrier et al., 2015).

Moreover, in the context of CLT, the importance of reducing any form of distraction is recognized. When students utilize their smartphones or laptop computers for unrelated activities during class time or self-study, extraneous cognitive load increases significantly (Wood et al., 2012; Brooks, 2015).

2.7.2 Social Cognitive Theory (SCT)

Social Cognitive Theory (SCT), proposed by Albert Bandura, offers a theoretical perspective to understand how people develop and maintain behavioral patterns, especially those that are associated with social media platforms. SCT posits that behavior is learned from a combination of personal,

behavioral, and environmental factors known as reciprocal determinism (Bandura, 2011).

Observational learning becomes increasingly important among the young generation, including undergraduates, since using social media in modern times is influenced by how their social peers behave in relation to it. The process of copying one's peer or influencer who frequently uses social media when studying or very late can encourage such negative behavior, even if it is detrimental to sleep and studies (Anderson & Jiang, 2018; Boer et al., 2020; Zhou & Wang, 2020).

Moreover, the SCT suggests the significance of reinforcement, which can take place either internally, in the form of being linked with entertainment, or externally, by receiving likes and comments. Both kinds of reinforcement increase the probability of continuing engaging on social media platforms (Banyai et al., 2017; Wang et al., 2019). Frequent engagement triggered by these factors leads to the formation of habitual or problematic behavior, which often happens due to the lack of self-regulation (Kircaburun et al., 2020).

Additionally, the theory states that behaviors such as night-time social media use or using them during lectures as a student is likely to continue since learners believe that these activities do not influence their academic performance negatively. This belief is termed as self-efficacy (Bandura, 2012). Nevertheless, empirical studies show that excessive use of SNSs negatively impacts sleep and results in poor academic performance, meaning that learners underestimate negative consequences of their online practices (Lepp et al., 2015; Alhassan et al., 2022).

2.7.3 Uses and Gratification Theory (UGT)

The Uses and Gratifications Theory (UGT) is one of the most widely used communication theories that helps explain how people seek particular media that would allow them to satisfy their specific psychological and social needs. Developed by Katz, Blumler, and Gurevitch in the 1970s, UGT has since been adapted for digital media environments where the role of a consumer is replaced with that of an active participant in content choice and creation (Sundar & Limperos, 2013).

In today's digital world, UGT sheds light on how undergraduate students rely on social media in order to address needs such as searching for information, communicating socially, entertaining oneself, escaping reality, and building self-identity (Whiting & Williams, 2013; Al-Menayes, 2015). Such motivations are crucial for understanding the behavioral patterns that have both direct and indirect effects on academic performance and sleep routines (Whiting & Williams, 2013; Fardouly et al., 2020).

Further, the entertainment and escapism gratifications offered by social media platforms might make students more prone to procrastinate with respect to their academic work, thus hampering their performance (Wang et al., 2021; Taneja et al., 2014). Conversely, students can access learning content through social media networks like YouTube and Reddit, enabling them to enhance their knowledge base when used effectively (Raacke & Bonds-Raacke, 2015; Chen & Bryer, 2012). Such examples underscore the significance of user intention, which is a fundamental aspect of UGT.

User agency is another vital concept in UGT, according to which users of any media platform are independent entities making decisions regarding what kind

of information and media they want to consume based on their shifting intentions and emotional state (Shao & Lee, 2020). On the other hand, these kinds of gratifications, when practiced repeatedly and continuously, may develop into addictions to social media, poor academic performance, and insufficient sleep (Bányai et al., 2017; Alhassan et al., 2022).

2.8 Empirical Review of Literature

Author and Year	Title	Sample	Result	Conclusion
Egere (2020)	Perceived effects of social networking sites on academic performance of Male Undergraduate University Students in South-South Nigeria.	380 undergraduates	5–7 h/day SNS use during lectures; increased time significantly decreased academic performance.	Heavy SNS use in class negatively affects academic engagement.
Hirshkowitz, M., Whiton, K., Albert, S. M., et al. (2015)	National Sleep Foundation’s sleep time duration recommendations: Methodology and results summary	Expert panel reviewing over 300 publications	Recommended 7–9 hours of sleep for young adults (18–25); insufficient sleep linked to poor mental, physical, and cognitive health.	Provides foundational guideline for optimal sleep duration to support health and cognitive function in young adults.
Lund, H. G., Reider, B. D., Whiting, A. B., & Prichard, J. R. (2010)	Sleep patterns and predictors of disturbed sleep in college students	1,125 college students from a small liberal arts college in the U.S.	60% reported poor sleep quality; stress, alcohol, caffeine, and academic demands were major contributors. Poor sleep significantly affected academic performance.	Sleep quality in college students is affected by lifestyle choices and directly correlates with academic performance.
Nwazor et al. (2025)	Social Media Use and Relationship to Sleep Quality: A Study of Medical Students in a Private University in Nigeria.	260 Nigerian medical undergraduates	99.6% used social media; 56.9% reported poor sleep quality; no significant direct association between usage and poor sleep.	High social media use is prevalent; while poor sleep is common, other factors may mediate the relationship.
Oche et al. (2019)	Prevalence and Effect of Social Media on Sleep Among Students of	381 Nigerian students	97.9% use social media; >3 h/day use → 5× greater odds of sleep	Evening social media use significantly disrupts student sleep patterns

	Higher Institutions in Sokoto		disturbance	
Okeafor & Achonye (2023)	Association Between Internet Addiction and Quality of Sleep Among Undergraduate Students in Nigeria	310 undergraduates, Univ. of Port Harcourt	21.9% internet addiction; 56.1% poor sleep quality; internet addiction doubled risk of poor sleep	Internet (social media) addiction strongly correlates with poor sleep among students.
Onun et al. (2023)	Influence of Social Media Usage on Study Habits of Undergraduates in North Central Nigeria	388 Level 400 students from 4 universities	WhatsApp use positively influenced study habits, but Facebook, Twitter, Instagram had no significant effect on study habits.	Not all social media use is harmful. WhatsApp may support academic collaboration, while others have little impact.
Samaha & Hawi (2016)	Relationships among smartphone addiction, stress, academic performance, and satisfaction with life.	300 Lebanese students.	Smartphone addiction, stress, and academic performance; stress mediates relationship.	Indicates smartphone addiction harms academics by increasing stress.
Wolniczak et al. (2013)	Association between Facebook Dependence and Poor Sleep Quality	Peruvian university students	Facebook dependence significantly associated with poor sleep	Online social media addiction linked to sleep disruptions
Woods & Scott (2016)	Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem	British adolescents & students	Bedtime social media use associated with poor sleep, tiredness, anxiety, depression	Evening social media use predicts next-day fatigue and mental distress

CHAPTER THREE

MATERIALS AND METHODS

3.1 Participants

The population for this study included all undergraduates studying Basic Medical Sciences at the University of Benin. Both males and females from different academic years at the faculty were selected.

3.1.1 Inclusion Criteria

- i. Undergraduates enrolled in the Faculty of Basic Medical Sciences, University of Benin.
- ii. Students who have voluntarily agreed to participate in the research.
- iii. Students who actively use social media platforms.

3.1.2 Exclusion Criteria

- i. Students who refused consent during the research process.
- ii. Students with pre-existing medical or psychological problems.

3.2 Materials

The materials that were employed in this study include structured questionnaires made up of three main sections: the Social Media Usage Scale

(SMUS), Pittsburgh Sleep Quality Index (PSQI), and Academic Performance

Q3.2.1 Instruments/Apparatus

- i. Social Media Usage Scale (SMUS)
- ii. Pittsburgh Sleep Quality Index (PSQI)
- iii. Achievement Questionnaire (GPA or achievement)

3.2.2 Description of Instruments

i. Social Media Usage Scale (SMUS): This standardized measure gauges the pattern, frequency, and extent of social media usage, as well as various behavioral measures related to social media use, such as time usage, attachment to the medium, and how social media affects daily activities like studying and sleeping. Items in this scale are scored from 1 (Strongly Disagree) to 5 (Strongly Agree) on a 5-point Likert scale, whereby scores represent increasing usage levels. The SMUS demonstrates superior psychometrics, with an extremely high Cronbach's alpha coefficient of 0.94, showing good reliability. In addition, exploratory factor analysis proved its validity, demonstrating factors such as emotional attachment and behavioral dependence on social media (Savci & Aysan, 2017). Questionnaire. They were distributed in hard copies or through Google Forms.

i. Pittsburgh Sleep Quality Index (PSQI): The Pittsburgh Sleep Quality Index (PSQI) is a 19-item standardized self-reporting scale designed to assess sleep quality and problems experienced by individuals over the past one month

period. It includes seven components: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. This index has proven to have good psychometric qualities. It has a high reliability as indicated by its Cronbach's alpha level of 0.83. The validity of this measure has been confirmed by its ability to discriminate between good and poor sleepers, and it is extensively used across clinical and non-clinical samples (Buysse et al., 1989). The current study seeks to employ this measure to determine the sleep quality of students in regards to their social media usage (Buysse et al., 1989; Hirshkowitz et al., 2015).

i. Academic Performance Rating Scale (APRS): The Academic Performance Rating Scale (APRS) is a reliable tool that evaluates the academic functioning of students based on their classroom performance, productivity, and achievement in academic tasks. It is composed of 19 questions scored using the Likert type scale that measures factors such as concentration, doing homework, persisting in assignments, and achieving academically. In this research, the tool underwent some modification in order to assess the academic performance of the students through the use of self-report grade point averages and behaviors relating to academics. The Academic Performance Rating Scale (APRS) has shown evidence of high internal consistency with a Cronbach's Alpha value of 0.92.

3.3 Methods

3.3.1 Research Design

This research is a cross-sectional analytical study

3.3.2 Sampling Technique

A convenience sampling technique was employed to recruit participants from the undergraduate population of the Faculty of Basic Medical Sciences, University of Benin.

3.3.3 Sample Size

To determine the sample size, use Cochran's formula.

$$n' = (Z^2 * p * (1-p)) / e^2$$

Where:

$$Z = 1.96 \text{ (for a 95\% confidence)}$$

$$P = 0.5 \text{ (estimated proportion)}$$

$$E = 0.05 \text{ (margin of error)}$$

$$n' = \text{Sample size}$$

Applying Cochran's formula;

$$n' = (1.96^2 * 0.5 * 0.5) / 0.05^2$$

$$n' = (3.8416 * 0.25) / 0.0025$$

$$n' = 0.9604 / 0.0025$$

$$n' = 384.16$$

Adjust for finite population

(population = 3,285)

Using the finite population correction formula:

$$N = n' / (1 + (n' - 1) / N)$$

Where:

$$n' = 384.16$$

$$N = 3,285 \text{ (target population)}$$

$$N = 384.16 / (1 + (384.16 - 1) / 3,285)$$

$$N = 384.16 / (1 + 383.16 / 3,285)$$

$$N = 384.16 / (1 + 0.1167)$$

$$N = 384.16 / 1.1167$$

$$N = 344.04$$

$$\approx 344$$

Sample size is approximately 344 participants.

3.3.4 Data Collection Procedure

The data were collected through the use of a standardized self-report questionnaire that included the SMUS, PSQI, and academic performance rating

scale. Students from the Faculty of Basic Medical Sciences who met the inclusion criteria for participation in the study were informed about the study. Informed consent was sought from them. Both the printed questionnaire and Google forms were used in distributing and collecting the questionnaire.

3.3.5 Ethical Consideration

The ethical clearance was granted by the Research and Ethics Committee of the University of Benin. An informed consent sheet was added to the survey, and the participants gave consent prior to participating in the research. It should be noted that participation in the study was entirely voluntary, and the participants were allowed to withdraw from the study at will without any repercussions.

3.3.6 Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 25.0. Descriptive statistics, such as frequency, percentage, mean, and standard deviation, were calculated to describe the demographics and questionnaire responses. Pearson's correlation was employed to analyze whether there exists any relationship among social media use, sleep quality, and academic achievement. The level of significance was set at $p < 0.05$.

CHAPTER FOUR

RESULTS

4.1 Introduction

The main objective of this research is to find out the relationship between the use of social media, sleep quality and academic performance of Basic Medical Sciences students. The study included a total of 344 students of Basic Medical Sciences from the University of Benin.

4.1.1 Sociodemographic data of the respondents

Among 344 respondents that took part in this study, there were 208(60.5%) female respondents and 136(39.5%) male respondents. 111(32.3%) of the respondents were 400L, while 75(21.8%) of the respondents were 300L. Also, 151(43.9%) were physiotherapy students. 338(98.3%) of the respondents were singles as indicated in Table 1.

Table 1: Sociodemographic variable of the respondents

Variable	Frequency	percentages
Gender		
Female	208	60.5
Male	136	39.5
Level of study		
100	63	18.3
200	40	11.6
300	75	21.8
400	111	32.3
500	55	16.0
Department		
Anatomy	21	6.1
Medical	22	6.4
biochemistry		
Medical laboratory science	35	10.2
Nursing	42	12.2
Physiology	30	8.7
Physiotherapy	151	43.9
Radiography	43	12.5
Marital status		
Cohabiting	1	0.3
Dating	2	0.6
Married	3	0.9
Single	338	98.3

4.1.2 Descriptive statistics of Social Media Usage Scale (SMUS) and Pittsburgh Sleep Quality Index (PSQI)

The Social media usage scale score ranged from 4 to 14 with a mean of 10.09 ± 1.72 . The PSQI of the respondents ranged from 0 to 21 with a mean of 7.73 ± 4.14 . 120(34.9%) of the respondents had good sleep quality, 138(40.1%) had average sleep quality, 74(21.5%) had poor sleep quality and 12(3.5%) had very poor sleep quality as shown in table 2.

Table 2: Descriptive statistics of Social Media Usage Scale (SMUS) and Pittsburgh Sleep Quality Index (PSQI)

Variable	Range	Mean \pm SD
SMUS	4-13	10.09 \pm 1.72
Sleep quality-(PSQI)	0.00 - 21.0	7.73 \pm 4.14
Sleep quality category	Frequency	Percentage
Good sleep quality	120	34.9
Average sleep quality	138	40.1
Poor sleep quality	74	21.5
Very poor sleep quality	12	3.5

4.1.3 Descriptive statistics on the academic performance of the participants

192(55.8%) of the respondents had GPA between 3.50–4.49, 84(24.4%) had between 2.50–3.49. 126(36.6%) of the respondents reported that they attend lectures most of the times. 131(38.1%) of the respondents reported that they feel motivated to engage in academic activities. 99(28.8%) of the respondents reported that believe social media affects their academic performance. 135(39.2%) of the respondents reported that they sometimes delay academic tasks because of social media use as shown in Table 3.

Table 3: Descriptive statistics on the academic performance of the participants

Variable	Frequency	Percentages
What is your most recent CGPA		
Below 1.50		
1.50–2.49	20	5.8
2.50–3.49	84	24.4
3.50–4.49	192	55.8
4.50–5.00	48	14.0
How often do you attend lectures		
Always	151	43.9
Often	126	36.6
Sometimes	52	15.1
Rarely	13	3.8
Never	2	0.6
I feel motivated to engage in academic activities		
Strongly Agree	82	23.8
Agree	131	38.1
Neutral	106	30.8
Disagree	25	7.3
I believe social media affects my academic performance		
Strongly Agree	60	17.4
Agree	99	28.8
Neutral	95	27.6
Disagree	69	20.1
Strongly Disagree	21	6.1
I sometimes delay academic tasks because of social media use		
Strongly Agree	52	15.1
Agree	135	39.2
Neutral	88	25.6
Disagree	49	14.2
Strongly Disagree	20	5.8
	Mean ± SD	
APRS	12.93 ± 2.94	

4.1.4 Relationship between sleep quality, social media usage and academic performance

Pearson correlation was done to examine the relationship between sleep quality, social media usage and academic performance. The findings revealed there was a negative significant relationship between social media usage and the academic performance of the respondents ($r=-0.244$, $p=<0.001$). However, there was no significant relationship between sleep quality and academic performance ($p=0.391$) and social media usage and sleep quality ($p=0.813$) as shown in table 4.

Table 4: Relationship between sleep quality, social media usage and academic performance

Variable	r	p
Sleep quality * Academic performance	-0.046	0.391
Social media usage * Sleep quality	-0.013	0.813
Social media usage * Academic performance	-0.244	<0.001

4.2 Hypothesis testing

Hypothesis 1: There would be no significant relationship between social media usage and sleep quality among students of Basic Medical Sciences.

Alpha level: 0.05

Test statistic: Pearson correlation

Observed: $p = 0.813$

Since the observed p-value was greater than the 0.05 alpha level, the null hypothesis was therefore NOT REJECTED.

Hypothesis 2: There would be no significant relationship between sleep quality and academic performance among students of Basic Medical Sciences.

Alpha level: 0.05

Test statistic: Pearson correlation

Observed: $p = 0.391$

Since the observed p-value was greater than the 0.05 alpha level, the null hypothesis was therefore NOT REJECTED.

Hypothesis 3: There would be no significant relationship between social media usage and academic performance among students of Basic Medical Sciences.

Alpha level: 0.05

Test statistic: Pearson correlation

Observed: $p < 0.001$

Since the observed p-value was less than the 0.05 alpha level, the null hypothesis was therefore REJECTED.

CHAPTER FIVE

DISCUSSION, CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

5.1 Discussion of Findings

This research sought to establish the relationship between social media use, sleep, and academic performance among students of Basic Medical Sciences of the University of Benin. Below is the discussion of findings organized according to themes associated with research aims and hypotheses.

5.1.1 Patterns and Frequency of Social Media Use

It was found that there was very frequent social media use among students of Basic Medical Sciences. The high use of social media is consistent with the earlier reports on the extent of usage among Nigerian students on platforms like WhatsApp, Facebook, Instagram, and TikTok (Oche et al., 2019; Osharive, 2015). It is not surprising that young adults around the world tend to use social media to keep in touch with each other in an effort to enhance their social lives (Kuss & Griffiths, 2011). The benefits of using social media include having access to educational resources and learning through discussions. However, many students tend to engage themselves with social media at night and during their study periods, which means less studying and increased cognitive fatigue (Junco, 2012; Kirschner & Karpinski, 2010).

5.1.2 Sleep Quality among Respondents

The analysis of the Pittsburgh Sleep Quality Index (PSQI) shows that 40.1% of respondents had an average level of sleep quality, while 25% (categories of poor and very poor combined) have problems with sleep. The high average value of PSQI equal to 7.73 ± 4.14 shows that a

considerable number of the surveyed had troubles sleeping regularly, which corroborates the results presented by Seun-Fadipe and Mosaku (2021) that Nigerian undergraduates face difficulties with their sleep because of their engagement in media in late hours and academic issues. Nevertheless, there was no significant association between social media usage and sleep quality observed in this study. Therefore, despite being extremely active users of social networks, respondents do not relate their poor sleep qualities to social media usage, which confirms the findings of Nwazor et al. (2025) about the lack of associations between these variables in terms of sleep quality of Nigerian medical students.

5.1.3 Academic Performance of the Respondents

According to the data on the respondents' academic performances, some had CGPA scores ranging between 3.50 and 4.49, indicating high levels of academic excellence among students of Basic Medical Sciences. Nevertheless, a notable number of respondents admitted engaging in activities that made them procrastinate in completing their academic assignments because of the use of social media. From the Pearson correlation test, it was discovered that there is a significant negative correlation between the use of social media and academic performances. This means that the more frequently one engages in social media usage, the worse his/her academic performance becomes. This finding is in agreement with previous studies by Kirschner and Karpinski (2010), Junco (2012), and Egere (2020).

It seems that multitasking during educational activities and using social networks distracts from studies and reduces effectiveness of education (Olufadi, 2015). In addition, the continuous presence of entertainment-related materials increases the likelihood of procrastination and decreases the motivation to complete educational tasks, as some interviewees stated they had neutral or low level of motivation to study.

5.1.4 Relationship Between Sleep Quality and Academic Performance

Surprisingly, no statistically significant correlation between sleep quality and academic performance has been revealed. To some extent, the results contradict previous findings by Lund et al. (2010) and Beattie et al. (2015), who found that bad sleep is associated with poor academic performance and poor cognitive function. One of the possible reasons why no correlation was detected may include various forms of compensating for inadequate sleep (e.g., late-night studying, afternoon nap). Another reason why there was no relation may be associated with the ability of medical and health sciences students to adapt to poor sleep as a consequence of effective learning.

5.1.5 Sleep Quality as Mediator between Social Media Usage and Academic Performance

Even though exploring the potential role of sleep quality in mediating the effect of social media usage on academic performance was among the objectives of the study, this hypothesis was not supported by any of the data generated in the study. The reason is that there was no correlation between social media usage and sleep quality, which would make it impossible for sleep quality to act as a mediator in the relationship being considered. In this regard, it is worth noting that the negative impact of social media usage on academic performance is mediated indirectly through such factors as distraction and stress as per Samaha and Hawi (2016).

In conclusion, the study shows that although social media usage provides a lot of benefits for academic communication, the unrestricted nature of its use, especially during study times, has adverse effects on students' academic achievements. At the same time, even though sleep quality plays a critical role in promoting students' wellbeing, it is not correlated with their academic achievements.

5.2 Conclusion

In conclusion, it has been observed that the usage of social media is an integral part of the lifestyle of the students of Basic Medical Sciences at the University of Benin. Though its usage can help students learn and collaborate effectively in academics when used moderately, excessive use, especially during productive academic hours, has been found to impact negatively on academic achievement. Therefore, it can be said that social media usage has predicted academic performance while sleep has not.

5.3 Recommendations

The following are the recommendations made from this study:

For Students:

Students need to control their social media usage by not engaging in it when attending lectures or during night when they should be resting.

Encouraging practices for digital well-being such as setting time aside from social media should be encouraged.

For Educators and Academic Advisers:

Lecturers and Academic advisers need to educate students on how to manage time in terms of balancing social media usage with academic work.

Social media mentorship program should be designed for students so as to sensitize them.

1. **For University Administrators and Policymakers:**

o The University of Benin and other universities should embrace digital wellness campaigns that foster responsible technology usage, highlighting its effect on learning and well-being.

o Policies that promote healthy sleep practices and mental health services need to be incorporated into student support strategies.

2. **For Future Researchers:**

o Following studies should adopt longitudinal methodology in investigating causality between social media usage, sleep quality, and academic achievement.

o There is room for future research in understanding psychological constructs such as stress and cognitive overload that might mediate these associations.

o Comparative studies between various faculties could show whether particular fields are at risk when it comes to negative impacts of extensive social media usage.

5.4 Contribution to Knowledge

The current study adds to the developing scholarly literature concerning behavioral and educational consequences of digital technology usage by Nigerian university students, since:

• The study proves empirically that social media usage adversely affects the academic performance of students enrolled in the health sciences faculty.

• It shows that although sleep quality deteriorates slightly due to social media usage, it does not act as a mediator of the observed relationship.

- It highlights the importance of digital wellness policies at universities in order to protect student's well-being and academic achievements.

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APPENDICES

APPENDIX 1

SCHOOL OF BASIC MEDICAL SCIENCES

DEPARTMENT OF PHYSIOTHERAPY

UNIVERSITY OF BENIN, BENIN CITY

Dear Respondent,

I am an undergraduate student in the above-named Department. As part of the requirement for the programme, I am conducting a research on "Influence of Social Media Usage on Sleep Quality and Academic Performance Among Students of Basic Medical Sciences, University of Benin".

You have been selected to participate in this study. Your responses will be treated with strict confidentiality and used solely for academic purposes. Participation is voluntary, and by proceeding, you consent to be part of this research.

Thank you for your time and cooperation.

Section A: Demographic Information

(Instruction: Please tick the most appropriate option or fill in the blank where applicable.)

1. Age: _____

2. Sex: Male () Female () Prefer not to say ()

3. Level of Study: 100 Level () 200 Level () 300 Level () 400 Level () 500 Level ()

4. Department: *Anatomy* () *Physiology* () *Physiotherapy* () *Medical Biochemistry* ()
Medical Laboratory Science () *Nursing Science* () *Other:* _____

5. Marital Status: *Single* () *Married* () *Other:* _____

6. Do you own a smartphone or device with internet access? *Yes* () *No* ()

Section B: Social Media Usage

7. How often do you use social media? *Several times a day* () *Once a day* () *A few times per week* () *Rarely* () *Never* ()

8. Which social media platforms do you use regularly? (Tick all that apply)
WhatsApp () *Instagram* () *Facebook* () *TikTok* () *Twitter/X* () *Telegram* ()
Snapchat () *YouTube* () *Others:* _____

9. What is your main reason for using social media? *Entertainment* () *Educational purposes* ()
Communication () *Passing time* () *Business/Marketing* () *Other:*

10. When do you mostly use social media? *Early morning (6–9am)* () *During school hours (8am–2pm)* ()
Evening (6–9pm) () *Late night (after 10pm)* () *Randomly throughout the day* ()

11. How many hours daily do you spend on social media? *Less than 1 hour* () *1–2 hours* ()
3–4 hours () *5–6 hours* () *More than 6 hours* ()

12. Social media use affects my daily routine. *Strongly Agree* () *Agree* () *Neutral* ()
Disagree () *Strongly Disagree* ()

Section C: Sleep Quality (PSQI-Based)

13. During the past month, when have you usually gone to bed? _____

14. During the past month, how long has it usually taken you to fall asleep each night?

15. During the past month, what time have you usually gotten up in the morning?

16. During the past month, how many hours of actual sleep did you get at night (per day)? *Less than 4 hours* () *4–5 hours* () *6–7 hours* () *8 or more hours* ()

17. How would you rate your sleep quality overall during the past month? *Very good* () *Fairly good* () *Fairly bad* () *Very bad* ()

18. During the past month, how often have you had trouble sleeping due to the following reasons? (Tick one option per item: Not during past month / Less than once a week / Once or twice a week / Three or more times a week)

- *Could not fall asleep within 30 minutes*
- *Waking up in the middle of the night*
- *Had to get up to use the bathroom*
- *Felt too hot or too cold*
- *Had bad dreams*
- *Pain*
- *Social media or phone usage before bed*

Section D: Academic Performance & Engagement

19. What is your most recent CGPA? *Below 1.50* () *1.50–2.49* () *2.50–3.49* () *3.50–4.49* () *4.50–5.00* ()

20. How often do you attend lectures? *Always* () *Most of the time* () *Sometimes* () *Rarely* () *Never* ()

21. I feel motivated to engage in academic activities. *Strongly Agree* () *Agree* () *Neutral* () *Disagree* () *Strongly Disagree* ()

22. I believe social media affects my academic performance. *Strongly Agree* () *Agree* () *Neutral* () *Disagree* () *Strongly Disagree* ()

23. I sometimes delay academic tasks because of social media use. *Strongly Agree* () *Agree* () *Neutral* () *Disagree* () *Strongly Disagree* ()

Thank you for taking the time to complete this questionnaire. Your responses are highly appreciated and will contribute meaningfully to this research.

APPENDICES

APPENDIX 2



RESEARCH ETHICS COMMITTEE
COLLEGE OF MEDICAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.



Chairman: Prof. F. A Imarhiagbe
MBChB, FMCP
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P.M.B 1154, BENIN CITY

Cur Ref: CMS/REC/01/VOL.2/809

Date: 29th July, 2025

Re: INFLUENCE OF SOCIAL MEDIA USAGE ON SLEEP QUALITY AND ACADEMIC PERFORMANCE AMONG BASIC MEDICAL SCIENCES STUDENTS AT THE UNIVERSITY OF BENIN

Name of Principal Investigator: **AOR KAMIMI FRANK**
Department Of Physiotherapy,
School of Basic Medical Science,
College of Medical Sciences,
University of Benin.

REC Approval No: CMS/REC/2024/E99

This is to inform you that the research described in the submitted proposal, the Informed Consent Forms and other participant information materials have been reviewed and approved by the College Research Ethics Committee, University of Benin.

This approval dates from **29th July, 2025 to 20th July, 2026**. In multi-year research, Endeavour to submit your annual report to the REC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly to the REC. No, changes are permitted in the research without prior approval by REC except in circumstances outlined in the code. REC reserves the right to conduct compliance visit to your research site without prior notice. Thank you.

PROF. F.A IMARHIAGBE
Chairman, REC