ASSESSMENT OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS OF UNDERGRADUATES OF THE UNIVERSITY OF BENIN

BY

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BEING A ONE YEAR PROJECT PRESENTED TO THE DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS) DEGREE

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CERTIFICATION

This is to certify that the one-year project titled "**ASSESSMENT OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS OF UNDERGRADUATES OF THE UNIVERSITY OF BENIN**" will be conducted by **ETIEYIBO OGHENEFEJIREH STEPHANIE** with matriculation number **MED1706210**. This comprehensive study will involve a series of detailed assessments and analyses to be carried out across various universities in Benin City, Edo State. Each section of the project will offer in-depth insights into the knowledge, attitudes prevalence and predictors of social media addiction on the mental health status of undergraduates. The findings and recommendations in this study will be derived from extensive data collection, analysis, and a commitment to contributing to the body of knowledge on this significant social issue. This project will be evaluated against criteria of relevance, content quality, clarity, and originality. After undergoing thorough review and assessment, it will be hereby certified as a representation of the student's dedication to educational and informative endeavors. This study will serve as a valuable resource for further research, policy formulation, and interventions aimed at addressing social media addiction in academic institutions.

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DECLARATION

I hereby declare that this project work titled "**ASSESSMENT OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS OF UNDERGRADUATES OF THE UNIVERSITY OF BENIN."** will be conducted under supervision and has neither been presented nor published anywhere else in part or in full for any other purpose.

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DEDICATION

This work is dedicated to Jehovah God Almighty, my father for giving me the strength beyond what is normal to carry out this work, and bring it to completion.

Furthermore, I also wish to dedicate this work to my parents whose love and support has aided in a large way to the the completion of this project, Eng. Daniel O. Etieyibo and Dr. (Mrs) Josephine O. Etieyibo

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ABSTRACT

Background: Social media addiction is a behavioural problem characterised by excessive, poorly controlled use of social media platforms that interferes with daily functioning and is associated with depression, anxiety, stress and reduced productivity among university students. It is common in young adults and is linked to long daily usage, night-time use and other behavioural patterns that worsen mental-health outcomes.

Objective: To assess the knowledge, attitude, prevalence, patterns of social media addiction and its association with the mental health status of undergraduates in the University of Benin, Benin City, Edo State, Nigeria.

Subjects and methods: A descriptive cross-sectional study was carried out among 548 undergraduates of the University of Benin selected using a multi-stage (proportionate stratified + systematic) sampling technique. Data were collected with a pre-tested, self-administered questionnaire (sociodemographics, knowledge and attitude sections) and standardised scales, the Bergen Social Media Addiction Scale (BSMAS) for addiction risk and the DASS-21 for depression, anxiety and stress. Data were presented in frequency tables and analysed using bivariate (χ^2) tests and multivariable logistic regression; statistical significance was set at $p < 0.05$.

Results: The mean age of respondents was 21.5 ± 2.9 years and 306 (55.8%) were females. Awareness of social media addiction was high (519, 94.7%). Majority had good knowledge of social media addiction (395, 76.1%) and a positive attitude towards it (396, 72.1%). By BSMAS grading, 127 (23.2%) were low-risk, 349 (63.7%) moderate-risk and 72 (13.1%) high-risk for social media addiction (social media addiction present = 72/548, 13.1%). On DASS-21 grading, 136 (24.8%) had depression, 163 (29.7%) had anxiety, and 44 (8.0%) had stress; overall 200 (36.5%) were classified as having poor mental health while 348 (63.5%)

had good mental health. Respondents with a positive attitude were more likely to have poor mental health (OR = 2.30, 95% CI = 1.382–3.734, p = 0.001) and respondents with social media addiction were substantially more likely to have poor mental health than those without (OR = 10.30, 95% CI = 5.337–19.914, p < 0.001). Social media addiction was also a strong predictor of specific outcomes anxiety (OR = 4.121, 95% CI = 2.324–7.305, p < 0.001) and stress (OR = 12.669, 95% CI = 5.386–29.804, p < 0.001). Other factors (monthly allowance, knowledge level, average daily hours and time of day of use) were associated with addiction risk and mental-health outcomes in bivariate and multivariable analyses.

Conclusion: Awareness and knowledge of social media addiction were high among UNIBEN undergraduates, but about one in eight students met high-risk criteria for social media addiction and over one-third had poor overall mental health. Social media addiction together with attitude, knowledge and usage patterns was a strong predictor of poorer mental-health outcomes (depression, anxiety and stress). Interventions to improve digital-wellness (education on healthy use, time-management, sleep hygiene and targeted counselling) are recommended.

Keywords: social media addiction, knowledge, attitudes, prevalence, patterns, mental health, undergraduates, University of Benin, Benin City, Edo State.

LIST OF ACRONYMS

BSMAS	Bergen Social Media Addiction Scale
DASS-21	Depression, Anxiety, and Stress Scale-21
GAD-7	Generalized Anxiety Disorder-7
HBSC	Health Behaviour in School-aged Children
IAT	Internet Addiction Test
PHQ-9	Patient Health Questionnaire-9
SAS	Smartphone Addiction Scale
SAS-SV	Smartphone Addiction Scale-Short Version
SNA	Social Networking Addiction
SNAS	Social Networking Addiction Scale
SRQ	Self-Reporting Questionnaire
SWLS	Satisfaction With Life Scale
WHO	World Health Organization
YIAT	Young's Internet Addiction Test

DEFINITION OF TERMS

- **Addiction**: A compulsive engagement in rewarding stimuli (e.g., social media use) despite adverse consequences, characterized by salience, mood modification, tolerance, withdrawal, conflict, and relapse.
- **Anxiety**: A mental health disorder marked by excessive fear, worry, and physical symptoms.
- **Depression**: A mood disorder involving persistent sadness, loss of interest, and impaired daily functioning.
- **Internet Addiction**: Excessive internet use leading to distress or functional impairment.
- **Mental Health**: A state of well-being that enables individuals to realize their abilities, cope with life's stresses, work productively, and contribute to their community.
- **Problematic Social Media Use**: Maladaptive engagement with social media platforms, disrupting daily life and mental health.
- **Salience**: When social media use dominates thoughts and behaviour.
- **Social Media Addiction**: A behavioral addiction involving excessive, compulsive use of social media platforms, meeting criteria like withdrawal and tolerance
- **Withdrawal Symptoms**: Emotional or physical distress when social media use is reduced.

CHAPTER ONE

INTRODUCTION

1.1 Background

The advent and rapid evolution of social media have significantly reshaped global communication patterns, information dissemination, and interpersonal relationships. Platforms such as Facebook, Instagram, Twitter (now X), TikTok, Snapchat, and WhatsApp have become integral to the daily lives of individuals, particularly among adolescents and young adults [1,2] . As of February 2025, global statistics indicate that over 5.56 billion individuals—approximately 67.9% of the world's population—are active social media users. Among these platforms, Facebook remains the largest with over 2.9 billion monthly active users, followed by YouTube (2.7 billion), WhatsApp (2.5 billion), Instagram (2.4 billion), TikTok (1.8 billion), and Snapchat (750 million). X (Twitter) has around 665 million users, while LinkedIn, primarily used for professional networking, hosts over 1 billion registered users. In terms of user demographics, 18–34-year-olds dominate across most platforms, though TikTok skews younger, with a strong user base among teens and early 20s.[3] Average daily usage across all platforms in 2024 surpassed 2.5 hours per user, compared to 1.5 hours in 2012, with TikTok leading in engagement time at over 95 minutes daily per user. Meanwhile, Instagram and Snapchat continue to thrive on visual storytelling and disappearing content, especially popular among Gen Z. WhatsApp and Messenger have become default messaging tools in many countries, replacing traditional SMS entirely [4] . While social media offers diverse opportunities for social interaction, academic collaboration, and professional networking, its pervasive and often compulsive use has raised increasing concerns regarding its potential adverse effects on mental health[5].

Social media addiction, a subset of behavioural addiction, is characterized by excessive preoccupation with, and an uncontrollable urge to engage in, social networking site usage to the detriment of personal, academic, and occupational functioning [6,7] . It has clinical

resemblance to other behavioural addictions, such as pathological gambling, exhibiting features including salience, mood modification, tolerance, withdrawal symptoms, interpersonal conflict, and relapse [8,9] . University students are considered particularly vulnerable due to their psychosocial developmental stage, heightened exposure to digital technologies, and the academic and social pressures inherent in tertiary education settings[10].

Mental health disorders, particularly among adolescents and young adults, have reached alarming levels globally. Depression, anxiety, and stress-related conditions are now among the leading causes of disability in this age group, with the World Health Organization reporting that one in seven adolescents experiences a diagnosable mental health condition, with contributing factors including academic pressure, financial instability, social isolation, and the pervasive influence of digital culture [11,12] . The rise in mental health struggles is particularly concerning in regions with limited access to psychological services, where stigma and underfunding prevent many from seeking help.[13]

The relationship between problematic social media use and mental health disorders is well documented in the literature. Numerous empirical studies and systematic reviews have identified a consistent association between excessive social media use and a broad spectrum of psychological disturbances, including depressive disorders, generalized anxiety, social anxiety, sleep disturbances, low self-esteem, perceived loneliness, and suicidal ideation[12,14,15]. The World Health Organization (WHO) reports that one in seven adolescents globally experiences a mental health condition, with depression and anxiety ranking among the most common causes of illness and disability in this age group [11] . Furthermore, social media platforms often promote idealized representations of lifestyle and appearance, which may exacerbate symptoms of low self-worth and social comparison, thereby worsening existing problems or triggering new-onset mood disorders[16,17].

Sleep dysfunction, frequently mediated by nighttime screen use and the compulsive need to stay digitally connected, is another significant consequence of excessive social media use. Blue light emitted by mobile device screens disrupts the circadian rhythm and melatonin production, resulting in delayed sleep onset, reduced sleep duration, and poor sleep quality, and these disruptions have been linked to cognitive fatigue, emotional instability, and reduced academic performance among university students[18,19].

Globally, the prevalence of social media addiction among university populations ranges from 18% to 56%, depending on the diagnostic criteria and study setting[20–22], with several of them confirming statistically significant correlations between problematic social media use and elevated levels of depression and anxiety, with female students exhibiting higher vulnerability to emotional consequences.

In sub-Saharan Africa, the digital landscape has experienced exponential growth. Over 384 million individuals across the continent were active social media users as of 2022, largely facilitated by increased smartphone ownership and expanded internet access, with the youth demographic, particularly tertiary students, constitutes the majority of this digital population [24,25] . Studies conducted in countries such as Ethiopia, Ghana, Cameroon and Uganda reveal similar findings to global data, showing that social media addiction had significantly negative effect on the mental health of adolescents, with increased rates of depression up to 1.6 times more in individuals with problematic use of social media[26,27].

In Nigeria, as of early 2024, there were an estimated 37 million active social media users in the country, with the majority of these being young adults, particularly undergraduates, who frequently engage with social networking platforms for academic, social, and recreational purposes [28,29] . However, the negative implications of this engagement are becoming increasingly evident, with studies showing that about half to two-thirds of undergraduates

meet the criteria for social media addiction, and significant proportions exhibit symptoms of anxiety, depression, poorer sleep quality and elevated levels of psychological distress[30,31].

Despite these concerning trends, mental health services in Nigeria remain grossly underdeveloped. According to the WHO-AIMS Report (2006), mental health expenditure accounts for less than 3% of Nigeria's total health budget [32]. There is a critical shortage of trained mental health professionals, limited access to care, and pervasive stigma surrounding mental illness [33]. Also, within university campuses, mental health support systems are often inadequate or non-existent, leaving affected students vulnerable to deteriorating mental health and academic decline[34].

1.2 Statement of the Problem

Social media addiction represents an escalating public health challenge with significant implications for mental health worldwide. While most users engage moderately, a concerning subset experiences problematic patterns indicative of addiction. According to a meta-analysis encompassing 63 independent samples from 32 nations, the pooled prevalence of social media addiction ranges from 5% under strict diagnostic criteria to as high as 25% under more inclusive frameworks.[35]

The WHO's 2022 HBSC study further illuminates the growing crisis. Among adolescents aged 11 to 15 years across 44 countries, the prevalence of problematic social media use rose sharply from 7% in 2018 to 11% in 2022. Girls demonstrated a higher prevalence (13%) compared to boys (9%), with one in three adolescents maintaining constant online contact with peers[36,37]. The consequences of problematic social media use include diminished mental and social well-being, increased substance use, decreased life satisfaction, heightened psychological distress, and impaired sleep patterns [12] . These adverse effects have been

associated with poor academic performance and long-term developmental risks, emphasizing the need for intervention[38].

In the African context, the rapid digitization of society has brought both opportunities and challenges. Africa's youthful population, with a median age of 19 years, is particularly susceptible to the influence of social media. Despite limited research, emerging studies from African countries indicate a growing prevalence of problematic social media engagement among young people [5,20,26,29] . However, mental health services across the continent remain severely underfunded and stigmatized, exacerbating the risks associated with unaddressed social media addiction.

In Nigeria—the most populous country in Africa with a significant proportion of youths—social media has become an integral part of daily life. University students, in particular, are among the heaviest users of social media platforms [29,39] . While these platforms serve educational, social, and recreational purposes, there is increasing concern about their potential to foster addictive behaviours detrimental to students' mental health. Yet, despite observations suggesting rising rates of anxiety, depression, and academic decline linked to excessive social media use, there remains a critical gap in comprehensive empirical research focusing on Nigerian undergraduates.

1.3 Justification for the Study

The widespread use of social media among university undergraduates has brought about significant changes in the ways young people communicate, learn, and socialize. While social media platforms provide important opportunities for connection, education, and information sharing, there is growing concern about their potential negative effects, particularly in relation to addictive use and mental health problems. Social media addiction has emerged as a new and important public health issue, affecting users' emotional, psychological, and social

well-being. Cultural and social factors influence the way social media addiction develops, and it appears to be more common in societies that place a high value on social relationships, such as many African countries.

Problematic use of social media often presents with features similar to other behavioural addictions, such as difficulty in controlling usage, prioritizing social media over other important activities, experiencing distress when access is restricted, and continuing use despite clear negative consequences. Mental health issues associated with social media addiction include anxiety, depression, stress, low self-esteem, sleep disturbances, and poor academic performance. University students are particularly vulnerable, as they are at a stage of life that involves critical emotional, psychological, and social development, and are often exposed to high levels of academic and social pressure.

In Nigeria, increasing access to smartphones, cheaper internet services, and the popularity of social media among young people have raised the risk of problematic use. However, there is still limited research in the Nigerian setting focusing specifically on social media addiction and its effect on mental health. Much of the available research tends to examine general internet use or technology use without separating the unique risks associated with social media platforms.

This study seeks to assess the level of knowledge of social media addiction among undergraduates, as poor knowledge may delay the identification and management of harmful behaviours. It also aims to understand students' attitudes towards social media use, which can influence patterns of engagement and willingness to seek help. Determining the prevalence of social media addiction in this population will help in measuring the size of the problem, while identifying predictors associated with addiction and mental health outcomes will provide useful information for designing targeted interventions.

1.4 Research Questions

1 What is the level of knowledge of social media addiction among undergraduates of the University of Benin?

2 What are the attitudes of university undergraduates towards social media addiction?

3 What is the prevalence of social media addiction on the mental health status of undergraduates?

4 What are the predictors influencing social media addiction and the mental health status among undergraduates of the University of Benin?

1.5 Aims and Objectives

1.5.1 General Objective

To assess social media addiction on the mental health status of undergraduates with the aim to recommend measures to improve their mental health status.

1.5.2 Specific Objectives

1 To assess the level of knowledge of social media addiction among undergraduates.

2 To ascertain attitudes towards social media addiction among university undergraduates.

3 To determine the prevalence of social media addiction on the mental health status among undergraduate.

4 To identify the predictors influencing social media addiction and the mental health status among undergraduates.

CHAPTER TWO

LITERATURE REVIEW

2.1 Background

The rapid spread of social media platforms has transformed how young adults communicate, access information, and form social connections. While these digital tools offer benefits such as enhanced connectivity and educational resources, they have also given rise to problematic usage patterns that mirror behavioral addictions. Social media addiction is characterized by compulsive engagement with platforms, loss of control over usage, and continued use despite negative consequences in academic, social, and emotional functioning. Key components of this addiction include salience (social media dominating thoughts and behaviors), mood modification (using platforms to regulate emotions), tolerance (needing increasing amounts of time online for satisfaction), withdrawal (irritability or distress when unable to access social media), interpersonal conflict (strained relationships due to excessive use), and relapse (repeated failures to reduce usage)[40].

University students are particularly vulnerable to developing social media addiction due to a combination of psychosocial and environmental factors. The transition to higher education often coincides with increased independence, social pressures, and academic stress, making students more likely to seek validation and escape through digital platforms. The abundant presence of smartphones and high-speed internet further facilitates constant connectivity. The immersive nature of these platforms worsens the risk of addiction by exploiting psychological reward systems.

University students worldwide are also experiencing a mental health crisis, with rising rates of depression, anxiety, stress, and emotional instability. This demographic faces unique

pressures, including academic workload, financial strain, career uncertainty, and social adjustment challenges [41] . The competitive nature of higher education, coupled with the pressure to succeed, often leads to chronic stress, which can develop into more severe psychological disorders if left unaddressed [42] . According to the World Health Organization, mental health conditions such as depression and anxiety are among the leading causes of disability in young adults, with many students reporting feelings of hopelessness, isolation, and burnout[43].

Sleep disturbances are another critical issue affecting student mental health. Irregular sleep patterns, insomnia, and poor sleep quality are common, often linked to excessive screen time and nighttime social media use. The blue light emitted by devices disrupts circadian rhythms, suppressing melatonin production and delaying sleep onset. Over time, sleep deprivation impairs cognitive function, emotional regulation, and academic performance, creating a vicious cycle where stress and poor mental health further disrupt sleep[44].

Compounding these challenges is the lack of accessible mental health support on many university campuses, particularly in low-resource settings like Nigeria. Stigma surrounding mental illness, limited counseling services, and insufficient awareness campaigns prevent many students from seeking help. Instead, they may turn to maladaptive coping mechanisms, such as social media overuse, which offers temporary relief but ultimately worsens psychological distress. The absence of institutional support systems leaves students to navigate these struggles alone, increasing their risk of long-term mental health deterioration.

The relationship between social media addiction and mental health is bi-directional, with each worsening the other. Students who develop addictive behaviour on social media often experience heightened levels of anxiety, depression, and loneliness. One of the primary

mechanisms driving this effect is social comparison—the tendency to measure one's self-worth against the idealized lives presented online. Constant exposure to peers' achievements, social events, and physical appearances can foster feelings of inadequacy, envy, and low self-esteem, particularly among students already struggling with self-doubt.

Moreover, the dopamine-driven feedback loops inherent in social media platforms reinforce compulsive use. Notifications, likes, and shares provide intermittent rewards that condition users to seek validation through digital engagement. When these rewards are inconsistent or absent, students may experience withdrawal-like symptoms, including mood swings, irritability, and increased anxiety. This dependency can displace real-world social interactions, leading to social isolation despite the illusion of connectivity. Paradoxically, while social media is often used to alleviate loneliness, excessive use can deepen it by reducing meaningful face-to-face relationships[45].

Sleep disruption further mediates the negative effects of social media addiction on mental health. Many students engage in late-night scrolling, sacrificing sleep to remain online. The resulting fatigue impairs concentration, memory, and academic performance, increasing stress and creating a feedback loop where poor mental health drives further social media use as an escape. Studies have shown that students with social media addiction report higher levels of psychological distress, including symptoms of depression and anxiety, compared to their peers with moderate usage.

Despite increasing global interest in this phenomenon, there remains a paucity of research examining social media addiction within the Nigerian context. This gap is especially concerning given Nigeria's rapidly digitizing society and the cultural factors that may affect social media use. The current study seeks to address this knowledge gap by exploring key

aspects of social media addiction and its mental health implications. The findings could inform appropriate interventions and contribute to the growing literature on digital wellbeing.

The study employed a designed questionnaire that combined established psychological scales with culturally adapted elements to ensure both scientific rigor and local relevance. At its core, the Bergen Social Media Addiction Scale (BSMAS) provided a validated framework for assessing problematic social media use through its six key dimensions: the cognitive dominance of social media (salience), its use for emotional regulation (mood modification), the need for increasing engagement (tolerance), negative emotional states when abstaining (withdrawal), interpersonal problems caused by use (conflict), and unsuccessful attempts to reduce usage (relapse). While this scale offers detailed quantitative measurement and enables cross-cultural comparisons, its limitations include potential insensitivity to local usage patterns and a somewhat restrictive response format.

Complementing this, the Depression, Anxiety and Stress Scale-21 (DASS-21) served as a comprehensive mental health assessment tool, measuring symptoms across three domains: depression (capturing feelings of hopelessness), anxiety (focusing on physiological arousal), and stress (assessing persistent tension). Though highly reliable, this scale's potential overlap with normal academic stress responses and cultural variations in symptoms require consideration during interpretation.

The methodological choices reflect an awareness of both the strengths and limitations inherent in cross-cultural psychological research, with measures to lessen potential weaknesses while exploiting the measurement properties of established assessment tools.

Psychologists and addiction researchers generally regard both the Bergen Social Media Addiction Scale (BSMAS) and the Depression, Anxiety and Stress Scale-21 (DASS-21) as

useful screening tools in university student populations, particularly for studies spanning five years or more, but they acknowledge important limitations. The BSMAS is praised for its theoretical grounding and brevity; it effectively captures core behavioral addiction features, and its unidimensional factor structure has been replicated across student and adolescent samples in Korea, Hong Kong, Taiwan and USA [46–48]. A recent meta-analysis confirms that the BSMAS reliably distinguishes between low and high levels of problematic social media use (PSMU), especially among individuals with moderate to high trait vulnerability [49]. Despite this, experts have raised concerns that addiction-based scales such as the BSMAS may not fully capture the complexities of heavy but non-pathological social media engagement. By focusing on addiction-like criteria, it risks mixing intense but normal use with harmful behaviour and may neglect important factors such as social comparison. Studies have identified so-called "high-engagement/low-risk" users who meet several addiction criteria, such as salience, but report minimal distress or life disruption.[40]

Similarly, the DASS-21 is valued for its efficiency and robust psychometric properties, having been validated repeatedly in college student samples worldwide [50–52]. Its ability to simultaneously assess depression, anxiety, and stress makes it particularly attractive for research requiring compact, multidimensional mental health measures. Nevertheless, experts emphasize that the DASS-21 is not a diagnostic tool but rather a symptom severity index[51,53,54]. Despite these concerns, the DASS-21 remains a trusted tool, in large part due to its high internal consistency, with Cronbach's alpha values frequently at or above 0.90[52–54]

Both scales are self-report inventories and therefore share common vulnerabilities, including response bias and measurement artifacts. Cultural validity presents an additional layer of complexity. Although both the BSMAS and DASS-21 have been translated into multiple languages and applied across diverse regions, cultural differences can influence how items are interpreted and endorsed. For instance, the BSMAS, originally developed in Norwegian

and English, has shown differing optimal cut-off points across countries; a score of 24 has been proposed for adolescents in China, while a lower threshold of 18 has been suggested for Moroccan students[55,56].

In terms of content, the BSMAS may oversimplify social media use by treating it as a single construct, without accounting for differences between platforms like WeChat and Instagram, which serve varying social functions in different cultures. It also lacks components that explore social motivations, peer dynamics, or emotional triggers that often underlie digital behavior. The DASS-21, while broader in scope, similarly omits potentially important domains such as self-esteem or interpersonal relationships, which are particularly relevant in the university context.

To address these limitations in the present study, several strategies will be employed. First, self-report biases will be minimized through the use of anonymous, self-administered questionnaires, clear item instructions, and reassurance of confidentiality, which are known to reduce social desirability effects. Second, the inclusion of culturally adapted versions of the BSMAS and DASS-21—based on previously validated translations and subjected to local expert review—will help enhance cultural relevance and clarity. Cut-off thresholds will be selected based on pilot data and previous regional studies to improve classification accuracy. Third, the sampling strategy will ensure inclusion of diverse faculties and student backgrounds, enhancing representativeness across academic disciplines, socioeconomic strata, and digital habits. Finally, although the BSMAS and DASS-21 will remain the core screening instruments, the study will include supplementary items addressing self-esteem, peer relations, and platform-specific usage patterns, enabling a richer analysis of psychosocial dynamics underlying student well-being and online behavior.

Guided by the research questions, this review systematically examines existing literature to establish the study's theoretical framework. These include demographic factors (such as age, gender disparities, and socioeconomic status), psychological factors (such as self-esteem deficits, emotional regulation capacity, and levels of perceived stress), and behavioral variables (such as nocturnal usage patterns, platform preference, and the quantity versus quality of time spent online). Emerging research also highlights the role of personality traits, particularly neuroticism and extraversion, in moderating these relationships. Understanding these predictors within the Nigerian environment is essential for developing effective intervention strategies.

Accordingly, the literature review is structured into four major sections that align with the research objectives while incorporating multiple theoretical perspectives. The first section examines studies addressing levels of knowledge and awareness concerning social media addiction, drawing from health belief models and theories of planned behavior. The second section explores attitudes towards social media use and addiction among university students, incorporating media dependency theory and uses-and-gratifications approaches. The third section reviews epidemiological data on the prevalence of social media addiction and its documented impact on mental health outcomes, applying the cognitive-behavioral model of pathological internet use. The fourth and final section analyzes research investigating predictors of social media addiction through the lens of biopsychosocial theory, highlighting the interaction between individual vulnerabilities and environmental reinforcements. Through this examination, the review establishes a foundation for the present study while identifying gaps that warrant investigation.

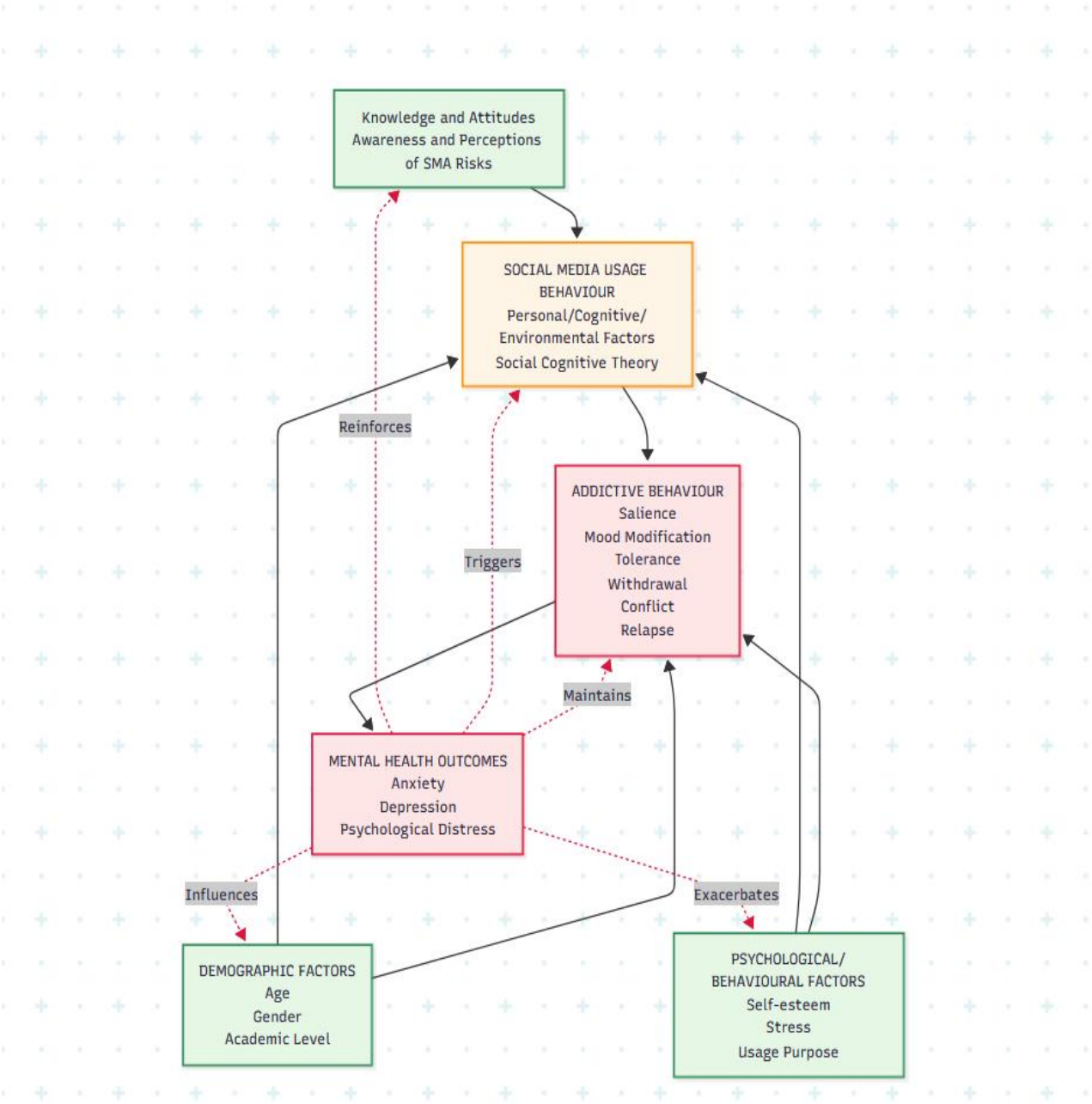

Figure 1: Conceptual Framework of Study

2.2 Conceptual and Theoretical Framework

This study presents a conceptual framework to comprehensively examine the relationship between social media use, addiction behaviors, and mental health outcomes among university students. The framework combines Bandura's Social Cognitive Theory, Engel's

Biopsychosocial Model, Bronfenbrenner's Ecological Systems Theory, and Lazarus and Folkman's Transactional Model of Stress and Coping to capture the topic.

At its core, Social Cognitive Theory provides the behavioural foundation by explaining the relationships between students' personal beliefs, their social environments, and their patterns of social media engagement [57]. This theory helps explain how students develop expectations about social media use through observation and reinforcement, while simultaneously showing how their self-regulatory capacities affect whether such use remains adaptive or becomes compulsive. The Biopsychosocial Model expands on this by incorporating biological tendencies, psychological traits, and social influences that shape vulnerability to problematic use. Neurological reward mechanisms, personality characteristics such as impulsivity or neuroticism, and peer group norms all interact to determine why some students develop maladaptive relationships with social media while others maintain healthier usage patterns.

The Ecological Systems Theory shows these processes within environmental contexts, recognizing that students' social media behaviors are shaped by multiple layers of influence[58]. Immediate social circles, academic departments, institutional policies, and societal attitudes toward technology each play a role in either encouraging balanced use or dependency. For instance, competitive academic environments may unintentionally push students toward using social media as an escape, while religious or cultural norms might either lessen excessive use through restrictions or worsen stress when digital engagement conflicts with traditional values.

The Transactional Model of Stress and Coping adds more information on the processes through which social media becomes a compulsion [59]. Students facing academic pressure, social isolation, or financial strain often turn to social media as a coping mechanism, initially for distraction or emotional relief. However, when such use becomes a primary and

ineffective strategy for managing stress, it can trigger a self-perpetuating cycle where increased engagement leads to greater mental health deterioration, which in turn drives even more reliance on social media as an escape.

Together, these theories form a framework that accounts for the biological, psychological, social, and environmental factors influencing social media addiction and its mental health consequences. The framework acknowledges that no single factor operates in isolation, but it is the relationship between individual predispositions and environment that determines outcomes. For example, a student with high anxiety may be more susceptible to social media's mood-altering effects, but whether this susceptibility explains addiction depends on additional factors such as peer group behaviors, support systems, and the availability of alternative coping strategies.

This study combines four psychological theories to understand student social media addiction. It looks at how personal habits, social pressures, university environments, and stress management interact to create unhealthy digital behaviors. Researchers used standard questionnaires to measure addiction and mental health, which provide useful data but have limitations since people don't always report accurately. The approach gives a complete picture of why students overuse social media, helping schools develop better support programs. However, the findings could be stronger by adding actual usage data from phones, following students over time, and adapting questions for different cultures.

The research helps raise awareness about digital wellbeing on campuses, but needs more real-world testing of solutions. Future studies should combine app tracking with personal interviews and test different intervention methods to find what really helps students balance their online and offline lives. This would make the findings more useful for creating effective campus policies and support services.

2.3 Knowledge of Social Media Addiction Among Undergraduates

In 2024, a descriptive cross-sectional study was carried out in Chengdu, China, to assess students' knowledge of internet addiction, using a convenience sampling and a questionnaire adapted from the Davis Online Cognition Scale, with a Cronbach alpha on 0.93[60]. Among 37 respondents, 36 (93.7%) mentioned they frequently use the internet for social media, and 26 (70.3%) could recognize key symptoms of internet addiction, though only 23 (62.2%) correctly understood that diagnosis requires multiple symptoms persisting over time. While 23 students (62.2%) believed attention should be given to internet addiction, 13 (35.1%) were indifferent and 1 (2.7%) dismissed its consequences. Awareness of the contributing factors was limited, with only 17 students (45.9%) identifying relevant causes such as environmental influences. Although many acknowledged the negative impacts on academic performance, health, and social skills, overall knowledge about diagnostic criteria and risk factors was moderate. While many students recognized key symptoms and understood the negative impacts on academics and health, there was limited knowledge about diagnostic criteria and contributing factors. This suggests a need for more comprehensive education on the topic. To address this, targeted educational interventions could be implemented to improve understanding of the full scope of Internet addiction, including its causes and diagnostic criteria.

In 2018, a descriptive cross-sectional study was conducted in Asadabad, Iran, to assess the knowledge, attitude and self-efficacy regarding internet addiction among 160 female undergraduates, using multi-stage sampling techniques and a researcher-developed questionnaire, which yielded a Cronbach alpha of 0.83 on the pilot study [61] . The study assessed internet addiction among university students, with a mean age of 21.81±2.93 years (range 18–28). Of the participants, 141 (88.1%) were single and 19 (11.9%) were married. Most students, 67 (41.9%), used the internet for 1–2 hours daily, while 19 (11.8%) used it for

over 5 hours. Based on defining internet addiction as using the internet for three or more hours daily, 49 (30.6%) students were identified as addicted. For knowledge, 43 (26.9%) had high scores, 77 (48.1%) moderate, and 40 (25.0%) low. The study benefits from detailed stratification of knowledge, attitude, and self-efficacy scores. However, it is limited by reliance on self-reported internet use and a simplistic definition of addiction, lack of details on the scoring of the addiction knowledge, and may lack generalizability due to reliance only on female participants, which may affect the study outcomes.

A descriptive cross-sectional study was carried out in 2020 in Minia, Egypt, to assess the knowledge, beliefs and level of internet and social media addiction among 370 undergraduate nursing students, using a simple stratified sampling technique and a researcher developed questionnaire [62] . Among the 370 nursing students studied at Minia University, the majority were aged 18–21 years (244, 65.9%), female (220, 59.5%), and living in rural areas (278, 75.1%). Most reported good relationships with their parents (358, 96.8%) and lived with their families during their studies (231, 62.4%). In relation to knowledge of internet and social media addiction, only 96 (25.9%) provided a complete definition, while 258 (69.7%) gave an incomplete answer, and 16 (4.3%) did not know. Regarding signs of addiction, 214 (57.8%) identified jeopardizing significant relationships or responsibilities, 206 (55.7%) noted loss of sense of time, and 185 (50.0%) reported failure to reduce time spent online. Additionally, 163 (44.1%) mentioned irritability during withdrawal, 114 (30.8%) compulsive checking of notifications, and 105 (28.4%) preoccupation with the internet. Only 27 (7.3%) indicated no knowledge of any signs. A strength of the study is its large sample size, which supports the reliability of the findings. However, a limitation is that it focused only on nursing students, which may affect the generalizability to other student groups. It is recommended that future studies include a more diverse sample and explore students' deeper understanding of social media addiction.

In 2020, a descriptive cross-sectional study was done in Edo State, Nigeria, to assess the prevalence and determinants of smartphone addiction among 442 undergraduates, using a pre-tested questionnaire adapted from the Smartphone Addiction Scale Questionnaire (SASQ) and stratified random sampling technique [63] . All 442 (100.0%) respondents were aware of smartphone addiction and had correct knowledge of its definition. The main sources of information were colleagues 271 (61.3%) and the internet 253 (57.2%), while radio was the least cited 152 (34.4%). Regarding risk factors, 236 (54.3%) identified younger age as a contributor. About 295 (67.8%) knew smartphone addiction is curable, with 184 (42.3%) recognizing time management and 240 (55.2%) identifying increased social and productive activities as solutions. Knowledge of the consequences was high, as 293 (67.4%) recognized academic impact and 278 (63.9%) were aware of health risks.

The study's strength lies in achieving complete awareness and correct definition among all respondents. However, a major weakness is that it did not explore depth of knowledge beyond basic awareness. It is recommended that future studies assess students' detailed understanding and application of strategies to prevent smartphone addiction.

A similar study was also done in Edo State, Nigeria, in 2023 to assess the knowledge, prevalence and pattern of internet addiction among 645 adolescents in Benin City, using a multi-stage sampling method and a structured interviewer-administered questionnaire adapted from the smart phone addiction scale (SAS) and Internet Addiction Test (IAT) [64] . Daily internet use was reported by 191 (44.9%), with 166 (39.1%) spending less than one hour online daily. Facebook was the most popular platform, used by 359 (76.2%), and 351 (54.4%) engaged in chatting online. Only 301 (46.7%) had heard of internet addiction; among them, 118 (39.2%) got information from books, 104 (34.6%) from television, 102 (21.0%) from school, and 78 (25.9%) from radio. Of those aware, 141 (46.8%) had fair knowledge, 85 (28.7%) had good knowledge, and 75 (24.9%) had poor knowledge of internet addiction.

The study highlights early exposure to internet use and widespread engagement with social media among adolescents. However, the study was on adolescents, not university students, which may limit the applicability for this study.

2.4 Attitudes Towards Social Media Addiction Among University Undergraduates

A descriptive cross-sectional study was carried out in 2016 in Kuwait, to assess the attitude of 200 students towards internet addiction and its effect on their health, using a simple random sampling and a researcher developed questionnaire, adapted from the IAT, with a Cronbach alpha of 0.74 on pre-testing [65]. A substantial proportion of respondents, 180 (90.0%), agreed that internet addiction causes headaches and mental problems, with a mean score of 4.49 and a standard deviation of 0.919. Similarly, 162 (81.0%) participants acknowledged that using the computer for four hours or more could result in several health risks, including traumatic stress, reflected by a mean of 4.06 and a standard deviation of 1.006. The negative effects of internet use on overall physical health were affirmed by another 162 (81.0%) participants, with a mean of 4.06 and a standard deviation of 1.069. Playing internet games for extended hours was perceived as harmful, with 159 (79.5%) participants agreeing that it can cause trouble sleeping and potential future brain damage. This variable recorded a mean of 3.99 and a standard deviation of 1.145. Additionally, 155 (77.5%) participants agreed that internet addiction adversely affects the nervous system, with a mean of 3.89 and a standard deviation of 1.108. Back and neck pain were recognized as common diseases associated with internet addiction by 153 (76.5%) participants, resulting in a mean score of 3.84 and a standard deviation of 1.282. The link between obesity and internet use was acknowledged by 151 (75.5%) participants, with a mean score of 3.78 and a standard deviation of 1.188. Prolonged keyboard use leading to hand and finger pain or numbness was reported by 136 (68.0%) participants, yielding a mean of 3.40 and a standard deviation of 1.276. Concerning visual health, 123 (61.5%) participants agreed that internet addiction causes blurry vision and other

eye-related problems, corresponding to a mean score of 3.09 and a standard deviation of 1.383. Relaxation practices to mitigate stress, such as closing the eyes frequently, were endorsed by 123 (61.5%) participants as well, reflected by a mean of 3.08 and a standard deviation of 1.396. The harmful effects of computer screen brightness on eyesight were recognized by 117 (58.5%) participants, with a mean of 2.93 and a standard deviation of 1.473. The study effectively highlights participants' awareness of the health risks associated with internet use. However, reliance on self-reported perceptions without validation limits the strength of the findings. Future research should incorporate objective health assessments and provide clearer educational guidance to distinguish evidence-based risks from misconceptions.

A descriptive cross-sectional study was carried out in Tehran, Iran in 2018, to assess the knowledge, attitude, and self-efficacy regarding internet addiction among 160 female undergraduates, using a simple random sampling method, and a structured interviewer-developed questionnaire[61]. The study showed that the mean scores for attitude assessed was 66.96, showing an overall moderate attitude towards internet addiction. Five (3.6%) respondents had a negative attitude, 79 (49.1%) had a neutral attitude, and 76 (47.3%) had a positive attitude regarding internet addiction and its consequences among students. The study benefits from detailed stratification of knowledge, attitude, and self-efficacy scores. However, it is limited by reliance on self-reported internet use and a simplistic definition of addiction, lack of details on the scoring of the addiction knowledge, and may lack generalizability due to reliance only on female participants, which may affect the study outcomes.

In 2015, a descriptive cross-sectional study was carried out in Dar es Salaam, Tanzania, to assess undergraduates' perception of the effects of social media on their academic lives, using convenience sampling technique, and a researcher-developed questionnaire [66]. Among 100 undergraduate respondents, awareness of the effects of social media was universal (100,

100%). For negative effects, 34 (34.0%) mentioned moral decay, 33 (33.0%) wastage of time, 13 (13.0%) laziness in thinking, 11 (11.0%) lack of concentration, and 9 (9.0%) addiction. Regarding positive effects, 33 (33.0%) said social media helped them stay updated on current issues, 27 (27.0%) reported interaction with different students, 22 (22.0%) access to academic materials, and 18 (18.0%) increase in knowledge. On the extent of negative impact, 42 (45.0%) agreed that social media negatively affects academic lives. Concerning positive contribution, 48 (48.0%) believed social media made a big contribution, 32 (32.0%) a minor contribution, and 20 (20.0%) a major contribution. None (0, 0.0%) said there was no contribution. The study clearly shows students' awareness and balanced views on social media's academic effects. However, reliance on self-reported perceptions without objective academic metrics limits the strength of conclusions. Future studies should correlate these opinions with actual academic outcomes.

In 2020, a descriptive cross-sectional study was done in Edo State, Nigeria, to assess the prevalence and determinants of smartphone addiction among 442 undergraduates, using a pre-tested questionnaire adapted from the Smartphone Addiction Scale Questionnaire (SASQ) and stratified random sampling technique[63]. Among the 442 participants, 56 (12.7%) strongly agreed and 131 (29.6%) agreed that it is acceptable to carry a smartphone at all times, while 120 (27.1%) were indifferent, 113 (25.6%) disagreed, and 20 (5.0%) strongly disagreed. Regarding the influence of media advertisements on smartphone preferences, 29 (6.6%) strongly agreed, none (0.0%) agreed, 133 (30.1%) were indifferent, 226 (51.1%) disagreed, and 54 (12.2%) strongly disagreed. On the acceptability of being influenced by new smartphone brands, 42 (9.5%) strongly agreed, 69 (15.6%) agreed, 136 (30.8%) were indifferent, 142 (32.1%) disagreed, and 53 (12.0%) strongly disagreed. When asked if it is appropriate to keep one's smartphone close while sleeping, 32 (7.2%) strongly agreed, 99 (22.4%) agreed, 133 (30.1%) were indifferent, 121 (27.4%) disagreed, and 57 (12.9%)

strongly disagreed. On smartphone use during lectures, 117 (26.5%) strongly agreed and 106 (24.0%) agreed, while 72 (16.3%) were indifferent, 114 (25.8%) disagreed, and 33 (7.5%) strongly disagreed. Concerning smartphone use in places of worship, 38 (8.6%) strongly agreed, 113 (25.6%) agreed, 138 (31.2%) were indifferent, 120 (27.1%) disagreed, and 33 (7.5%) strongly disagreed. Using a smartphone as the first activity in the morning was strongly agreed upon by 22 (5.0%) and agreed upon by 144 (32.5%), while 128 (29.0%) were indifferent, 111 (25.1%) disagreed, and 37 (8.4%) strongly disagreed. Regarding anxiety after losing a smartphone, 52 (11.8%) strongly agreed, 147 (33.3%) agreed, 125 (28.3%) were indifferent, 103 (23.3%) disagreed, and 15 (3.4%) strongly disagreed. Preference for smartphone conversations over face-to-face communication was strongly agreed upon by 52 (11.8%) and agreed upon by 144 (32.5%), while 119 (26.9%) were indifferent, 105 (23.8%) disagreed, and 22 (5.0%) strongly disagreed. Finally, 39 (8.8%) strongly agreed and 89 (20.1%) agreed that it is acceptable never to switch off one's smartphone, while 147 (33.3%) were indifferent, 136 (30.8%) disagreed, and 31 (7.0%) strongly disagreed. The study provides a comprehensive overview of attitudes towards smartphone use among participants. However, the reliance on self-reported attitudes limits the interpretability of findings. Future research should incorporate behavioural tracking to validate self-perceptions.

2.5 Prevalence of Social Media Addiction on Mental Health Status Among Undergraduates

In 2021, a descriptive cross-sectional study was carried out in Hong Kong, China, to assess the level of social networking addiction among university students, its health consequences and relationship with parental behaviour, using a questionnaire adapted from the Satisfaction With Life Scale (SWLS), Social Media Disorder Scale (SMDS) and Internet-Specific Parenting Behaviours Scale using a simple random sampling method[67]. The final sample of

participants totaled 390 students (Mean age = 19.09 years, SD = 1.47) consisted of 176 (45.13%) males and 214 (54.87%) females, indicating an overall response rate of 79.6%. Among the 390 university students, 84 (21.5%) met criteria for social networking addiction (SNA), with 44 (25.0%) males and 40 (18.7%) females. Frequent SNA behaviours included using social media to escape negative feelings (193, 49.5%), preoccupation with usage (172, 44.1%), failed attempts to reduce use (175, 44.9%), and feeling bad when unable to use it (156, 40.0%). Neglect of other activities was also common, while fewer reported interpersonal issues (63, 16.2% arguments; 60, 15.4% family conflicts). In terms of mental health impact, students with SNA showed longer sleep latency, more sleep disturbances, lower life satisfaction, higher depression scores, and poorer perceived academic performance compared to non-SNA students, with all differences statistically significant ($p < 0.05$). The study provides strong evidence linking SNA to poorer mental health and academic outcomes among university students. However, the cross-sectional design prevents causal inference, and reliance on self-report measures may introduce bias. Longitudinal or mixed-method approaches are recommended to strengthen future findings.

In 2023, a descriptive cross-sectional study was carried out in King Khalid University, Saudi Arabia, to evaluate the prevalence and determinants of social media addiction among 326 undergraduate medical students, using simple random sampling, and a questionnaire adapted form the PHQ-9, the generalized anxiety disorder-7 tool (GAD-&) and the Bergen social media addiction Scale (BSMAS)[22]. Among the respondents, 195 (59.8%) were male, and 131 (40.2%) were female, with majority of respondents being between 21-23 years (57.1%). Among 326 participants, 180 (55.2%) were classified as addicted to social media based on the BSMAS criteria, with a mean score of 16.60 (SD = 5.06). Regarding mental health, 105 (32.2%) reported symptoms of depression, and 92 (28.2%) reported symptoms of anxiety. The study highlights a high prevalence of social media addiction, with substantial rates of

depression and anxiety among participants. However, the use of self-reported measures without clinical confirmation may overestimate psychiatric symptoms. Future studies should consider diagnostic interviews and explore temporal relationships between addiction and mental health outcomes.

In 2021, a descriptive cross-sectional study was carried out to assess the prevalence of social media addiction in Wollo University, Ethiopia among 603 undergraduate students, using a multistage sampling method and a structured questionnaire adapted from the Youngs Internet Addiction Test (YIAT)[69]. The majority were males (53.1%), with a mean age of 21.4 (SD 1.8) years. Most had used the internet for over 12 months (58.6%) and accessed it mainly via Wi-Fi (48.9%). While 85% of participants showed some form of internet addiction (55.6% mild, 27.9% moderate, 1.5% severe), 15% were free from addiction. Mental distress was present in 19.3% of the students. Common reasons for internet use included course-related activities (93.6%), social networking (85.6%), reading/posting news (76.6%), online relationships (66.6%), and entertainment activities such as downloading music or watching videos. This study benefits from a large sample size and detailed categorization of internet addiction levels, strengthening the credibility of its findings. However, the cross-sectional design limits causal interpretations, and mental distress was not thoroughly linked with addiction severity. Future studies using longitudinal methods and deeper mental health assessments would provide a clearer understanding of the relationships observed.

A descriptive cross-sectional study was done in Cairo, Egypt in 2023, to assess the prevalence of social media addiction among undergraduate nursing students, using a questionnaire adapted from the Social Networking Addiction Scale (SNAS), using a multi-stage sampling technique[70]. The study assessed 340 nursing students, most of whom (87.35%) were between 18 and 22 years old, with a mean age of 20.46 ± 1.96 years. Students were evenly distributed across all four academic levels, and the majority (78.82%) lived with their families. Firstborn

students made up 35.88% of the sample, while most participants (96.00%) were single. Half of the students (51.18%) reported a B grade point average (GPA) in the previous year. In terms of social media addiction, 60.59% were classified as moderate users, 32.65% as controlled users, and 6.76% as severe users. Among the domains of social media addiction, the highest mean scores were observed in salience (11.70 ± 1.22) and relapse (10.91 ± 1.18), followed by withdrawal (10.08 ± 1.12). The study offers a well-rounded snapshot of social media use among nursing students, highlighting both demographic patterns and addiction severity. However, it remains descriptive without analyzing how demographic factors may influence addiction levels. Incorporating correlation or regression analyses could have provided deeper insights into potential predictors of social media addiction within this population.

A descriptive cross-sectional study was carried out in 2025 in Mogadishu, Somalia, to assess social media use and associated mental health indicators among undergraduates, using stratified random sampling method and a researcher-developed questionnaire, with a Cronbach alpha of 0.82 on pre-testing [71]. Among the 268 university students surveyed, most were aged 18–23 years: 130 (48.5%) were 18–20 years old and 131 (48.9%) were 21–23 years old. Females accounted for 210 (78.4%) of the participants. A total of 227 (84.7%) students reported spending three or more hours daily on social media. Among those who spent ≥3 hours per day on social media (227, 84.7%), 174 (76.7%) reported experiencing an eating disorder, 174 (76.7%) reported anxiety, 168 (74.0%) reported social isolation, 159 (70.0%) had difficulty sleeping, 146 (64.3%) experienced depression or hopelessness, 145 (63.9%) reported low self-esteem, 131 (57.7%) experienced fear of missing out, 169 (74.4%) had trouble concentrating, and 187 (82.4%) felt tired or had little energy. Multiple logistic regression analysis showed that spending more than three hours daily on social media was associated with lower odds of having an eating disorder (AOR = 0.03, 95% CI: 0.00–0.17)

but higher odds of experiencing sleep disturbance (AOR = 2.7, 95% CI: 1.04–7.04), mental exhaustion (AOR = 4.7, 95% CI: 1.80–12.46), social isolation (AOR = 7.4, 95% CI: 1.62–33.35), and anxiety (AOR = 22.2, 95% CI: 3.73–131.70). The study provides a clear link between heavy social media use and various mental health problems among students. However, the finding of decreased eating disorder risk with higher social media use seems counterintuitive. The cross-sectional design also limits causal inferences.

In 2024, a descriptive cross-sectional study was done in Anambra state, Nigeria, to assess the prevalence of social media addiction among 275 undergraduates, using a convenience sampling technique and a questionnaire adapted from the BSMAS and the GAD-7 questionnaires [72] . Among the 275 undergraduates surveyed at Nnamdi Azikiwe University, 119 (43.3%) were addicted to social media, while 156 (56.7%) were not. Social media addiction significantly predicted general anxiety ($\beta = 0.398$, $p < 0.05$), accounting for 15.5% of the variation observed (Adjusted $R^2 = 0.155$, , $p < 0.05$). Similarly, social media addiction significantly predicted depression ($\beta = 0.404$, $p < 0.05$), explaining 16.0% of the variation in depression scores (Adjusted $R^2 = 0.160$, $F = 53.33$, $p < 0.05$). The study demonstrates a clear link between social media addiction, anxiety, and depression among students. However, the modest R^2 values suggest that other unmeasured factors likely contribute to these mental health outcomes. Also, the cross-sectional design limits causal inference, and future studies should consider longitudinal approaches to better understand directionality.

In 2020, a descriptive cross-sectional study was carried out in Ogun state, Nigeria to assess age and gender demographics in social media usage, smartphone addiction and psychological morbidity among undergraduates, using a questionnaire adapted from the Smartphone Addiction Scale, Short Version (SAS-SV) and the Self Reporting Questionnaire (SRQ), using a convenience sampling method [73] . Out of 203 students contacted, 159 completed the questionnaire, yielding a response rate of 78.3%. The mean age of participants was 21.5 ± 4.0

years, with females accounting for 102 (64.2%) and males 57 (35.8%). A total of 116 students (73.0%) self-reported feeling addicted to their smartphones, although only 55 (34.6%) met the criteria for smartphone addiction based on the Smartphone Addiction Scale–Short Version (SAS-SV). Addiction was more prevalent among males (28; 49.1%) compared to females (27; 26.5%). Psychological morbidity, assessed by the Self-Reporting Questionnaire (SRQ-20), was identified in 77 participants (48.4%), with a similar distribution between males (25; 43.9%) and females (52; 51.0%). A significant association between smartphone addiction and psychological morbidity was observed among males ($p = 0.01$) but not among females The study is strengthened by its use of validated instruments for measuring addiction and psychological morbidity, as well as a relatively high response rate. However, its cross-sectional design limits causal inference, and reliance on self-reported data may introduce response bias. Future longitudinal studies are recommended to clarify the temporal relationship between smartphone addiction and mental health outcomes.

2.6 The Predictors Influencing Social Media Addiction and the Mental Health Status Among Undergraduates.

In 2022, a descriptive cross-sectional study was performed in Varendra University, Bangladesh, to assess factors affecting Facebook addiction among 326 undergraduates, suing a researcher-developed questionnaire and simple random sampling technique[74]. The mean age of the students was 21.3 years (±1.77), with 113 (64.7%) being male. Gender did not show a significant association with Facebook addiction ($\chi^2 = 0.951$, $p = 0.330$). Similarly, father's occupation ($\chi^2 = 0.002$, $p = 0.968$) and parental monitoring ($\chi^2 = 0.001$, $p = 0.978$) were not significantly related to Facebook addiction. However, family status demonstrated a significant association, with 107 (60.1%) students from joint families being more likely to exhibit Facebook addiction compared to those from nuclear families ($\chi^2 = 7.124$, $p = 0.008$). The current level of study ($\chi^2 = 22.446$, $p = 0.000$) and faculty ($\chi^2 = 17.028$, $p = 0.000$) were

significantly associated. Notably, 36 (75.0%) third-year students exhibited the highest rates of addiction. With respect to Facebook activity, 133 (75.8%) respondents had only one Facebook account, and 157 (89.6%) used Facebook daily. Daily usage was significantly associated with Facebook addiction (χ^2 = 16.504, p = 0.000). Furthermore, 150 (85.3%) participants accessed Facebook via the app, a factor marginally associated with addiction (χ^2 = 3.872, p = 0.049). The self-reported level of Facebook addiction was highly significant (χ^2 = 93.409, p = 0.000), as was the time spent on Facebook per day (χ^2 = 48.967, p = 0.000), with greater usage correlating with higher addiction levels. Students who used Facebook after going to bed (132, 76.1%; χ^2 = 26.399, p = 0.000), after waking up (79, 45.4%; χ^2 = 10.498, p = 0.001), and on the night before exams (120, 69.0%; χ^2 = 28.080, p = 0.000) were significantly more likely to be addicted. Emotional responses to Facebook interactions were also relevant. Among participants, 95 (54.9%) felt normal after reacting to their own posts, and this response was significantly associated with Facebook addiction (χ^2 = 8.569, p = 0.014). However, reactions to negative comments, with 92 (53.4%) feeling normal, were not significantly associated (χ^2 = 0.816, p = 0.366). The number of female friends (χ^2 = 9.953, p = 0.007) and the total number of Facebook friends (χ^2 = 8.721, p = 0.013) were both significantly associated with addiction, with those having a higher number of friends demonstrating greater levels of addiction. When analyzing factors associated with the level of Facebook addiction (FAL), gender approached significance (χ^2 = 5.153, p = 0.076), with 20 (11.8%) of male respondents and 8 (7.8%) of female respondents showing severe addiction. Behavioural factors such as sleep duration were strongly associated; among participants who slept more than seven hours per day, 16 (32.7%) were severely addicted (χ^2 = 33.235, p = 0.000). Study hours per week were also significant, with fewer hours associated with greater addiction (χ^2 = 6.831, p = 0.033). Academic program faculty showed a significant relationship as well (χ^2 = 12.935, p = 0.002). Among Facebook activity variables, the extent

of self-reported Facebook addiction was significantly associated with FAL ($\chi^2 = 93.405$, $p = 0.000$). Daily Facebook use ($\chi^2 = 47.953$, $p = 0.000$), number of female friends ($\chi^2 = 18.559$, $p = 0.001$), and total number of friends ($\chi^2 = 15.573$, $p = 0.004$) were significant predictors. The timing of Facebook usage was also notable: using Facebook after going to bed ($\chi^2 = 9.079$, $p = 0.011$), after waking up ($\chi^2 = 16.778$, $p = 0.000$), and on the night before an exam ($\chi^2 = 11.630$, $p = 0.003$) were all significantly associated with higher levels of Facebook addiction. The study offers robust findings, particularly in identifying significant socio-demographic and behavioural predictors of Facebook addiction. However, some variables, such as sleep duration and study hours, did not show any significant influence on Facebook addiction, potentially limiting the interpretation of these behavioural factors. Future research could further explore other behavioural or psychological factors not considered in this analysis, such as emotional well-being or personality traits, to offer deeper insights into the addiction's underlying causes

A descriptive cross-sectional study was done in Colombo, Sri Lanka in 2021, to assess the factors influencing social media addiction among students, using a multi-stage sampling method, and the BSMAS questionnaire[75]. The study involved a sample of 250 students, with 131 (52.4%) male and 119 (47.6%) female students. Regarding social media addiction, 78 (31%) of the students were classified as addicted, while 172 (69%) were non-addicts. The addiction rate varied by subject stream, with 35 (65%) students in the art stream being addicted, 13 (35.1%) in the technology stream, and 17 (32.6%) in the commerce stream. The physical science stream had the lowest addiction rate, with only 7 (12.8%) students being addicted. Smartphone ownership was higher among social media addicts, with 48 (61.5%) addicted students owning a smartphone, compared to 30 (38.5%) who did not. Among the non-addicts, 111 (64.5%) did not own a smartphone. Parental social media use had a notable influence on students' addiction levels. Among students whose parents used social media, 56

(46.8%) were addicted, compared to 22 (35.2%) of those whose parents did not use social media. There were gender differences in social media use. Among female students, 39 (34.5%) used social media for 30-60 minutes daily, while 55 (46.6%) male students used it for 1-3 hours daily. Regarding parental working status, 55 (71.1%) students with both parents working were addicted to social media, which was the highest addiction rate observed. The study provides valuable insights into the factors influencing social media addiction among students, with a large sample size (250 participants), which adds to its reliability. The study's reliance on self-reported data may introduce bias, and the cross-sectional design limits the ability to draw causal conclusions. Future studies should use longitudinal data to better assess causality and aim to incorporate objective measures of social media use to reduce bias. Exploring intervention strategies to prevent or reduce social media addiction would also be beneficial.

In 2020, a descriptive cross-sectional study was carried out in Kilimanjaro, Tanzania to assess internet addiction and its associated factors among 500 medical and allied health students, using a simple random sampling technique and the IAT questionnaire [76] . Among the 500 respondents, 292 (58.4%) were male and 208 (41.6%) were female, with a mean age of 23.8 ± 2.4 years. In the unadjusted analysis, factors associated with internet addiction included the place of internet use, time spent using the internet per day, and the primary purpose for internet use. The prevalence of internet addiction was 14.3% (71/500) among students using the internet through college premises, 40.2% (201/500) among those spending ≥5 hours per day on the internet, and 44.5% (223/500) among those using the internet for social networking. Prevalence was significantly lower (PR = 0.40, 95% CI: 0.21–0.77, p = 0.01) among those using the internet at the college compared to those using both at the hostel/home and college. In contrast, those who used the internet for ≥5 hours per day were more likely to have internet addiction (PR = 2.05, 95% CI: 1.44–2.90, p < 0.001) compared to those using it

for less than 5 hours per day. Additionally, a higher prevalence of internet addiction was observed among students using the internet for social networking (PR = 1.87, 95% CI: 1.34–2.62, $p < 0.001$) compared to those using it for academic purposes. In the multivariable analysis, factors that remained significantly associated with internet addiction ($p < 0.05$) included the place of internet use, the average time spent using the internet per day, and the primary purpose for internet use. Undergraduate students using the internet at the college were less likely to have internet addiction (PR = 0.45, 95% CI: 0.23–0.86, $p = 0.02$) compared to those using both at the hostel/home and college. A higher prevalence of internet addiction was observed among students who used the internet for ≥5 hours per day (PR = 1.84, 95% CI: 1.30–2.63, $p = 0.001$) and for social networking (PR = 1.64, 95% CI: 1.17–2.31, $p = 0.004$) compared to those using it for less than 5 hours per day and for academic purposes. The study effectively highlights the key factors contributing to internet addiction, with a large sample size (500 participants), which adds robustness to the findings. Although, the reliance on self-reported data may introduce biases, and causal relationships cannot be definitively established due to the cross-sectional nature of the study. Future research could incorporate longitudinal designs to better assess causality and use more objective measures of internet usage to reduce reporting biases.

A similar descriptive cross-sectional study was carried out in 2023 in Jimma, Ethiopia, among 745 undergraduates to assess the prevalence of internet addiction and its contributing factors, using the YIAT questionnaire and a multi-stage sampling technique[77]. Regarding the association with CGPA, students with a promoted grade report had a significantly higher likelihood of internet addiction, with an adjusted odds ratio (AOR) of 2.119 (95% CI: 1.321–3.397, $p = 0.002$). Students with poor satisfaction with their major were also significantly more likely to suffer from internet addiction (AOR = 4.827, 95% CI: 2.029–11.484, $p < 0.001$), whereas students with moderate satisfaction had a lower likelihood (AOR = 1.338,

95% CI: 0.955–1.874, p = 0.091). The use of the internet for entertainment was associated with a significantly higher likelihood of internet addiction (AOR = 1.558, 95% CI: 1.113–2.180, p = 0.010), as was using it for Facebook (AOR = 2.780, 95% CI: 1.471–5.253, p = 0.002) and Telegram (AOR = 2.197, 95% CI: 1.434–3.365, p < 0.001). Students who reported depression were also significantly more likely to be addicted to the internet (AOR = 2.061, 95% CI: 1.463–2.903, p < 0.001), as were students with social anxiety (AOR = 4.565, 95% CI: 1.254–16.610, p = 0.021). Furthermore, poor social support was significantly associated with a higher likelihood of internet addiction, with an AOR of 2.132 (95% CI: 1.358–3.346, p = 0.001) for those reporting poor social support, and an AOR of 1.666 (95% CI: 1.060–2.619, p = 0.027) for those with moderate social support. Lastly, lifetime khat use was associated with an increased likelihood of internet addiction, though the association was weaker in the adjusted analysis. The study provides a good understanding of the factors associated with internet addiction, such as the influence of academic satisfaction, social media use, and mental health issues. The large sample size enhances the findings. However, the reliance on self-reported data may introduce biases, and the cross-sectional design limits the ability to establish causality. Future research could incorporate longitudinal data to better assess causality and use objective measures of internet usage to mitigate the limitations of self-reporting. Additionally, exploring intervention strategies to address internet addiction, particularly in relation to mental health and social media use, would be valuable.

In 2022, a descriptive cross-sectional study was carried out in Ogun state, Nigeria to assess social media addiction among undergraduates and its effect on mental health, using a convenience sampling technique, using a researcher developed questionnaire [78] . Among the 361 respondents, majority, 218 (60.4%) were female, while 143 (39.6%) were male, with majority of the respondents, 146 (40.4%) being within 19-20 years of age. Social media use significantly affected various aspects of undergraduates' lives. Social life suffered due to

increased social media usage, with a moderate positive correlation (r = 0.497) and the model explaining 24.7% of the variance in social life suffering (B = 0.424, p < 0.001). There was a significant influence of social media interference with normal daily life on mental health. A positive correlation (r = 0.493) indicated that increased interference with daily life was associated with worse mental health, explaining 24.3% of the variance (B = 5.204, p < 0.001). The extent of agitation increased significantly due to social media use, as shown by a positive correlation (r = 0.534) and the model explaining 28.5% of the variance (B = 0.885, p < 0.001). Social media use significantly influenced anxiety levels, with a positive correlation (r = 0.492) and the model explaining 24.2% of the variance in anxiety (B = 0.730, p < 0.001). Finally, social media addiction had a significant negative impact on mental health. A strong positive correlation (r = 0.664) suggested that increased addiction was associated with worse mental health, with the model explaining 44% of the variance (B = 2.785, p < 0.001).

In 2024, a descriptive cross-sectional study was carried out in Edo state, Nigeria, to assess internet addiction among undergraduate students, using a multi-stage random sampling technique and a questionnaire adapted from the YIAT[79]. A total of 499 undergraduate students participated in the study, with a mean age of 20.5 ± 2.7 years. The majority, 276 (55.3%), were between 20 and 24 years of age, while 34 (6.8%) were aged 25 years or older. Most respondents were male, 259 (51.9%), and 240 (48.1%) were female, giving a male-to-female ratio of 1.08:1. Most participants, 474 (95.0%), accessed the internet via smartphones, whereas 206 (41.9%) used computers and 116 (23.2%) used tablets. The majority, 492 (98.6%), were single, 459 (91.4%) came from monogamous families, and 385 (77.7%) lived in hostels during their schooling. Of the 499 respondents, 107 (21.4%) were classified as normal internet users, while 392 (78.6%) were addicted. Among those addicted, 356 (90.8%) had mild addiction, 35 (8.9%) moderate addiction, and 1 (0.3%) severe addiction. Bivariate analysis showed that younger age groups had a higher prevalence of addiction, with 157

(83.1%) of those aged 15–19 years addicted compared to 23 (67.6%) aged 25 and above, although the association was not statistically significant ($p = 0.075$). A significant association was found with gender ($p = 0.037$), with higher addiction among males, 213 (82.2%), compared to females, 179 (74.6%). No significant associations were found between internet addiction and course of study ($p = 0.319$), study level ($p = 0.525$), or personality traits ($p = 0.118$). The study benefits from a robust sample size of 499 participants and provides detailed demographic and behavioural data. Reporting frequencies and percentages consistently strengthens clarity. However, many tested associations, such as age and personality traits with addiction, were not statistically significant, suggesting that internet addiction may be influenced by more complex or unmeasured factors. Future research should consider including variables like mental health status, peer influence, and academic pressure to better understand predictors of internet addiction among undergraduates.

CHAPTER THREE

METHODOLOGY

3.1 Study Area

Edo State is located in the South-South geopolitical zone of Nigeria, sharing boundaries with Kogi State to the northeast, Delta State to the southeast, Ondo State to the west, and Anambra State to the east. The state spans a total land area of approximately 17,802 square kilometers and is geographically situated between latitudes 5°44′N and 7°34′N and longitudes 5°4′E and 6°43′E.

The state capital is Benin City, a historically significant urban center that once served as the capital of the ancient Benin Kingdom. Edo State consists of 18 Local Government Areas (LGAs) namely Akoko-Edo, Egor, Esan Central, Esan North-East, Esan South-East, Esan West, Etsako Central, Etsako East, Etsako West, Igueben, Ikpoba-Okha, Oredo, Orhionmwon, Ovia North-East, Ovia South-West, Owan East, Owan West, and Uhunmwonde, with Oredo LGA hosting the state capital[80].

The population, as estimated by the National Population Commission and projections based on the 2006 census, is over 4 million, characterized by a diverse mix of ethnic groups, including the Benin (majority), Esan, Afemai, Etsako, Owan, and Akoko-Edo people.[81] Edo State is located within the tropical rainforest belt of Nigeria. Its vegetation is mainly lush tropical rainforest in the south and central zones, transitioning into savannah in the northern regions. The state has a tropical climate with two distinct seasons: a rainy season (April to October) and a dry season (November to March), with average annual temperatures ranging from 25°C to 32°C. The state's economy is largely agrarian, with key crops like rubber, oil palm, yam, cassava, and maize. However, it is also growing in commerce, education, and

tourism, particularly due to Benin City's cultural heritage and the presence of several higher institutions.[82]

The University of Benin (UNIBEN) is a public research institution located in Benin City, Edo State, Nigeria. Established in 1970 as an Institute of Technology, it gained full university status in July 1971 and became a federal university in April 1975. UNIBEN operates across two campuses: Ugbowo and Ekehuan, situated in Ovia North-East Local Government Area, one of the 18 LGAs in Edo State. Ovia North-East is a developing area, and the presence of the university has improved the region, attracting students and businesses alike. This setting creates a unique environment where traditional community life intersects with modern university culture, influencing how students live, study, and interact both offline and online.[83]

UNIBEN comprises 16 faculties and two colleges, each focusing on various academic disciplines. The faculties include Medicine, Dentistry, Pharmacy, Veterinary Medicine, Arts, Physical Sciences, Life Sciences, Law, Social Sciences, Basic Medical Sciences, Education, Environmental Sciences, Engineering, Vocational and Technical Education (VTE), Agricultural Sciences, and Management Sciences. Additionally, the College of Medical Sciences encompasses the Schools of Medicine, Dentistry, Basic Medical Sciences, and the Institute of Child Health. The College of Postgraduate Studies oversees advanced degree programs across various fields. The university's student enrollment exceeds 77,000, supported by a substantial academic staff and is officially accredited by the National Universities Commission (NUC), offering various undergraduate and postgraduate programs[84].

Digitally, UNIBEN maintains an active presence on platforms such as Facebook, Twitter, Instagram, and LinkedIn, utilizing these channels to disseminate information about university activities and engage with the academic community. Similarly, students at UNIBEN are

actively engaged on various social media platforms, leveraging them for both academic and non-academic purposes[83,84].

3.2 Study Design

An analytical cross-sectional design was used for this study.

3.3 Study Duration

This study was carried out between September 2024 and September 2025

3.4 Study Population

This study was carried out among undergraduates of the University of Benin, Ugbowo campus, Benin City, Edo State

3.5 Selection Criteria

3.5.1 Inclusion criteria

I. Students who were present at the time of data collection.

II. Students who gave consent for the study.

3.5.2 Exclusion Criteria

I. Students in 100 Level

II. Students who met the inclusion criteria but declined or were too sick to respond.

3.6 Minimum Sample Size Estimation

The minimum sample size (n) was calculated using the Cochran's formula used for descriptive studies[85].

$$n = \frac{Z^2 pq}{d^2}$$

Where:

n = Minimum Sample Size.

Z = Standard normal deviation set at 95% confidence interval (1.96).

p = Prevalence rate of a particular characteristics of the target population

= 20.1% being the prevalence of internet addiction among Students of University of Calabar, Nigeria in 2020[86].

= 0.201

q = 1 p = 1-0.201 = 0.799

d = Degree of precision set at 0.05 Confidence interval

Hence:

$$n = = \frac{(1.96)^2 \text{ x } (0.201) \text{ x } (0.799) \text{ x } 2}{(0.05)^2} = 247$$

To account for non-response, 10% non-response rate was added to the minimum sample size, utilizing the formula for non-response rate.

$$nf = \frac{n}{1 - nr}$$

n = Minimum sample size = 247

nr = non-response rate = 10% = 0.10

nf = Final minimum sample size

$$= \frac{247}{1\text{-}0.10} = 274$$

A design effect of 2 was used.

= 274 x 2 = 548

Thus, the final minimum sample size for this study was 548. A sample size of 548 was used.

3.7 Sampling Technique

Respondents for the study were selected using a multi-stage sampling technique involving four stages. A total of 548 undergraduate students participated, with questionnaires distributed across selected departments. Respondents who met the inclusion criteria were consecutively recruited until the desired sample size was achieved.

Stage 1: Selection of Campus: The University of Benin operates two campuses—Ugbowo and Ekehuan. Using simple random sampling by balloting, the Ugbowo campus was selected for the study.

Stage 2: Selection of Faculties: A list of the 16 faculties located on the Ugbowo campus was obtained from the Central Records Processing Unit Division of the University. Six faculties were selected through simple random sampling by balloting. The faculties chosen includes Arts, Basic Medical Sciences, Environmental Sciences, Life Sciences, Medicine, and Physical Sciences.

Stage 3: Selection of Departments: Within the selected faculties, there are a total of 39 departments. One department was selected from each faculty using simple random sampling by balloting. The departments selected were English and Literature, Nursing Science, Estate Management, Microbiology, Medicine, and Chemistry.

Stage 4: Selection of Respondents: A stratified sampling technique was employed to ensure proportionate representation across departments. This involved two steps. First, the number of respondents per department was determined using proportional allocation according to the formula:

$$\text{Proportional allocation} = \frac{\text{Number of students in department}}{\text{Total population of departments}} \text{ x Minimum sample size}$$

Second, respondents were stratified according to their levels, using the formula:

$$\frac{\text{Number of students in level}}{\text{Total population of department}} \text{ x Department sample size}$$

Third, individual respondents were selected using systematic sampling. The first respondent was chosen by simple random sampling through balloting, and subsequent respondents were selected at intervals determined by the formula:

$$\text{Sampling interval} = \frac{Population\ size}{Sample\ size}$$

Where the population size refers to the total number of students on the class list and the sample size refers to the number of respondents required per level.

Table 1: Proportionate allocation of respondents according to department and level

Department	Level	Population (N=2780)	Sample Allocation (n=548)
Medicine (N=918)	200L	183	36
	300L	139	27
	400L	134	27
	500L	128	25
	600L	122	24
Total			**139**
Nursing Science (N=797)	200L	163	32
	300L	176	34
	400L	308	60
Total			**126**
Chemistry (N=711)	200L	161	32
	300L	144	28
	400L	143	28
Total			**88**
Microbiology (N=652)	200L	144	28
	300L	153	30
	400L	146	29
Total			**87**
English (N=603)	200L	126	25
	300L	142	28
	400L	153	31
Total			**84**
Estate Management (N=214)	200L	46	10
	300L	29	6
	400L	14	3
	500L	26	5
Total			**24**

Out of 548 respondents, 139 were allocated to Medicine, 126 to Nursing Science, 88 to Chemistry, 87 to Microbiology, 84 to English, and 24 to Estate Management.

3.8 Data Management

3.8.1 Tools for Data Collection

Data for this study was collected using a structured, self-administered questionnaire comprising both closed-ended and open-ended questions. The questionnaire was adapted

from similar studies as well as the Bergen Social Media Addiction Scale (BSMAS) and the Depression, Anxiety, and Stress Scale-21 (DASS-21).

The knowledge assessment section was developed based on established instruments from Al-Menayes [87] (2015) and Błachnio et al. [88] (2016), focusing on participants' understanding of social media addiction risks, manifestations, and consequences. This component utilized multiple-choice and true/false question formats to evaluate recognition of addiction symptoms, awareness of associated mental health impacts, and identification of preventive strategies. These questions were selected for their demonstrated content validity in prior research, where similar knowledge items showed strong discriminative capacity in distinguishing between aware and naive populations.

For assessing attitudes, the questionnaire incorporated a series of Likert-scale items adapted from the work of Koc and Gulyagci [89] (2015). These statements measured participants' emotional and cognitive orientations toward social media use, including items probing anxiety related to disconnection, perceived impacts on academic performance, and beliefs about social media's role in stress management. The selected items maintained the original 5-point response scale (ranging from "Strongly Disagree" to "Strongly Agree") to preserve psychometric properties while ensuring cultural appropriateness for the study population.

Bergen Social Media Addiction Scale (BSMAS)[90]: The BSMAS, developed by Andreassen et al. in 2016, assesses social media addiction based on six core addiction components: salience, mood modification, tolerance, withdrawal, conflict, and relapse. The scale has been validated in various populations, including university students, and is widely used to measure problematic social media use, with a Cronbach’s alpha of 0.86 and a test-retest reliability coefficient of 0.75. The BSMAS was supplemented with four clinically significant items from the original Bergen Facebook Addiction Scale assessing: functional impairment

("Neglected work/school"), emotional consequences ("Felt guilty"), relational conflict ("Argued with others"), and behavioural concealment ("Hidden use").

Depression, Anxiety, and Stress Scale-21 (DASS-21) [91] **:** The DASS-21 is a 21-item self-report instrument designed to measure non-specific psychological distress in the anxiety-depression spectrum. It has been validated for use in diverse populations, including Australian, South African, and American Indian communities, and has shown high internal consistency with a Cronbach's alpha of 0.88.

Questionnaire Structure:

The questionnaire was divided into six sections:

Section A: Sociodemographic Data: This section gathered information on respondents' age, sex, faculty, department, academic level, ethnic group, religion, marital status, and sources of income (both primary and secondary).

Section B: **Knowledge of Social Media Addiction**: This section evaluated respondents' understanding of social media addiction concepts through multiple-choice questions covering definitions, symptoms, mental health impacts, contributing behaviors, withdrawal symptoms, and management strategies.

Section C: **Attitude Towards Social Media Use**: This section measured respondents' perceptions using a 5-point Likert scale (0-4) to assess views on addiction seriousness, willingness to reduce usage, beliefs about normal vs. excessive use, and opinions about regulation and education needs.

Section D:**Patterns of Social Media Use:** This section assessed respondents' actual social media behaviors including smartphone ownership, internet access, platforms used (Facebook,

Instagram, WhatsApp, etc.), frequency and duration of daily use, primary purposes of use (academic, social, entertainment), and preferred times of usage.

Section E: **Social Media Addiction (BSMAS):** This section also utilized the Bergen Social Media Addiction Scale to clinically assess addiction severity by measuring six core components: salience, mood modification, tolerance, withdrawal symptoms, interpersonal conflict, and relapse through 10 scored items

Section F: Mental Health Status (DASS-21): This section employed the Depression, Anxiety and Stress Scale-21 items to measure psychological distress levels, focusing on symptoms of depression corresponding to Number (55, 57, 62, 65, 68, 69, 73), anxiety corresponding to Number (54, 56, 59, 61, 67, 71, 72), and stress corresponding to Number (53, 58, 60, 63, 64, 66, 70) using a **4**-point frequency scale.

3.8.2 Method of Data Collection

The pre-tested structured questionnaires was self-administered at the University of Benin. Respondents were allowed to complete the questionnaires in or around the lecture theatre, where they felt comfortable, with their privacy ensured. Informed consent was obtained from all participants, and they were assured of the confidentiality of their responses.

3.8.3 Pretesting

The questionnaires were pre-tested at Igbinedion University, Okada, Benin City. Ten percent (37) of the minimum sample size was used for the pretesting, and any observed errors was corrected before the full-scale study was conducted.

3.8.4 Research Assistants

No research assistants was employed for the purpose of this study. The administration of the questionnaires, data collation, and data analysis were carried out by the authors of the study.

3.9 Data Analysis

Data collected from the field was checked for completeness, cleaned, coded, and entered into the Statistical Package for the Social Sciences (SPSS) version 27.0 for analysis. Both descriptive and inferential statistical methods were employed to summarize the variables and test the study hypotheses.

Descriptive statistics was used to summarize respondents' sociodemographic characteristics, patterns of social media use, and mental health indicators. Categorical variables such as gender, level of study, and preferred social media platforms were presented as frequencies and percentages. Continuous variables such as age and average daily screen time were summarized using means and standard deviations if normally distributed, or medians and interquartile ranges for non-normally distributed data.

To explore associations between social media use and mental health status, Chi-square tests (or Fisher's exact tests where assumptions are not met) was used for categorical variables. For continuous variables, independent t-tests was applied. A p-value of less than 0.05 was considered statistically significant.

Variables with a p-value less than 0.2 in bivariate analysis were included in the multivariate analysis model to adjust for potential confounders.

Binary logistic regression was performed to identify independent predictors of social media addiction and poor mental health outcomes. Adjusted odds ratios (AORs) with 95% confidence intervals and corresponding p-values were reported.

SCORING SYSTEM

Socio-demographic Data

The age of respondents and income was grouped into appropriate categories. The main source of income was categorized (e.g., parents, guardians, self-supporting, scholarships, etc).

Pattern of Use of Social Media

This section assessed how frequently respondents use social media, which platforms they use, and the duration of their usage. The questions were based on the frequency of social media use (e.g., daily, weekly, rarely), types of social media platforms used (e.g., Facebook, Twitter, Instagram, WhatsApp), and the average amount of time spent per day. The scoring categorized respondents into the following groups based on their responses:

- **Low utilization**: 0–2 hours per day
- **Moderate utilization**: 3–4 hours per day
- **High utilization**: 5+ hours per day

The proposed categorization of 0–2 hours as low, 3–4 hours as moderate, and 5+ hours as high social media utilization aligns with established clinical thresholds from the Bergen Social Media Addiction Scale and reflects empirical findings that exceeding 2 hours daily corresponds to measurable declines in psychological wellbeing, while usage surpassing 4 hours demonstrates strong associations with functional impairment and addictive behaviour[92,93].

Knowledge of Social Media

A total of 39 questions assessed respondents' knowledge of social media. This section evaluate knowledged across four domains: the definition of social media, types of social

media, consequences of social media use, and the health effects of social media. Each correct answer was scored as 1 point, while an incorrect answer will score 0 points. The total score was calculated and converted into a percentage of the maximum obtainable score. The interpretation was as follows:

- **0%–69.9%**: Poor knowledge
- **70.0%–100%**: Good knowledge

Attitude Towards Social Media Use

This section assessed respondents' attitudes towards social media use using 10 questions on a 5-point Likert scale:

- Strongly agree = 4
- Agree = 3
- Neutral = 2
- Disagree = 1
- Strongly disagree = 0

The total score was summed and converted into a percentage of the maximum score. The score interpretation was follows:

- **0%–69.9%**: Negative attitude
- **70%–100%**: Positive attitude

Social Media Addiction

Social media addiction was assessed using the Bergen Social Media Addiction Scale (BSMAS). The adapted scale consists of 10 questions scored on a 5-point Likert scale[94]:

- Very rarely = 1
- Rarely = 2
- Sometimes = 3
- Often = 4
- Very often = 5

The total score was summed and categorized as follows:

- **10–20**: Low risk of social media addiction
- **21–34**: Moderate risk of social media addiction
- **35–50**: High risk Social media addiction

The scores was interpreted as follows

10-34 = Absent

≥35 = Present

Mental Health Status

The Depression, Anxiety, and Stress Scale-21 (DASS-21) was used to assess respondents' mental health. The scale includes 21 questions, rated on a 4-point scale[91]:

- **0 = NEVER** - Did not apply to me at all**,**
- **1 = SOMETIMES** - Applied to me to some degree, or some of the time**,**
- **2 = OFTEN** - Applied to me to a considerable degree, or a good part of time**,**

- **3 = ALMOST ALWAYS** - Applied to me very much, or most of the time**.**

The 21 items were grouped into 3 subscales (Depression, Anxiety and Stress) and scored separately. Scores on the DASS-21 subscales was then multiplied by 2 to calculate the final score. The total score was computed and categorized as follows:

Table 2: Scoring for DASS-21 Scale

Level	Depression	Anxiety	Stress
Normal	0–9	0–7	0–14
Mild	10–13	8–9	15–18
Moderate	14–20	10–14	19–25
Severe	21–27	15–19	26–33
Extremely Severe	28+	20+	34+

Depression

0 = Normal and mild (0-13)

1= Moderate (14-20)

2= Severe (21-27)

3= Extremely severe (28+)

Anxiety

0 = Normal and mild (0-9)

1= Moderate (10-14)

2= Severe (15-19)

3= Extremely severe (20+)

Stress

0 = Normal and mild (0-18)

1= Moderate (19-25)

2= Severe (26-33)

3= Extremely severe (34+)

Total of the 3 subscales ranged from a minimum of 0 to a maximum of 9, the interpretation was as follows

0-2 = Good mental health status

≥3 = Poor mental health status

3.10 Data Presentation

The results obtained from the study was presented using frequency distribution tables, contingency tables, charts, and prose. These methods helped in clearly showcasing the distribution of responses, the relationships between variables, and the overall trends observed in the data.

3.11 Ethical Consideration

Ethical approval for the study was be obtained from the Health Research Ethics Committee of the University of Benin Teaching Hospital, with the protocol number ADM/E 22/A/VOL. VII/148654912580. Informed consent was obtained from all respondents before administering the questionnaires. Respondents were informed of their right to withdraw from the study at any point without any consequence or harm. The confidentiality and anonymity of the participants was maintained throughout the study.

3.12 Study Limitation

This study maybe limited by the accuracy of the information provided by the respondents. As the study relies on self-reported data, there may be errors introduced due to recall bias. Some respondents may inadvertently provide inaccurate information or withhold certain details. To minimize recall bias, simple and clear questions will be used, and the respondents will be reassured of the confidentiality and importance of providing accurate responses.

CHAPTER FOUR

RESULTS

A total of 548 respondents participated in the study with 100% response rate. The results are presented in the following sections in line with the specific objectives.

SECTION A: Socio-demographic characteristics of respondents in the University of Benin

SECTION B: Knowledge of social media addiction among undergraduates in the University of Benin

SECTION C: Attitudes towards social media addiction among undergraduates in the University of Benin

SECTION D: Prevalence of social media addiction on the mental health status among undergraduates in the University of Benin

SECTION A

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 1: Socio-demographic characteristics of respondents in the University of Benin

Variables	Frequency (n = 548)	Percent
Age group (years)		
15–19	154	28.1
20–24	312	56.9
25–29	74	13.5
30–34	8	1.5
Mean ± Standard deviation	21.5 ± 2.9	
Sex		
Male	242	44.2
Female	306	55.8
Department		
Medicine	139	25.4
Nursing Science	126	23.0
Chemistry	88	16.1
Microbiology	87	15.9
English and Literature	84	15.3
Estate Management	24	4.4
Level		
200	166	30.3
300	154	28.1
400	175	31.9
500	28	5.1
600	25	4.6
Ethnicity		
Benin	173	31.6
Esan	82	15.0
Igbo	77	14.1
Yoruba	59	10.8
Urhobo	39	7.1
Estako	20	3.6
Ijaw	15	2.7
Isoko	15	2.7
Owan	14	2.6
Efik	14	2.6
Hausa	11	2.0
Itsekiri	11	2.0
Ika	5	0.9
Okpe	4	0.7
Ukwuani	3	0.5
Afemai	3	0.5
Others*	3	0.5
Religion		
Christianity	523	95.4
Islam	18	3.3
African Traditional Religion	7	1.3
Marital Status		
Single	531	96.9
Married	9	1.6
Separated/Divorced	1	0.2
Widowed	1	0.2
Cohabiting	6	1.1
Residence		
Hostel On-Campus	300	54.7
Hostel Off-Campus	188	34.3
Private residence	52	9.5
Junior Staff Quarters	4	0.7
Senior Staff Quarters	4	0.7
Monthly allowance		
<40,000	175	31.9
40,000-60,000	266	48.5
>60,000	107	19.6
Main source of income		
Parents	478	87.2
Guardians	20	3.6
Other relatives	12	2.2
Self-supporting	33	6.0
Scholarships	5	0.9

*Others – Akoko-Edo, Ora, Tiv

The majority of respondents were aged 20–24 years, 312 (56.9%), followed by those aged 15–19 years, 154 (28.1%), 25–29 years, 74 (13.5%), and 30–34 years, 8 (1.5%), with a mean age of 21.5 ± 2.9

More than half of the respondents were female, 306 (55.8%), while males accounted for 242 (44.2%).

Regarding department, respondents were mainly from Medicine, 139 (25.4%), followed by Nursing Science, 126 (23.0%), Chemistry, 88 (16.1%), Microbiology, 87 (15.9%), English and Literature, 84 (15.3%), and Estate Management, 24 (4.4%).

In terms of academic level, 200-level students constituted 166 (30.3%), 300-level students 154 (28.1%), 400-level students 175 (31.9%), 500-level students 28 (5.1%), and 600-level students 25 (4.6%).

Ethnic distribution showed that most respondents were Benin, 173 (31.6%), followed by Esan, 82 (15.0%), Igbo, 77 (14.1%), Yoruba, 59 (10.8%), Urhobo, 39 (7.1%), Estako, 20 (3.6%), Ijaw, 15 (2.7%), Isoko, 15 (2.7%), Owan, 14 (2.6%), Efik, 14 (2.6%), Hausa, 11 (2.0%), Itsekiri, 11 (2.0%), Ika, 5 (0.9%), Okpe, 4 (0.7%), Ukwuani, 3 (0.5%), Afemai, 3 (0.5%), and other ethnicities, 3 (0.5%).

Most respondents practiced Christianity, 523 (95.4%), followed by Islam, 18 (3.3%), and African Traditional Religion, 7 (1.3%).

The majority of respondents were single, 531 (96.9%), while a small proportion were married, 9 (1.6%), cohabiting, 6 (1.1%), separated or divorced, 1 (0.2%), and widowed, 1 (0.2%).

Regarding place of residence, most respondents lived in hostels on-campus, 300 (54.7%), followed by hostels off-campus, 188 (34.3%), private residences, 52 (9.5%), junior staff quarters, 4 (0.7%), and senior staff quarters, 4 (0.7%).

Monthly allowance distribution showed that 266 (48.5%) received between 40,000–60,000, 175 (31.9%) received less than 40,000, and 107 (19.6%) received more than 60,000.

Most respondents relied on their parents as the main source of income, 478 (87.2%), followed by self-supporting respondents, 33 (6.0%), guardians, 20 (3.6%), other relatives, 12 (2.2%), and scholarships, 5 (0.9%).

SECTION B

KNOWLEDGE OF SOCIAL MEDIA ADDICTION AMONG UNDERGRADUATES

Table 2: Awareness and source of information of social media addiction among undergraduates in the University of Benin

Variables	Frequency (n = 548)	Percent
Awareness of social media addiction	519	94.7
Source of information on social media addiction*		
Social media	432	83.2
Friends/Family	196	37.8
News articles	163	31.4
Healthcare professionals	105	20.2
University courses	76	14.6

*Multiple response questions

Most respondents were aware of social media addiction, 519 (94.7%).

Regarding sources of information on social media addiction, 432 (83.2%) obtained information from social media, 196 (37.8%) from friends or family, 163 (31.4%) from news articles, 105 (20.2%) from healthcare professionals, and 76 (14.6%) from university courses.

Table 3: Knowledge of social media addiction among undergraduates in the University of Benin

Variables	Frequency (n = 519)	Percent
Description of social media addiction*		
Difficulty controlling the urge to check social media	347	66.9
Use of social media interfering with daily life	183	35.3
Occasional checking of social media for updates	38	7.3
Using social media for business only	34	6.6
Signs of social media addiction*		
Prioritizing social media over important activities	440	84.8
Feeling anxious when unable to access social media	409	78.8
Neglecting schoolwork or responsibilities due to social media use	359	69.2
Feeling relaxed and disconnected from online activities	29	5.6
Consequences of social media addiction*		
Sleep disturbances	464	89.4
Anxiety	376	72.4
Depression	372	71.7
Improved physical fitness	33	6.4
Better concentration skills	30	5.8
Behaviors contributing to social media addiction*		
Checking social media immediately after waking up	459	88.4
Using social media during lectures	391	75.3
Constantly refreshing feeds for new content	348	67.1
Using social media only during scheduled breaks	38	7.3
Associated mental health challenges*		
Anxiety	440	84.8
Depression	405	78.0
Stress	312	60.1
Improved academic performance	27	5.2
Improved sleep quality	17	3.3
Preventive measures against social media addiction*		
Setting time limits for social media use	469	90.4
Engaging in offline hobbies	420	80.9
Practicing mindfulness	385	74.2
Ignoring signs of excessive use	37	7.1
Leaving apps running all day	12	2.3
Withdrawal symptoms of social media addiction*		
Irritability when unable to check social media	430	82.9
Restlessness or agitation	406	78.2
Craving to go online	383	73.8
Calmness and peace of mind	56	10.8
Effects of excessive social media use*		
It can cause decreased productivity	458	88.2
It can worsen self-esteem issues	398	76.7
It can cause interpersonal conflicts	335	64.5
It can improve exam grades automatically	25	4.8
Strategies to manage social media usage*		
Scheduling specific times for social media use	483	93.1
Deleting apps that cause distraction	396	76.3
Practicing digital detox occasionally	326	62.8
Avoiding social media completely without a plan	37	7.1

*Multiple response questions, **Cronbach alpha- 0.88**

Among the respondents, difficulty controlling the urge to check social media was the most commonly described feature of addiction, reported by 347 (66.9%). Use of social media interfering with daily life was identified by 183 (35.3%), while occasional checking of social media for updates and using social media for business only were indicated by 38 (7.3%) and 34 (6.6%), respectively.

Regarding signs of addiction, prioritizing social media over important activities was observed among 440 (84.8%) respondents, and 409 (78.8%) reported feeling anxious when unable to access social media. Neglecting schoolwork or responsibilities due to social media use was reported by 359 (69.2%), whereas only 29 (5.6%) respondents stated that they felt relaxed and disconnected from online activities.

In terms of consequences, sleep disturbances were reported by 464 (89.4%) respondents. Anxiety and depression were also common, reported by 376 (72.4%) and 372 (71.7%) respondents, respectively. Conversely, 33 (6.4%) noted improved physical fitness, and 30 (5.8%) mentioned better concentration skills as outcomes.

Behaviors that contributed to social media addiction included checking social media immediately after waking up, as reported by 459 (88.4%) respondents. Using social media during lectures was noted among 391 (75.3%), while 348 (67.1%) indicated constantly refreshing feeds for new content. Only 38 (7.3%) used social media strictly during scheduled breaks.

With respect to associated mental health challenges, anxiety was reported by 440 (84.8%), depression by 405 (78.0%), and stress by 312 (60.1%). Improved academic performance and improved sleep quality were noted by 27 (5.2%) and 17 (3.3%) respondents, respectively.

Preventive measures taken against social media addiction included setting time limits for use, reported by 469 (90.4%), and engaging in offline hobbies, mentioned by 420 (80.9%).

Practicing mindfulness was adopted by 385 (74.2%), while ignoring signs of excessive use and leaving apps running all day were reported by 37 (7.1%) and 12 (2.3%) respondents, respectively.

Withdrawal symptoms were also evident, as irritability when unable to check social media was reported by 430 (82.9%). Restlessness or agitation was experienced by 406 (78.2%), and craving to go online was identified by 383 (73.8%). In contrast, 56 (10.8%) reported experiencing calmness and peace of mind.

As for the effects of excessive social media use, decreased productivity was reported by 458 (88.2%), worsened self-esteem issues by 398 (76.7%), and interpersonal conflicts by 335 (64.5%). A minority of 25 (4.8%) respondents believed that it could improve exam grades automatically.

Finally, strategies to manage social media usage included scheduling specific times for use, reported by 483 (93.1%). Deleting distracting apps was mentioned by 396 (76.3%), and 326 (62.8%) engaged in occasional digital detox. Avoiding social media completely without a plan was adopted by 37 (7.1%) respondents.

Table 4: Correctness of responses to knowledge of social media addiction among undergraduates in the University of Benin

Variables	Correcct (%)	Incorrect (%)
Description of social media addiction*		
Use of social media interfering with daily life	183 (35.3%)	336 (64.7%)
Using social media for business only	485 (93.4%)	34 (6.6%)
Difficulty controlling the urge to check social media	347 (66.9%)	172 (33.1%)
Occasional checking of social media for updates	481 (92.7%)	38 (7.3%)
Signs of social media addiction*		
Feeling anxious when unable to access social media	409 (78.8%)	110 (21.2%)
Prioritizing social media over important activities	440 (84.8%)	79 (15.2%)
Feeling relaxed and disconnected from online activities	490 (94.4%)	29 (5.6%)
Neglecting schoolwork or responsibilities due to social media use	359 (69.2%)	160 (30.8%)
Consequences of social media addiction*		
Sleep disturbances	464 (89.4%)	55 (10.6%)
Depression	372 (71.7%)	147 (28.3%)
Improved physical fitness	486 (93.6%)	33 (6.4%)
Anxiety	376 (72.4%)	143 (27.6%)
Better concentration skills	489 (94.2%)	30 (5.8%)
Behaviors contributing to social media addiction*		
Checking social media immediately after waking up	459 (88.4%)	60 (11.6%)
Using social media during lectures	391 (75.3%)	128 (24.7%)
Using social media only during scheduled breaks	481 (92.7%)	38 (7.3%)
Constantly refreshing feeds for new content	348 (67.1%)	171 (32.9%)
Associated mental health challenges*		
Anxiety	440 (84.8%)	79 (15.2%)
Stress	312 (60.1%)	207 (39.9%)
Improved academic performance	492 (94.8%)	27 (5.2%)
Depression	405 (78.0%)	114 (22.0%)
Improved sleep quality	502 (96.7%)	17 (3.3%)
Preventive measures against social media addiction*		
Setting time limits for social media use	469 (90.4%)	50 (9.6%)
Practicing mindfulness	385 (74.2%)	134 (25.8%)
Ignoring signs of excessive use	482 (92.9%)	37 (7.1%)
Engaging in offline hobbies	420 (80.9%)	99 (19.1%)
Leaving apps running all day	507 (97.7%)	12 (2.3%)
Withdrawal symptoms of social media addiction*		
Irritability when unable to check social media	430 (82.9%)	89 (17.1%)
Calmness and peace of mind	463 (89.2%)	56 (10.8%)
Restlessness or agitation	406 (78.2%)	113 (21.8%)
Craving to go online	383 (73.8%)	136 (26.2%)
Effects of excessive social media use*		
It can cause interpersonal conflicts	335 (64.5%)	184 (35.5%)
It can improve exam grades automatically	494 (95.2%)	25 (4.8%)
It can cause decreased productivity	458 (88.2%)	61 (11.8%)
It can worsen self-esteem issues	398 (76.7%)	121 (23.3%)
Strategies to manage social media usage*		
Scheduling specific times for social media use	483 (93.1%)	36 (6.9%)
Deleting apps that cause distraction	396 (76.3%)	123 (23.7%)
Avoiding social media completely without a plan	482 (92.9%)	37 (7.1%)
Practicing digital detox occasionally	326 (62.8%)	193 (37.2%)

*Multiple response questions

Among the descriptions of social media addiction, 183 (35.3%) respondents agreed that use of social media interferes with daily life, while 336 (64.7%) did not. A large proportion, 485 (93.4%), indicated that using social media for business only does not describe addiction, while 34 (6.6%) considered it a correct description. Difficulty controlling the urge to check social media was recognized by 347 (66.9%), whereas 172 (33.1%) did not. Occasional checking of social media for updates was considered incorrect by 481 (92.7%), while 38 (7.3%) regarded it as correct.

With respect to signs of addiction, feeling anxious when unable to access social media was correctly identified by 409 (78.8%) respondents, compared to 110 (21.2%) who did not. Prioritizing social media over important activities was correctly reported by 440 (84.8%), while 79 (15.2%) indicated otherwise. Feeling relaxed and disconnected from online activities was judged incorrect by 490 (94.4%), whereas 29 (5.6%) considered it correct. Neglecting schoolwork or responsibilities due to social media use was acknowledged by 359 (69.2%), while 160 (30.8%) did not identify it as a sign.

Considering the consequences of social media addiction, sleep disturbances were correctly reported by 464 (89.4%) respondents, while 55 (10.6%) did not agree. Depression was identified by 372 (71.7%), while 147 (28.3%) did not. Improved physical fitness was judged incorrect by 486 (93.6%), with 33 (6.4%) regarding it as correct. Anxiety was acknowledged by 376 (72.4%), whereas 143 (27.6%) did not. Similarly, better concentration skills were judged incorrect by 489 (94.2%), while 30 (5.8%) regarded them as a consequence.

In terms of behaviors contributing to social media addiction, checking social media immediately after waking up was correctly identified by 459 (88.4%), compared to 60 (11.6%) who did not. Using social media during lectures was reported by 391 (75.3%), while 128 (24.7%) did not agree. Using social media only during scheduled breaks was judged incorrect

by 481 (92.7%), while 38 (7.3%) considered it correct. Constantly refreshing feeds for new content was identified by 348 (67.1%), whereas 171 (32.9%) did not.

Regarding associated mental health challenges, anxiety was correctly identified by 440 (84.8%), while 79 (15.2%) did not. Stress was acknowledged by 312 (60.1%), while 207 (39.9%) disagreed. Improved academic performance was regarded as incorrect by 492 (94.8%), while 27 (5.2%) considered it correct. Depression was recognized by 405 (78.0%), with 114 (22.0%) not agreeing. Improved sleep quality was considered incorrect by 502 (96.7%), while 17 (3.3%) regarded it as correct.

Preventive measures included setting time limits for social media use, which was reported by 469 (90.4%) respondents, while 50 (9.6%) did not agree. Practicing mindfulness was acknowledged by 385 (74.2%), while 134 (25.8%) disagreed. Ignoring signs of excessive use was considered incorrect by 482 (92.9%), while 37 (7.1%) believed it to be correct. Engaging in offline hobbies was reported by 420 (80.9%), while 99 (19.1%) did not agree. Leaving apps running all day was largely judged incorrect by 507 (97.7%), while 12 (2.3%) reported otherwise.

Withdrawal symptoms of social media addiction included irritability when unable to check social media, reported by 430 (82.9%), while 89 (17.1%) disagreed. Calmness and peace of mind was considered incorrect by 463 (89.2%), while 56 (10.8%) regarded it as correct. Restlessness or agitation was correctly identified by 406 (78.2%), while 113 (21.8%) did not agree. Craving to go online was reported by 383 (73.8%), while 136 (26.2%) disagreed.

The effects of excessive social media use included decreased productivity, reported by 458 (88.2%), while 61 (11.8%) did not agree. Worsened self-esteem issues were identified by 398 (76.7%), while 121 (23.3%) did not. Interpersonal conflicts were acknowledged by 335

(64.5%), while 184 (35.5%) disagreed. In contrast, 494 (95.2%) judged that automatic improvement in exam grades was incorrect, while 25 (4.8%) regarded it as correct.

Finally, strategies to manage social media usage included scheduling specific times for use, reported by 483 (93.1%), while 36 (6.9%) did not agree. Deleting distracting apps was acknowledged by 396 (76.3%), while 123 (23.7%) disagreed. Practicing digital detox occasionally was reported by 326 (62.8%), while 193 (37.2%) did not agree. Avoiding social media completely without a plan was considered incorrect by 482 (92.9%), while 37 (7.1%) regarded it as correct.

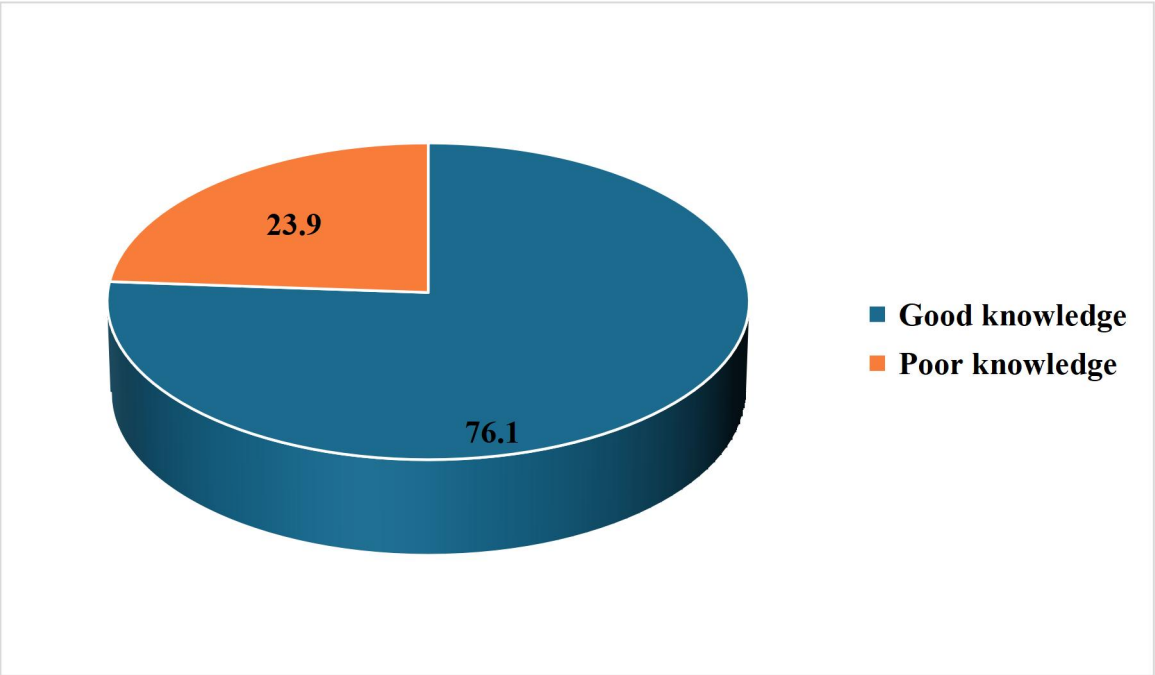

Figure 1: Knowledge of social media addiction among undergraduates in the University of Benin

Majority of the respondents, 395 (76.1%) had a good knowledge of social media addiction, while only 124 (23.9%) had poor knowledge.

Table 5: Factors affecting knowledge of social media addiction among undergraduates of the University of Benin

Variables	Knowledge of social media addiction		Test statistic (χ^2)	p-value
	Poor (n=124) (%)	Good (n=395) (%)		
Age group (years)				
15-19	47 (32.4)	98 (67.6)	16.515	**0.001**
20-24	70 (23.9)	223 (76.1)		
25-29	7 (9.6)	66 (90.4)		
30-34	0 (0.0)	8 (100.0)		
Sex				
Male	56 (24.5)	173 (75.5)	0.071	0.836
Female	68 (23.4)	222 (76.6)		
Department				
English and Literature	22 (26.8)	60 (73.2)	32.239	**<0.001**
Nursing Science	28 (23.5)	91 (76.5)		
Estate management	7 (30.4)	16 (69.6)		
Microbiology	12 (16.0)	63 (84.0)		
Medicine	17 (12.7)	117 (87.3)		
Chemistry	38 (44.2)	48 (55.8)		
Level				
200	54 (33.8)	106 (66.3)	21.245	**<0.001**
300	32 (22.9)	108 (77.1)		
400	36 (21.7)	130 (78.3)		
500	2 (7.1)	26 (92.9)		
600	0 (0.0)	25 (100.0)		
Ethnicity				
Edo indigenes	61 (22.0)	216 (78.0)	1.143	0.303
Non-Edo indigenes	63 (26.0)	179 (74.0)		
Religion				
Christians	118 (23.8)	378 (76.2)	0.064	0.804
Others	6 (26.1)	17 (73.9)		
Marital status				
Ever married	122 (24.0)	387 (76.0)	0.085	>0.999*
Never married	2 (20.0)	8 (80.0)		
Residence				
On-Campus	66 (22.6)	226 (77.4)	0.610	0.468
Off-Campus	58 (25.6)	169 (74.4)		
Monthly Allowance (₦)				
<40,000	41 (24.7)	125 (75.3)	1.159	0.566
40,000-60,000	63 (25.0)	189 (75.0)		
>60,000	20 (19.8)	81 (80.2)		
Source of Income				
Parents	112 (24.7)	341 (75.3)	1.556*	0.840
Guardians	4 (20.0)	16 (80.0)		
Other Relatives	2 (16.7)	10 (83.3)		
Self-supporting	6 (20.7)	23 (79.3)		
Scholarships	0 (0.0)	5 (100.0)		

*Fisher's exact test

Respondents aged 30–34 years had the highest proportion with good knowledge of social media addiction, 8 (100.0%), compared to 66 (90.4%) among those aged 25–29 years, 223

(76.1%) among those aged 20–24 years, and 98 (67.6%) among those aged 15–19 years. The association between age group and knowledge of social media addiction was statistically significant ($\chi^2 = 16.515$, $p = 0.001$).

By sex, 173 (75.5%) of males and 222 (76.6%) of females had good knowledge of social media addiction. The association between sex and knowledge of social media addiction was not statistically significant ($\chi^2 = 0.071$, $p = 0.836$).

Across departments, respondents in Medicine had the highest proportion with good knowledge, 117 (87.3%), followed by Microbiology, 63 (84.0%), and Nursing Science, 91 (76.5%). In contrast, Chemistry students had the lowest proportion with good knowledge, 48 (55.8%). The association between department and knowledge of social media addiction was statistically significant ($\chi^2 = 32.239$, $p < 0.001$).

With respect to level of study, good knowledge was highest among respondents in 600 level, 25 (100.0%), and 500 level, 26 (92.9%), compared to 130 (78.3%) in 400 level, 108 (77.1%) in 300 level, and 106 (66.3%) in 200 level. The association between level and knowledge of social media addiction was statistically significant ($\chi^2 = 21.245$, $p < 0.001$).

Among Edo indigenes, 216 (78.0%) had good knowledge compared to 179 (74.0%) among non-Edo indigenes. The association between ethnicity and knowledge of social media addiction was not statistically significant ($\chi^2 = 1.143$, $p = 0.303$).

For religion, 378 (76.2%) Christians and 17 (73.9%) of other religions had good knowledge. The association between religion and knowledge of social media addiction was not statistically significant ($\chi^2 = 0.064$, $p = 0.804$).

With respect to marital status, 8 (80.0%) never married respondents had good knowledge compared to 387 (76.0%) of those who were ever married. The association between marital

status and knowledge of social media addiction was not statistically significant (FET = 0.085, $p > 0.999$).

For place of residence, 226 (77.4%) on-campus residents had good knowledge compared to 169 (74.4%) among off-campus residents. The association between residence and knowledge of social media addiction was not statistically significant ($\chi^2 = 0.610$, $p = 0.468$).

Regarding monthly allowance, respondents who received more than ₦60,000 had the highest proportion with good knowledge, 81 (80.2%), compared to 125 (75.3%) among those receiving less than ₦40,000, and 189 (75.0%) among those receiving ₦40,000–₦60,000. The association between monthly allowance and knowledge of social media addiction was not statistically significant ($\chi^2 = 1.159$, $p = 0.566$).

Considering source of income, good knowledge was most common among respondents on scholarships, 5 (100.0%), followed by those supported by other relatives, 10 (83.3%), and self-supporting respondents, 23 (79.3%). In comparison, 341 (75.3%) of those supported by parents and 16 (80.0%) of those supported by guardians had good knowledge. The association between source of income and knowledge of social media addiction was not statistically significant (FET = 1.556, $p = 0.840$).

Table: 6: Predictors for good knowledge of social media addiction among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.076	1.079	0.970	1.201	0.162
Sex					
Male	-0.292	0.747	0.479	1.165	0.198
Female*		1			
Department					
Health related	0.971	2.641	1.738	4.012	**<0.001**
Non-health related		1			
Level					
200	-19.789	<0.001	<0.001	>0.999	0.998
300	-19.316	<0.001	<0.001	>0.999	0.998
400	-19.332	<0.001	<0.001	>0.999	0.998
500	-18.567	<0.001	<0.001	>0.999	0.998
600*		1			
Ethnicity					
Edo indigenes	0.352	1.422	0.914	2.213	0.118
Non-Edo indigenes*		1			
Religion					
Christians	-0.025	0.976	0.350	2.721	0.962
Others*		1			
Marital status					
Never married	-0.081	0.923	0.164	5.186	0.927
Ever married*		1			
Residence					
On-campus	0.234	1.264	0.816	1.960	0.294
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	-0.098	0.907	0.470	1.749	0.770
40,000-60,000	-0.391	0.677	0.365	1.253	0.214
>60,000*		1			
Source of Income					
Parents	-0.124	0.883	0.429	1.819	0.736
Others*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.079 times more likely to have good knowledge of social media addiction (95% CI = 0.970 – 1.201, p = 0.162) and this was not statistically significant.

Respondents who were male were 1.3 times less likely to have good knowledge compared to females (95% CI = 0.479 – 1.165, p = 0.198) and this was not statistically significant.

Respondents in health-related departments were 2.6 times more likely to have good knowledge of social media addiction than those in non-health-related departments (95% CI = 1.738 – 4.012, p < 0.001), and this was statistically significant. Students in 200, 300, 400, and 500 level were all less likely to have good knowledge compared to those in 600 level, but their odds ratios were extremely small (<0.001) with p-values of 0.998, hence the results were not statistically significant.

Edo indigenes were 1.4 times more likely to have good knowledge compared to non-Edo indigenes (95% CI = 0.914 – 2.213, p = 0.118) and this was not statistically significant.

Christians were 1.0 times less likely to have good knowledge compared to respondents of other religions (95% CI = 0.350 – 2.721, p = 0.962) and this was not statistically significant.

Respondents who had never married were 1.1 times less likely to have good knowledge compared to those who were ever married (95% CI = 0.164 – 5.186, p = 0.927) and this was not statistically significant.

Students residing on-campus were 1.3 times more likely to have good knowledge than those residing off-campus (95% CI = 0.816 – 1.960, p = 0.294) and this was not statistically significant.

Respondents receiving less than ₦40,000 monthly allowance were 1.1 times less likely to have good knowledge compared to those receiving more than ₦60,000 (95% CI = 0.470 – 1.749, p = 0.770) and this was not statistically significant. Those receiving ₦40,000–₦60,000 were 1.5 times less likely to have good knowledge compared to those receiving more than ₦60,000 (95% CI = 0.365 – 1.253, p = 0.214) and this was not statistically significant.

Respondents whose source of income was their parents were 1.1 times less likely to have good knowledge than those with other sources (95% CI = 0.429 – 1.819, p = 0.736) and this was not statistically significant.

SECTION C

ATTITUDE TOWARDS SOCIAL MEDIA ADDICTION AMONG UNDERGRADUATES

Table 7: Attitude towards social media addiction among undergraduates in the University of Benin

Variables	Strongly agree Freq (%)	Agree Freq (%)	Neutral Freq (%)	Disagree Freq (%)	Strongly Disagree Freq (%)
I feel anxious when I am not able to check social media for a long time.	42 (7.7)	120 (21.9)	159 (29.0)	127 (23.2)	100 (18.2)
Spending too much time on social media negatively affects my academic performance.	145 (26.5)	249 (45.4)	94 (17.2)	35 (6.4)	25 (4.6)
Taking breaks from social media will cause me to feel left out.	27 (4.9)	104 (19.0)	151 (27.6)	155 (28.3)	111 (20.3)
Social media addiction can harm my relationships with family and friends.	92 (16.8)	188 (34.3)	97 (17.7)	114 (20.8)	57 (10.4)
Reducing time on social media will make me miss important updates from my friends.	44 (8.0)	177 (32.3)	165 (30.1)	108 (19.7)	54 (9.9)
I often find myself unable to control how much time I spend on social media.	54 (9.9)	161 (29.4)	136 (24.8)	135 (24.6)	62 (11.3)
Engaging more in offline activities will make me more likely to become addicted to social media.	41 (7.5)	56 (10.2)	48 (8.8)	184 (33.6)	219 (40.0)
I believe social media addiction is a serious problem among students.	286 (52.2)	196 (35.8)	45 (8.2)	14 (2.6)	7 (1.3)
Spending time on social media helps me relieve stress.	41 (7.5)	252 (46.0)	160 (29.2)	58 (10.6)	37 (6.8)
Trying to limit my social media use makes me feel stressed and disconnected.	19 (3.5)	73 (13.3)	134 (24.5)	212 (38.7)	110 (20.1)

Cronbach alpha- 0.70

A large proportion of respondents expressed varied perceptions toward social media addiction and its consequences. About 42 (7.7%) strongly agreed and 120 (21.9%) agreed that they feel anxious when unable to check social media for a long time, while 127 (23.2%) disagreed and 100 (18.2%) strongly disagreed, with 159 (29.0%) remaining neutral. A majority, 145 (26.5%) strongly agreed and 249 (45.4%) agreed that excessive social media use negatively affects their academic performance, while only 35 (6.4%) disagreed and 25 (4.6%) strongly disagreed.

Regarding feelings of exclusion, 27 (4.9%) strongly agreed and 104 (19.0%) agreed that taking breaks from social media makes them feel left out, compared to 155 (28.3%) who disagreed and 111 (20.3%) who strongly disagreed. Concerning interpersonal relationships, 92 (16.8%) strongly agreed and 188 (34.3%) agreed that social media addiction can harm family and friend relationships, whereas 114 (20.8%) disagreed and 57 (10.4%) strongly disagreed.

A total of 44 (8.0%) strongly agreed and 177 (32.3%) agreed that reducing time on social media may lead to missing important updates from friends, while 108 (19.7%) disagreed and 54 (9.9%) strongly disagreed. Similarly, 54 (9.9%) strongly agreed and 161 (29.4%) agreed that they are often unable to control the amount of time they spend on social media, while 135 (24.6%) disagreed and 62 (11.3%) strongly disagreed.

On the contrary, 184 (33.6%) disagreed and 219 (40.0%) strongly disagreed that engaging more in offline activities increases the likelihood of becoming addicted to social media, whereas only 41 (7.5%) strongly agreed and 56 (10.2%) agreed. A substantial proportion, 286 (52.2%) strongly agreed and 196 (35.8%) agreed, believed that social media addiction is a serious problem among students, with only 21 (3.9%) disagreeing and 7 (1.3%) strongly disagreeing.

In terms of stress relief, 41 (7.5%) strongly agreed and 252 (46.0%) agreed that spending time on social media helps relieve stress, while 58 (10.6%) disagreed and 37 (6.8%) strongly disagreed. Finally, 19 (3.5%) strongly agreed and 73 (13.3%) agreed that trying to limit social media use makes them feel stressed and disconnected, compared to 212 (38.7%) who disagreed and 110 (20.1%) who strongly disagreed.

Table 8: Correctness of attitudinal responses towards social media addiction among undergraduates in the University of Benin

Variables	Appropriate (%)	Inappropriate (%)
I feel anxious when I am not able to check social media for a long time.	227 (41.4%)	321 (58.6%)
Spending too much time on social media negatively affects my academic performance.	394 (71.9%)	154 (28.1%)
Taking breaks from social media will cause me to feel left out.	266 (48.5%)	282 (51.5%)
Social media addiction can harm my relationships with family and friends.	280 (51.1%)	268 (48.9%)
Reducing time on social media will make me miss important updates from my friends.	162 (29.6%)	386 (70.4%)
I often find myself unable to control how much time I spend on social media.	197 (35.9%)	351 (64.1%)
Engaging more in offline activities will make me more likely to become addicted to social media.	403 (73.5%)	145 (26.5%)
I believe social media addiction is a serious problem among students.	482 (88.0%)	66 (12.0%)
Spending time on social media helps me relieve stress.	95 (17.3%)	453 (82.7%)
Trying to limit my social media use makes me feel stressed and disconnected.	322 (58.8%)	226 (41.2%)

A total of 227 (41.4%) respondents reported it was appropriate that they feel anxious when unable to check social media for a long time, while a higher proportion 321 (58.6%) considered it inappropriate. Concerning academics, the majority 394 (71.9%) agreed it was appropriate that spending too much time on social media negatively affects their academic performance, whereas 154 (28.1%) considered it inappropriate.

On feelings of exclusion, 266 (48.5%) indicated it was appropriate that taking breaks from social media causes them to feel left out, while 282 (51.5%) did not. Similarly, 280 (51.1%) considered it appropriate that social media addiction can harm family and friend relationships, while 268 (48.9%) did not.

Only 162 (29.6%) believed it was appropriate that reducing time on social media will make them miss important updates from friends, compared to a higher 386 (70.4%) who considered it inappropriate. Regarding control, 197 (35.9%) found it appropriate that they are often unable to control their time spent on social media, while 351 (64.1%) did not.

A large proportion 403 (73.5%) indicated it was appropriate that engaging more in offline activities would reduce their likelihood of becoming addicted to social media, while 145 (26.5%) considered it inappropriate. The overwhelming majority 482 (88.0%) believed it was appropriate that social media addiction is a serious problem among students, while only 66 (12.0%) did not.

On the contrary, just 95 (17.3%) indicated it was appropriate that spending time on social media helps them relieve stress, while most 453 (82.7%) considered it inappropriate. Finally, 322 (58.8%) found it appropriate that trying to limit social media use makes them feel stressed and disconnected, compared to 226 (41.2%) who did not.

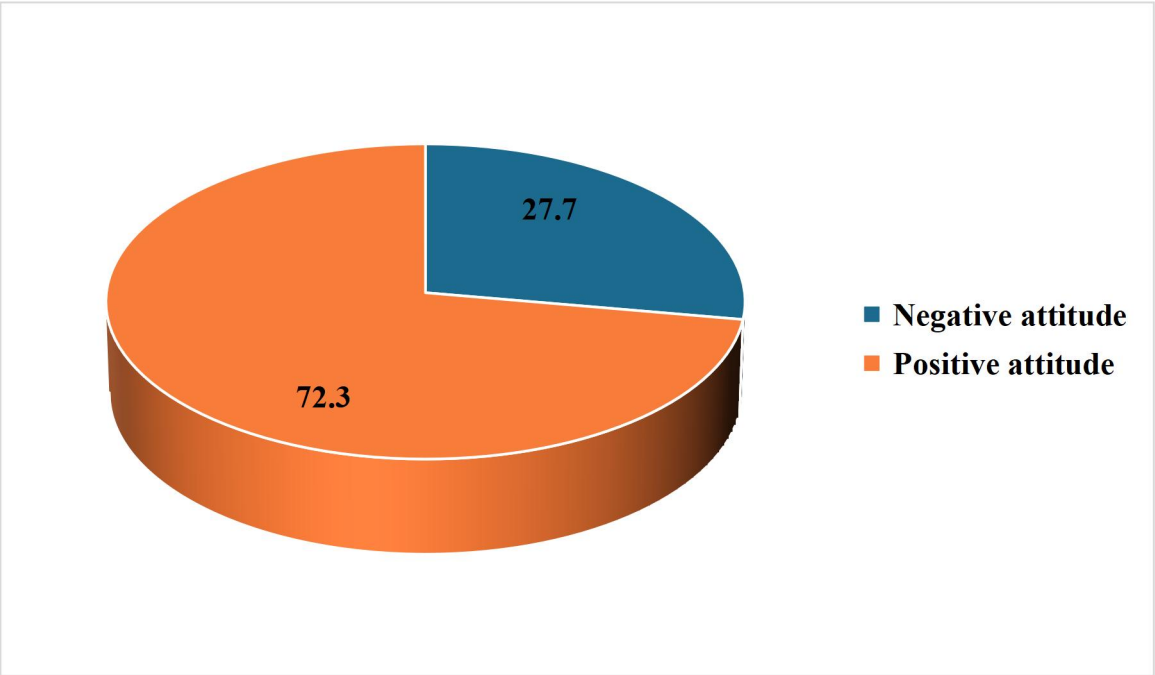

Figure 2: Attitude towards social media addiction among undergraduates in the University of Benin

Majority of the respondents, 396 (72.1%) had a positive attitude towards social media addiction, while only 152 (27.7%) had a negative attitude.

Table 9: Factors affecting attitudinal responses towards social media addiction among undergraduates in the University of Benin

Variables	Attitude towards social media addiction		Test statistic (χ^2)	p-value
	Negative (n=152) (%)	Positive (n=396) (%)		
Age group (years)				
15-19	40 (26.0)	114 (74.0)	2.520	0.477
20-24	86 (27.6)	226 (72.4)		
25-29	25 (33.8)	49 (66.2)		
30-34	1 (12.5)	7 (87.5)		
Sex				
Male	63 (26.0)	179 (74.0)	0.628*	0.444
Female	89 (29.1)	217 (70.9)		
Department				
English and Literature	29 (34.5)	55 (65.5)	16.984	**0.004**
Nursing Science	34 (27.0)	92 (73.0)		
Estate management	7 (29.2)	17 (70.8)		
Microbiology	13 (14.9)	74 (85.1)		
Medicine	51 (36.7)	88 (63.3)		
Chemistry	18 (20.5)	70 (79.5)		
Level				
200	41 (24.7)	125 (75.3)	10.244	**0.036**
300	35 (22.7)	119 (77.3)		
400	53 (30.3)	122 (69.7)		
500	11 (39.3)	17 (60.7)		
600	12 (48.0)	13 (52.0)		
Ethnicity				
Edo indigenes	77 (26.4)	215 (73.6)	0.583*	0.503
Non-Edo indigenes	75 (29.3)	181 (70.7)		
Religion				
Christians	142 (27.2)	381 (72.8)	1.965*	0.173
Others	10 (40.0)	15 (60.0)		
Marital status				
Ever married	151 (28.1)	386 (71.9)	1.947*	0.197
Never married	1 (9.1)	10 (90.9)		
Residence				
On-Campus	80 (26.0)	228 (74.0)	1.091*	0.336
Off-Campus	72 (30.0)	168 (70.0)		
Monthly Allowance (₦)				
<40,000	43 (24.6)	132 (75.4)	1.321*	0.507
40,000-60,000	77 (28.9)	189 (71.1)		
>60,000	32 (29.9)	75 (70.1)		
Source of Income				
Parents	137 (28.7)	341 (71.3)	1.696*	0.806
Guardians	4 (20.0)	16 (80.0)		
Other Relatives	3 (25.0)	9 (75.0)		
Self-supporting	7 (21.2)	26 (78.8)		
Scholarships	1 (20.0)	4 (80.0)		
Knowledge of social media addiction				
Poor knowledge	27 (21.8)	97 (78.2)	2.726*	0.107
Good knowledge	116 (29.4)	279 (70.6)		

*Fisher's exact test

Among respondents, age group comparison showed that those aged 25–29 years had the highest proportion of negative attitude towards social media addiction (33.8%), followed by 20–24 years (27.6%) and 15–19 years (26.0%), while the least negative attitude was observed among those aged 30–34 years (12.5%). However, the association between age and attitude was not statistically significant ($\chi^2 = 2.520$, $p = 0.477$).

By sex, females (29.1%) had a slightly higher prevalence of negative attitude compared to males (26.0%), but this difference was not statistically significant ($\chi^2 = 0.628$, $p = 0.444$).

Across departments, Medicine students recorded the highest negative attitude (36.7%), followed by English and Literature (34.5%) and Estate Management (29.2%), while the lowest was among Microbiology students (14.9%). The difference across departments was statistically significant ($\chi^2 = 16.984$, $p = 0.004$).

Considering level of study, negative attitude increased with level: it was lowest at 300 level (22.7%), followed by 200 level (24.7%), then 400 level (30.3%), 500 level (39.3%), and highest at 600 level (48.0%). This association between level and attitude was statistically significant ($\chi^2 = 10.244$, $p = 0.036$).

By ethnicity, non-Edo indigenes (29.3%) had a higher prevalence of negative attitude compared to Edo indigenes (26.4%), but this difference was not statistically significant ($\chi^2 = 0.583$, $p = 0.503$).

Religious affiliation showed that respondents from other religions (40.0%) were more likely to have negative attitudes than Christians (27.2%), though the association was not statistically significant ($\chi^2 = 1.965$, $p = 0.173$).

With marital status, those who were ever married (28.1%) had a higher prevalence of negative attitude compared to those who were never married (9.1%), but the association was not statistically significant ($\chi^2 = 1.947$, $p = 0.197$).

Residence status indicated that off-campus students (30.0%) had a higher negative attitude compared to on-campus students (26.0%), but this was not statistically significant ($\chi^2 = 1.091$, $p = 0.336$).

For monthly allowance, those receiving more than ₦60,000 (29.9%) had the highest prevalence of negative attitude, followed by those with ₦40,000–₦60,000 (28.9%), and the least was found among those with less than ₦40,000 (24.6%). The association was not statistically significant ($\chi^2 = 1.321$, $p = 0.507$).

By source of income, students supported by parents (28.7%) had a slightly higher negative attitude compared to those self-supporting (21.2%), those supported by other relatives (25.0%), those on scholarship (20.0%), and those supported by guardians (20.0%). The association was not statistically significant ($\chi^2 = 1.696$, $p = 0.806$).

Finally, knowledge level revealed that respondents with good knowledge (29.4%) had a higher negative attitude than those with poor knowledge (21.8%), but this difference was not statistically significant ($\chi^2 = 2.726$, $p = 0.107$).

Table 10: Predictors for positive attitude towards social media addiction among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.051	1.052	0.954	1.161	0.312
Sex					
Male	0.113	1.119	0.736	1.701	0.598
Female*		1			
Department					
Health related	-0.052	0.949	0.638	1.414	0.799
Non-health related		1			
Level					
200	1.009	2.744	0.922	8.167	0.070
300	1.103	3.014	1.057	8.591	**0.039**
400	0.627	1.872	0.687	5.099	0.220
500	0.407	1.502	0.485	4.651	0.480
600*		1			
Ethnicity					
Edo indigenes	0.025	1.025	0.679	1.547	0.906
Non-Edo indigenes*		1			
Religion					
Christians	0.900	2.460	0.964	6.275	0.060
Others*		1			
Marital status					
Never married	-1.643	0.193	0.021	1.747	0.143
Ever married*		1			
Residence					
On-campus	0.237	1.268	0.840	1.913	0.259
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	0.249	1.283	0.716	2.297	0.402
40,000-60,000	0.124	1.132	0.664	1.930	0.649
>60,000*		1			
Source of Income					
Parents	-0.509	0.601	0.308	1.174	0.136
Others*		1			
Knowledge of social media addiction					
Good knowledge	-0.330	0.719	0.430	1.203	0.209
Poor knowledge*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.1 times more likely to have a negative attitude towards social media addiction (95% CI = 0.954–1.161, p = 0.312), and this was not statistically significant.

Males were 1.1 times more likely to have a negative attitude than females (95% CI = 0.736–1.701, p = 0.598), and this was not statistically significant. Respondents in health-related

departments were 1.05 times less likely to have a positive attitude towards social media addiction than those in non-health-related departments (95% CI = 0.638 – 1.414, p = 0.799), and this was not statistically significant.

Students in 200 level were 2.7 times more likely to have a negative attitude compared to 600 level (95% CI = 0.922–8.167, p = 0.070), and this was not statistically significant. Those in 300 level were 3.0 times more likely (95% CI = 1.057–8.591, p = 0.039), and this was statistically significant. Students in 400 level were 1.9 times more likely (95% CI = 0.687–5.099, p = 0.220) and those in 500 level were 1.5 times more likely (95% CI = 0.485–4.651, p = 0.480); both were not statistically significant.

Edo indigenes were 1.0 times as likely to have a negative attitude as non-Edo indigenes (95% CI = 0.679–1.547, p = 0.906), and this was not statistically significant.

Christians were 2.5 times more likely to have a negative attitude than respondents of other religions (95% CI = 0.964–6.275, p = 0.060), and this was not statistically significant.

Respondents who were never married were 5.2 times less likely to have a negative attitude than those ever married (95% CI = 0.021–1.747, p = 0.143), and this was not statistically significant.

On-campus residents were 1.3 times more likely to have a negative attitude compared to off-campus residents (95% CI = 0.840–1.913, p = 0.259), and this was not statistically significant.

Those receiving less than ₦40,000 monthly allowance were 1.3 times more likely to have a negative attitude than those receiving more than ₦60,000 (95% CI = 0.716–2.297, p = 0.402), and this was not statistically significant. Those receiving ₦40,000–₦60,000 were 1.1 times more likely (95% CI = 0.664–1.930, p = 0.649), and this was not statistically significant.

Students supported by their parents were 1.7 times less likely to have a negative attitude compared to those with other sources of income (95% CI = 0.308–1.174, p = 0.136), and this was not statistically significant.

Respondents with good knowledge were 1.4 times less likely to have a negative attitude than those with poor knowledge (95% CI = 0.430–1.203, p = 0.209), and this was not statistically significant.

SECTION D

PREVALENCE OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS AMONG UNDERGRADUATE

Table 11: Bergen's social media addiction scale among undergraduates in the University of Benin

Variables	Very rarely Freq (%)	Rarely Freq (%)	Somtimes Freq (%)	Often Freq (%)	Very often Freq (%)
Spent a lot of time thinking about social media or how to use it	146 (26.6)	111 (20.3)	192 (35.0)	69 (12.6)	30 (5.5)
Felt an urge to use social media more and more	88 (16.1)	152 (27.7)	212 (38.7)	72 (13.1)	24 (4.4)
Used social media to forget about personal problems	101 (18.4)	96 (17.5)	192 (35.0)	90 (16.4)	69 (12.6)
Tried to cut down on social media use without success	120 (21.9)	147 (26.8)	175 (31.9)	75 (13.7)	31 (5.7)
Felt restless or troubled when unable to use social media	174 (31.8)	177 (32.3)	137 (25.0)	43 (7.8)	17 (3.1)
Used social media so much that it had a negative impact on your studies, sleep, or relationships	124 (22.6)	140 (25.5)	185 (33.8)	62 (11.3)	37 (6.8)
Felt guilt or regret after spending a long time on social media	81 (14.8)	71 (13.0)	189 (34.5)	104 (19.0)	103 (18.8)
Prioritized social media over spending time with friends or family	177 (32.3)	152 (27.7)	122 (22.3)	75 (13.7)	22 (4.0)
Hidden the extent of social media use from others	209 (38.1)	169 (30.8)	118 (21.5)	39 (7.1)	13 (2.4)
Stayed online longer than originally intended	44 (8.0)	44 (8.0)	197 (35.9)	134 (24.5)	129 (23.5)

Cronbach alpha- 0.85

A little above one-quarter of the respondents 146 (26.6%) very rarely spent a lot of time thinking about social media or how to use it, while 111 (20.3%) rarely did so, 192 (35.0%) sometimes did so, 69 (12.6%) often did so, and 30 (5.5%) very often did so. In terms of feeling an urge to use social media more and more, 88 (16.1%) very rarely experienced this, 152 (27.7%) rarely did, 212 (38.7%) sometimes did, 72 (13.1%) often did, and 24 (4.4%) very often did.

With respect to using social media to forget about personal problems, 101 (18.4%) reported very rarely, 96 (17.5%) rarely, 192 (35.0%) sometimes, 90 (16.4%) often, and 69 (12.6%) very often. Regarding attempts to cut down on social media use without success, 120 (21.9%)

very rarely tried, 147 (26.8%) rarely tried, 175 (31.9%) sometimes tried, 75 (13.7%) often tried, and 31 (5.7%) very often tried.

A higher proportion of respondents 174 (31.8%) reported very rarely feeling restless or troubled when unable to use social media, 177 (32.3%) rarely did, 137 (25.0%) sometimes did, 43 (7.8%) often did, while only 17 (3.1%) very often did. On whether social media use negatively affected studies, sleep, or relationships, 124 (22.6%) reported very rarely, 140 (25.5%) rarely, 185 (33.8%) sometimes, 62 (11.3%) often, and 37 (6.8%) very often.

For feelings of guilt or regret after spending a long time on social media, 81 (14.8%) very rarely experienced it, 71 (13.0%) rarely did, 189 (34.5%) sometimes did, 104 (19.0%) often did, and 103 (18.8%) very often did. In prioritizing social media over spending time with friends or family, 177 (32.3%) very rarely did so, 152 (27.7%) rarely did, 122 (22.3%) sometimes did, 75 (13.7%) often did, and 22 (4.0%) very often did.

When asked if they had ever hidden the extent of their social media use from others, 209 (38.1%) very rarely did so, 169 (30.8%) rarely did, 118 (21.5%) sometimes did, 39 (7.1%) often did, and 13 (2.4%) very often did. Finally, for staying online longer than originally intended, 44 (8.0%) very rarely did so, another 44 (8.0%) rarely did, 197 (35.9%) sometimes did, 134 (24.5%) often did, and 129 (23.5%) very often did.

Table 12: Grading of social media addiction

Variable	Frequency (n=548)	Percent
Social media addiction		
Low risk	127	23.2
Moderate risk	349	63.7
High risk	72	13.1

Out of the total respondents, 127 (23.2%) were at low risk of social media addiction, while a higher proportion 349 (63.7%) were at moderate risk. Only 72 (13.1%) of the respondents were at high risk of social media addiction.

Table 13: Patterns of Social media use among undergraduates in the University of Benin

Variables	Frequency (n = 548)	Percent
Ownership of Internet-Enabled Device	547	99.8
Types of Devices Owned*		
Smartphone	534	97.4
Laptop	296	54.0
Tablet	105	19.2
Smartwatch	35	6.4
Desktop	21	3.8
Regular Internet Access	498	90.9
Social Media Platforms Used*		
WhatsApp	519	94.7
YouTube	436	79.6
Instagram	350	63.9
Snapchat	261	47.6
Facebook	244	44.5
TikTok	230	42.0
Twitter/X	192	35.0
LinkedIn	144	26.3
Most Frequently Used Social Media Platform		
WhatsApp	360	65.7
YouTube	50	9.1
Instagram	38	6.9
TikTok	34	6.2
Facebook	29	5.3
Twitter/X	23	4.2
Snapchat	13	2.4
LinkedIn	1	0.2
Average Daily Hours Spent on Social Media		
<1 hour	6	1.1
1 hour	32	5.8
2 hours	47	8.6
3 hours	151	27.6
4 hours	156	28.5
5 hours	110	20.1
>5 hours	46	8.4
Reasons for Using Social Media*		
Academic purposes	428	78.1
Entertainment	423	77.2
News/Information	392	71.5
Socializing	317	57.8
Business	174	31.8
Time of Day Social Media is Used Most		
Morning	50	9.1
Afternoon	116	21.2
Evening	262	47.8
Night	120	21.9
Frequency of Daily Social Media Checks		
Once	32	5.8
2 times	40	7.3
3 times	103	18.8
4 times	81	14.8
5 times	64	11.7
6 times	127	23.2
>6 times	101	18.4
Duration of Social Media Use		
6 months	15	2.7
1 year	15	2.7
2 years	40	7.3
3 years	91	16.6
4 years	43	7.8
5 years	151	27.6
>5 years	193	35.2

*Multiple response questions

Ownership of internet-enabled devices was nearly universal among the respondents, with 547 (99.8%) indicating ownership. Smartphones were the most commonly owned device 534 (97.4%), followed by laptops 296 (54.0%), tablets 105 (19.2%), smartwatches 35 (6.4%), and desktops 21 (3.8%). A large proportion 498 (90.9%) reported having regular internet access.

Regarding social media platforms used, WhatsApp was the most common 519 (94.7%), followed by YouTube 436 (79.6%), Instagram 350 (63.9%), Snapchat 261 (47.6%), Facebook 244 (44.5%), TikTok 230 (42.0%), Twitter/X 192 (35.0%), and LinkedIn 144 (26.3%). When asked about the most frequently used platform, WhatsApp dominated with 360 (65.7%), followed by YouTube 50 (9.1%), Instagram 38 (6.9%), TikTok 34 (6.2%), Facebook 29 (5.3%), Twitter/X 23 (4.2%), Snapchat 13 (2.4%), and LinkedIn 1 (0.2%).

With respect to average daily time spent on social media, 6 (1.1%) reported less than 1 hour, 32 (5.8%) reported 1 hour, 47 (8.6%) spent 2 hours, 151 (27.6%) spent 3 hours, 156 (28.5%) spent 4 hours, 110 (20.1%) spent 5 hours, and 46 (8.4%) spent more than 5 hours per day.

Respondents reported using social media for multiple purposes, with the most common being academic purposes 428 (78.1%), followed closely by entertainment 423 (77.2%), news/information 392 (71.5%), socializing 317 (57.8%), and business 174 (31.8%).

Concerning the time of day social media was most used, evening was most common 262 (47.8%), followed by night 120 (21.9%), afternoon 116 (21.2%), and morning 50 (9.1%). The frequency of daily social media checks varied, with 32 (5.8%) checking once, 40 (7.3%) twice, 103 (18.8%) three times, 81 (14.8%) four times, 64 (11.7%) five times, 127 (23.2%) six times, and 101 (18.4%) more than six times per day.

In terms of duration of social media use, 15 (2.7%) had used it for 6 months, 15 (2.7%) for 1 year, 40 (7.3%) for 2 years, 91 (16.6%) for 3 years, 43 (7.8%) for 4 years, 151 (27.6%) for 5

years, and the largest proportion, 193 (35.2%), had been using social media for more than 5 years.

Table 14: Depression, anxiety and stress scale among undergraduates in the University of Benin

Variables	Never Freq (%)	Sometimes Freq (%)	Often Freq (%)	Almost always Freq (%)
I found it hard to relax after using social media.	300 (54.7)	179 (32.7)	61 (11.1)	8 (1.5)
I noticed dryness of my mouth while or after using social media.	427 (77.9)	87 (15.9)	29 (5.3)	5 (0.9)
I couldn't enjoy or feel good after spending time on social media.	286 (52.2)	187 (34.1)	57 (10.4)	18 (3.3)
I had trouble breathing or felt short of breath when using social media, even if I wasn't physically active	450 (82.1)	59 (10.8)	30 (5.5)	9 (1.6)
found it hard to start or stay motivated to do other things after using social media.	226 (41.2)	222 (40.5)	78 (14.2)	22 (4.0)
I overreacted to small things I saw or read on social media.	242 (44.2)	233 (42.5)	57 (10.4)	16 (2.9)
I felt nervous or shaky while using or thinking about social media.	398 (72.6)	86 (15.7)	54 (9.9)	10 (1.8)
I felt like using social media drained a lot of my energy.	209 (38.1)	218 (39.8)	73 (13.3)	48 (8.8)
I worried a lot about saying or doing something embarrassing on social media.	230 (42.0)	173 (31.6)	105 (19.2)	40 (7.3)
I felt like there was nothing to look forward to outside of social media.	383 (69.9)	133 (24.3)	28 (5.1)	4 (0.7)
I became easily upset or agitated when I couldn't check or use social media.	333 (60.8)	165 (30.1)	40 (7.3)	10 (1.8)
I found it difficult to relax after spending time on social media.	337 (61.5)	151 (27.6)	47 (8.6)	13 (2.4)
I felt sad or down after comparing myself to others on social media.	283 (51.6)	164 (29.9)	76 (13.9)	25 (4.6)
I felt annoyed or frustrated when something interrupted my time on social media.	298 (54.4)	190 (34.7)	47 (8.6)	13 (2.4)
I felt I was close to panic.	297 (54.2)	173 (31.6)	62 (11.3)	16 (2.9)
I didn't feel excited or interested in other things outside social media.	346 (63.1)	149 (27.2)	42 (7.7)	11 (2.0)
I didn't feel good about myself after spending time on social media.	265 (48.4)	198 (36.1)	72 (13.1)	13 (2.4)
I felt easily irritated or overly sensitive about things I saw online.	239 (43.6)	240 (43.8)	53 (9.7)	16 (2.9)
I noticed my heart beating fast even when I wasn't active, often while using or thinking about social media.	419 (76.5)	83 (15.1)	42 (7.7)	4 (0.7)
I felt scared or anxious for no clear reason after being on social media.	371 (67.7)	110 (20.1)	44 (8.0)	23 (4.2)
I felt like life had little meaning when I wasn't using social media.	412 (75.2)	91 (16.6)	33 (6.0)	12 (2.2)

Cronbach alpha- 0.92

Most respondents reported that they never found it hard to relax after using social media [300 (54.7%)], while 179 (32.7%) sometimes experienced this, 61 (11.1%) often, and 8 (1.5%) almost always. A majority also indicated that they never noticed dryness of the mouth while or after using social media [427 (77.9%)], whereas 87 (15.9%) sometimes, 29 (5.3%) often, and 5 (0.9%) almost always experienced this. Similarly, 286 (52.2%) never felt unable to enjoy or feel good after using social media, though 187 (34.1%) sometimes, 57 (10.4%) often, and 18 (3.3%) almost always reported this.

Most respondents never experienced trouble breathing or shortness of breath while using social media [450 (82.1%)], while 59 (10.8%) sometimes, 30 (5.5%) often, and 9 (1.6%) almost always reported such difficulty. Regarding motivation, 226 (41.2%) never found it hard to start or stay motivated after using social media, 222 (40.5%) sometimes, 78 (14.2%) often, and 22 (4.0%) almost always did. A total of 242 (44.2%) never overreacted to small things seen online, but 233 (42.5%) sometimes, 57 (10.4%) often, and 16 (2.9%) almost always did.

The majority never felt nervous or shaky while using or thinking about social media [398 (72.6%)], whereas 86 (15.7%) sometimes, 54 (9.9%) often, and 10 (1.8%) almost always did. In terms of energy, 209 (38.1%) never felt drained by social media use, 218 (39.8%) sometimes, 73 (13.3%) often, and 48 (8.8%) almost always did. Worry about embarrassment on social media was absent in 230 (42.0%), but 173 (31.6%) sometimes, 105 (19.2%) often, and 40 (7.3%) almost always reported this concern.

A total of 383 (69.9%) never felt there was nothing to look forward to outside of social media, while 133 (24.3%) sometimes, 28 (5.1%) often, and 4 (0.7%) almost always did. Most respondents also never became upset when unable to check social media [333 (60.8%)], although 165 (30.1%) sometimes, 40 (7.3%) often, and 10 (1.8%) almost always did. In

addition, 337 (61.5%) never found it difficult to relax after spending time online, 151 (27.6%) sometimes, 47 (8.6%) often, and 13 (2.4%) almost always did.

Sadness after comparing oneself to others on social media was never felt by 283 (51.6%), though 164 (29.9%) sometimes, 76 (13.9%) often, and 25 (4.6%) almost always did. Similarly, 298 (54.4%) never felt annoyed when interrupted while using social media, 190 (34.7%) sometimes, 47 (8.6%) often, and 13 (2.4%) almost always did. Another set of responses to the same item showed that 297 (54.2%) never felt this way, 173 (31.6%) sometimes, 62 (11.3%) often, and 16 (2.9%) almost always.

Most respondents did not feel uninterested in activities outside social media [346 (63.1%)], whereas 149 (27.2%) sometimes, 42 (7.7%) often, and 11 (2.0%) almost always felt this. Regarding self-perception, 265 (48.4%) never felt bad about themselves after spending time online, 198 (36.1%) sometimes, 72 (13.1%) often, and 13 (2.4%) almost always did. A similar distribution was observed for irritability: 239 (43.6%) never felt overly sensitive to things online, while 240 (43.8%) sometimes, 53 (9.7%) often, and 16 (2.9%) almost always did.

Most respondents never noticed a racing heartbeat while using or thinking about social media [419 (76.5%)], though 83 (15.1%) sometimes, 42 (7.7%) often, and 4 (0.7%) almost always experienced this. Feelings of fear or anxiety without clear reason after being online were absent in 371 (67.7%), while 110 (20.1%) sometimes, 44 (8.0%) often, and 23 (4.2%) almost always did. Finally, 412 (75.2%) never felt life had little meaning when not using social media, but 91 (16.6%) sometimes, 33 (6.0%) often, and 12 (2.2%) almost always felt this way.

Table 15: Components of mental health status

Variables	Frequency (n=548)	Percent
Depression		
Normal	351	64.1
Mild	61	11.1
Moderate	101	18.4
Severe	28	5.1
Extremely severe	7	1.3
Anxiety		
Normal	364	66.4
Mild	21	3.8
Moderate	88	16.1
Severe	42	7.7
Extremely severe	33	6.0
Stress		
Normal	423	77.2
Mild	81	14.8
Moderate	27	4.9
Severe	13	2.4
Extremely severe	4	0.7

For depression, most respondents were classified as normal [351 (64.1%)]. Mild depression was observed among 61 (11.1%), moderate depression in 101 (18.4%), severe depression in 28 (5.1%), and extremely severe depression in 7 (1.3%). In terms of anxiety, 364 (66.4%) of respondents were in the normal range, while 21 (3.8%) had mild anxiety, 88 (16.1%) moderate anxiety, 42 (7.7%) severe anxiety, and 33 (6.0%) extremely severe anxiety. For stress, the majority of respondents were normal [423 (77.2%)]. Mild stress was reported in 81 (14.8%), moderate stress in 27 (4.9%), severe stress in 13 (2.4%), and extremely severe stress in 4 (0.7%).

Table 16: Grading of the components of mental health status

Variables	Frequency (n=548)	Percent
Depression		
Normal	412	75.2
Moderate	101	18.4
Severe	28	5.1
Extremely severe	7	1.3
Anxiety		
Normal	385	70.3
Moderate	88	16.1
Severe	42	7.7
Extremely severe	33	6.0
Stress		
Normal	504	92.0
Moderate	27	4.9
Severe	13	2.4
Extremely severe	4	0.7

For depression, most respondents were normal [412 (75.2%)], while 101 (18.4%) had moderate depression, 28 (5.1%) severe depression, and 7 (1.3%) extremely severe depression. In terms of anxiety, 385 (70.3%) were within the normal range, 88 (16.1%) reported moderate anxiety, 42 (7.7%) severe anxiety, and 33 (6.0%) extremely severe anxiety. For stress, the majority of respondents were normal [504 (92.0%)], while 27 (4.9%) had moderate stress, 13 (2.4%) severe stress, and 4 (0.7%) extremely severe stress.

Table 17: Prevalence of depression, anxiety and stress among undergraduates in the University of Benin

Variables	Frequency (n=548)	Percent
Depression		
Absent	412	75.2
Present	136	24.8
Anxiety		
Absent	385	70.3
Present	163	29.7
Stress		
Absent	504	92.0
Present	44	8.0

Out of 548 respondents, 136 (24.8%) experienced some form of depression, while 412 (75.2%) showed no depressive symptoms. Anxiety was present among 163 (29.7%) respondents, whereas 385 (70.3%) did not exhibit anxiety. Stress was the least common, with only 44 (8.0%) reporting stress, while the majority, 504 (92.0%), reported no stress.

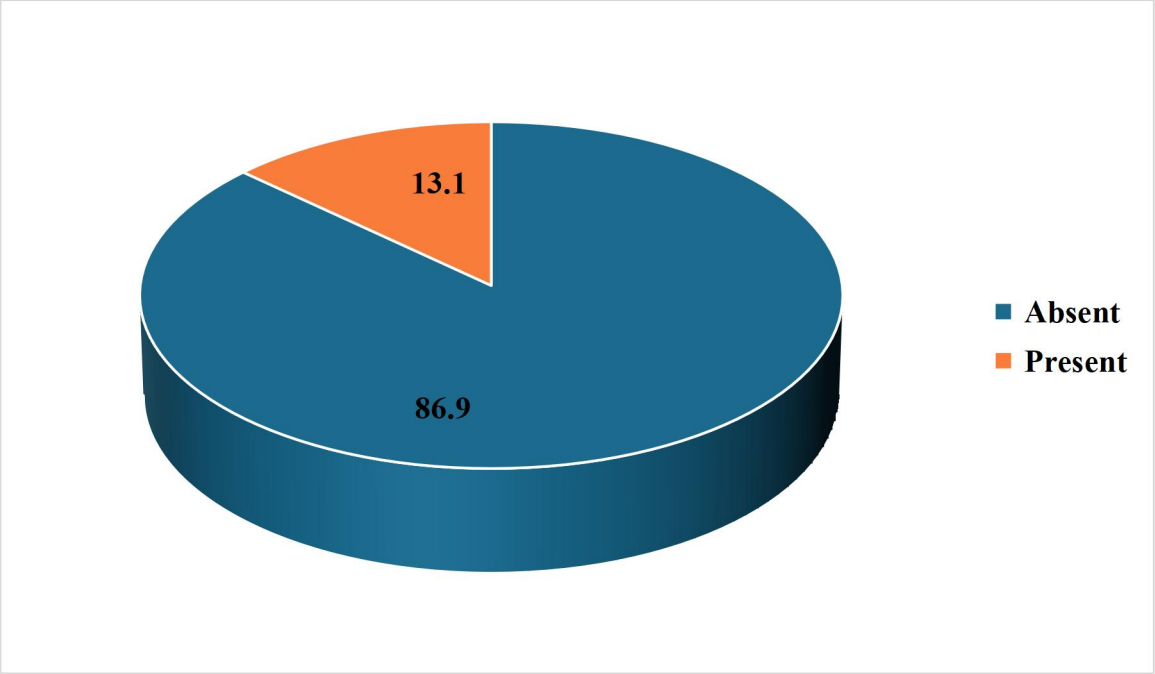

Figure 3: Prevalence of social media addiction among undergraduates in the University of Benin

Social media addiction was absent in majority of the respondents, 476 (86.9%), while it was present in 72 (13.1%) .

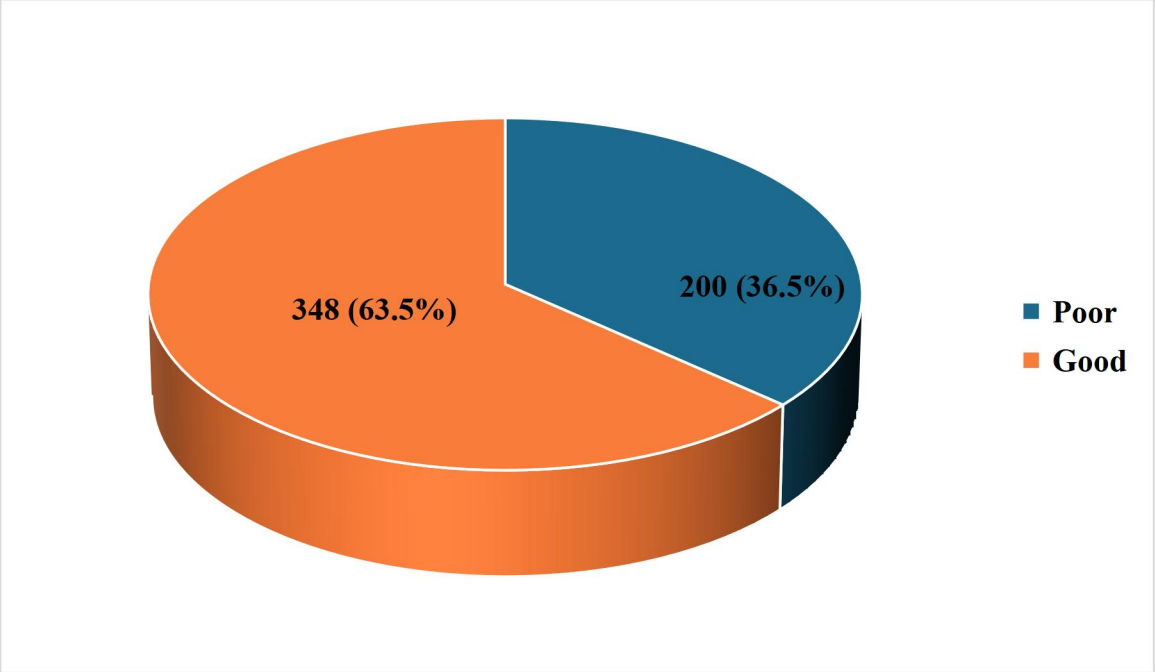

Figure 4: Mental health status of undergrauates in the University of benin

Majority of the respondents, 348 (63.5%) had good mental health status, while only 200 (36.5%) had poor mental health status.

Table 18: Factors affecting prevalence of social media addiction among undergraduates in the University of Benin

Variables	Prevalence of social media addiction		Test statistic (χ^2)	p-value
	Present (n=72) (%)	Absent (n=476) (%)		
Age group (years)				
15-19	25 (16.2)	129 (83.8)	4.948	0.166
20-24	40 (12.8)	272 (87.2)		
25-29	5 (6.8)	69 (93.2)		
30-34	2 (25.0)	6 (75.0)		
Sex				
Male	28 (11.6)	214 (88.4)	0.934	0.374
Female	44 (14.4)	262 (85.6)		
Department				
English and Literature	11 (13.1)	73 (86.9)	6.989	0.220
Nursing Science	21 (16.7)	105 (83.3)		
Estate management	3 (12.5)	21 (87.5)		
Microbiology	15 (17.2)	72 (82.8)		
Medicine	10 (7.2)	129 (92.8)		
Chemistry	12 (13.6)	76 (86.4)		
Level				
200	28 (16.9)	138 (83.1)	13.179	**0.011**
300	26 (16.9)	128 (83.1)		
400	18 (10.3)	157 (89.7)		
500	0 (0.0)	28 (100.0)		
600	0 (0.0)	25 (100.0)		
Ethnicity				
Edo indigenes	40 (13.7)	252 (86.3)	0.172	0.705
Non-Edo indigenes	32 (12.5)	224 (87.5)		
Religion				
Christians	70 (13.4)	453 (86.6)	0.606*	0.760
Others	2 (8.0)	23 (92.0)		
Marital status				
Ever married	71 (13.2)	466 (86.8)	0.161*	>0.999
Never married	1 (9.1)	10 (90.9)		
Residence				
On-Campus	38 (12.3)	270 (87.7)	0.395	0.610
Off-Campus	34 (14.2)	206 (85.8)		
Monthly Allowance (₦)				
<40,000	17 (9.7)	158 (90.3)	3.834	0.145
40,000-60,000	36 (13.5)	230 (86.5)		
>60,000	19 (17.8)	88 (82.2)		
Source of Income				
Parents	60 (12.6)	418 (87.4)	2.738*	0.415
Guardians	2 (10.0)	18 (90.0)		
Other Relatives	3 (25.0)	9 (75.0)		
Self-supporting	6 (18.2)	27 (81.8)		
Scholarships	1 (20.0)	4 (80.0)		
Knowledge of social media addiction				
Poor knowledge	11 (8.9)	113 (91.1)	3.191	0.098
Good knowledge	60 (15.2)	335 (84.8)		
Attitude towards social media addiction				
Negative attitude	7 (4.6)	145 (95.4)	13.421	**<0.001**
Positive attitude	65 (16.4)	331 (83.6)		
Average daily hours spent on social media				
≤4 hours	43 (11.0)	349 (89.0)	5.678	**0.018**
>4 hours	29 (18.6)	127 (81.4)		
Time of the day social is mostly used				
Morning	4 (8.0)	46 (92.0)	1.606	0.661
Afternoon	14 (12.1)	102 (87.9)		
Evening	37 (14.1)	225 (85.9)		
Night	17 (14.2)	103 (85.8)		
Frequency of daily social media checks				
≤6 times	55 (12.3)	392 (87.7)	1.480	0.253
>6 times	17 (16.8)	84 (83.2)		
Duration of social media use				
≤5 years	43 (12.1)	312 (87.9)	0.930	0.355
>5 years	29 (15.0)	164 (85.0)		

*Fisher's exact test

The prevalence of social media addiction was highest among respondents aged 30–34 years, 2 (25.0%), compared to 25 (16.2%) among those aged 15–19 years, 40 (12.8%) among those aged 20–24 years, and 5 (6.8%) among those aged 25–29 years. However, this difference was not statistically significant ($\chi^2 = 4.948$, $p = 0.166$).

Among males, 28 (11.6%) had social media addiction compared to 44 (14.4%) females, but this difference was not statistically significant ($\chi^2 = 0.934$, $p = 0.374$).

Across departments, social media addiction was most prevalent among Microbiology students 15 (17.2%), followed by Nursing Science 21 (16.7%), Chemistry 12 (13.6%), English and Literature 11 (13.1%), Estate Management 3 (12.5%), while Medicine students recorded the lowest prevalence 10 (7.2%). The differences were not statistically significant ($\chi^2 = 6.989$, $p = 0.220$).

By level of study, addiction was highest among 200-level students 28 (16.9%) and 300-level students 26 (16.9%), followed by 400-level students 18 (10.3%), while no cases were observed among 500- and 600-level students. The variation across levels of study was statistically significant ($\chi^2 = 13.179$, $p = 0.011$).

With respect to ethnicity, Edo indigenes 40 (13.7%) had slightly higher prevalence of addiction compared to non-Edo indigenes 32 (12.5%), but the difference was not significant ($\chi^2 = 0.172$, $p = 0.705$).

Among Christians, 70 (13.4%) reported addiction compared to 2 (8.0%) among respondents of other religions, with no statistically significant difference ($\chi^2 = 0.606$, $p = 0.760$).

Similarly, addiction was observed in 71 (13.2%) of respondents who had ever been married compared to 1 (9.1%) of those never married, but this difference was not statistically significant ($\chi^2 = 0.161$, $p > 0.999$).

By place of residence, those staying on-campus recorded slightly lower prevalence 38 (12.3%) compared to off-campus residents 34 (14.2%), though the difference was not statistically significant ($\chi^2 = 0.395$, $p = 0.610$).

Considering monthly allowance, addiction was most common among respondents receiving more than ₦60,000, 19 (17.8%), followed by those receiving ₦40,000–₦60,000, 36 (13.5%), and lowest among those receiving less than ₦40,000, 17 (9.7%). However, this difference was not statistically significant ($\chi^2 = 3.834$, $p = 0.145$).

Finally, by source of income, the highest prevalence was among those supported by other relatives 3 (25.0%), followed by scholarship recipients 1 (20.0%), self-supporting students 6 (18.2%), guardians 2 (10.0%), and parents 60 (12.6%). These differences were not statistically significant ($\chi^2 = 2.738$, $p = 0.415$).

Respondents with good knowledge of social media addiction had a higher prevalence of addiction 60 (15.2%) compared to those with poor knowledge 11 (8.9%), although this difference was not statistically significant ($\chi^2 = 3.191$, $p = 0.098$).

With respect to attitude, addiction was more common among those with positive attitude 65 (16.4%) compared to those with negative attitude 7 (4.6%), and this difference was statistically significant ($\chi^2 = 13.421$, $p < 0.001$).

Considering average daily hours spent on social media, addiction was more prevalent among respondents who spent more than 4 hours per day 29 (18.6%) compared to those who spent 4 hours or less 43 (11.0%). This difference was statistically significant ($\chi^2 = 5.678$, $p = 0.018$).

By time of day, prevalence was lowest among those who mostly used social media in the morning 4 (8.0%), followed by the afternoon 14 (12.1%), while evening 37 (14.1%) and night users 17 (14.2%) recorded the highest prevalence. However, these differences were not statistically significant ($\chi^2 = 1.606$, $p = 0.661$).

Frequency of daily social media checks showed that respondents who checked their accounts more than 6 times daily had slightly higher prevalence 17 (16.8%) compared to those who checked 6 times or less 55 (12.3%), though the difference was not statistically significant ($\chi^2 = 1.480$, $p = 0.253$).

Finally, respondents who had used social media for more than 5 years recorded higher prevalence 29 (15.0%) compared to those who had used it for 5 years or less 43 (12.1%). This difference was not statistically significant ($\chi^2 = 0.930$, $p = 0.355$).

Table 19: Predictors for prevalence of social media addiction among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.016	1.016	0.899	1.150	0.795
Sex					
Male	-0.332	0.718	0.408	1.261	0.249
Female*		1			
Department					
Health related	-0.036	0.964	0.572	1.626	0.891
Non-health related		1			
Level					
200	19.551	309633693.962	<0.001		0.998
300	19.412	269577641.018	<0.001		0.998
400	18.716	134301872.915	<0.001		0.998
500	-0.058	0.943	<0.001		>0.999
600*		1			
Ethnicity					
Edo indigenes	-0.031	0.969	0.559	1.681	0.911
Non-Edo indigenes*		1			
Religion					
Christians	0.593	1.809	0.361	9.078	0.471
Others*		1			
Marital status					
Never married	0.680	1.975	0.190	20.521	0.569
Ever married*		1			
Residence					
On-campus	-0.321	0.725	0.418	1.260	0.254
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	-0.838	0.432	0.200	0.937	**0.034**
40,000-60,000	-0.324	0.723	0.370	1.414	0.344
>60,000*		1			
Source of Income					
Parents	-0.491	0.612	0.281	1.333	0.216
Others*		1			
Knowledge of social media addiction					
Good knowledge	0.919	2.506	1.213	5.177	**0.013**
Poor knowledge*		1			
Attitude towards social media addiction					
Positive attitude	1.332	3.788	1.640	8.752	**0.002**
Negative attitude*		1			
Average daily hours spent on social media					
≤4 hours	0.627	1.872	1.150	3.047	**0.012**
>4 hours*		1			
Time of the day social is mostly used					
Morning	-1.186	0.305	0.146	0.639	**0.002**
Afternoon	-0.008	0.993	0.519	1.897	0.982
Evening	0.044	1.045	0.600	1.822	0.876
Night*		1			
Frequency of daily social media checks					
≤6 times	-0.098	0.906	0.496	1.658	0.750
>6 times*		1			
Duration of social media use					
≤5 years	-1.167	0.311	0.185	0.524	**<0.001**
>5 years*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.016 times more likely to have social media addiction (95% CI = 0.899 – 1.150, p = 0.795), but this was not statistically significant. Males were 1.4 times less likely to have social media addiction compared to females (95% CI = 0.408 – 1.261, p = 0.249), and this was not statistically significant.

Respondents in health-related departments were 1.037 times less likely to have social media addiction compared to those in non-health-related departments (95% CI = 0.572 – 1.626, p = 0.891), and this was not statistically significant. By academic level, respondents in 200, 300, and 400 levels had extremely large odds ratios, all with p-values of 0.998, indicating that these results were not statistically significant. Students in 500 level were 1.1 times less likely to have social media addiction compared to those in 600 level (95% CI <0.001 – >0.999, p > 0.999), but this was also not statistically significant.

With respect to ethnicity, Edo indigenes were 1.031 times less likely to be addicted compared to non-Edo indigenes (95% CI = 0.559 – 1.681, p = 0.911), which was not statistically significant.

Christians were 1.809 times more likely to be addicted compared to respondents practicing other religions (95% CI = 0.361 – 9.078, p = 0.471), though this was not statistically significant.

Respondents who had never married were 1.975 times more likely to be addicted than those who had ever married (95% CI = 0.190 – 20.521, p = 0.569), but this association was not statistically significant.

Students residing on-campus were 1.4 times less likely to be addicted compared to those residing off-campus (95% CI = 0.418 – 1.260, p = 0.254), which was not statistically significant.

Monthly allowance showed a significant predictor of social media addiction. Respondents who received less than ₦40,000 monthly were 2.3 times less likely to be addicted compared to those receiving more than ₦60,000 (95% CI = 0.200 – 0.937, p = 0.034), and this was statistically significant. In contrast, those who received ₦40,000 – ₦60,000 were 1.4 times less likely (95% CI = 0.370 – 1.414, p = 0.344), which was not statistically significant.

Finally, students whose primary source of income was from their parents were 1.6 times less likely to be addicted compared to those with other income sources (95% CI = 0.281 – 1.333, p = 0.216), and this was not statistically significant.

Respondents who had good knowledge of social media addiction were 2.5 times more likely to be addicted compared to those with poor knowledge (95% CI = 1.213 – 5.177, p = 0.013), and this was statistically significant.

Those with a positive attitude towards social media addiction were 3.8 times more likely to be addicted than those with a negative attitude (95% CI = 1.640 – 8.752, p = 0.002), which was also statistically significant.

Respondents who spent four hours or less daily on social media were 1.9 times more likely to be addicted compared to those who spent more than four hours (95% CI = 1.150 – 3.047, p = 0.012), and this was statistically significant.

Considering the time of day when social media was mostly used, those who used it in the morning were 3.3 times less likely to be addicted compared to those who mostly used it at night (95% CI = 0.146 – 0.639, p = 0.002), and this was statistically significant. Respondents who used social media mostly in the afternoon (OR = 0.993, 95% CI = 0.519 – 1.897, p = 0.982) and evening (OR = 1.045, 95% CI = 0.600 – 1.822, p = 0.876) showed no significant differences when compared to those who used it at night.

With respect to frequency of daily checks, respondents who checked their social media six times or less daily were 1.1 times less likely to be addicted compared to those who checked more than six times (95% CI = 0.496 – 1.658, p = 0.750), but this was not statistically significant.

Duration of social media use was also a significant predictor. Respondents who had used social media for five years or less were 3.2 times less likely to be addicted compared to those who had used it for more than five years (95% CI = 0.185 – 0.524, p < 0.001), and this was statistically significant.

Table 20: Factors associated with prevalence of depression among undergraduates in the University of Benin

Variables	Prevalence of depression		Test statistic (χ^2)	p-value
	Present (n=136) (%)	Absent (n=412) (%)		
Age group (years)				
15-19	39 (25.3)	115 (74.7)	1.711	0.630
20-24	81 (26.0)	231 (74.0)		
25-29	15 (20.3)	59 (79.7)		
30-34	1 (12.5)	7 (87.5)		
Sex				
Male	52 (21.5)	190 (78.5)	2.576	0.112
Female	84 (27.5)	222 (72.5)		
Department				
English and Literature	27 (32.1)	57 (67.9)	13.629	**0.018**
Nursing Science	42 (33.3)	84 (66.7)		
Estate management	4 (16.7)	20 (83.3)		
Microbiology	15 (17.2)	72 (82.8)		
Medicine	26 (18.7)	113 (81.3)		
Chemistry	22 (25.0)	66 (75.0)		
Level				
200	50 (30.1)	116 (69.9)	5.663	0.226
300	37 (24.0)	117 (76.0)		
400	41 (23.4)	134 (76.6)		
500	5 (17.9)	23 (82.1)		
600	3 (12.0)	22 (88.0)		
Ethnicity				
Edo indigenes	66 (22.6)	226 (77.4)	1.643	0.234
Non-Edo indigenes	70 (27.3)	186 (72.7)		
Religion				
Christians	128 (24.5)	395 (75.5)	0.724	0.476
Others	8 (32.0)	17 (68.0)		
Marital status				
Ever married	133 (24.8)	404 (75.2)	0.036*	0.739
Never married	3 (27.3)	8 (72.7)		
Residence				
On-Campus	75 (24.4)	233 (75.6)	0.082	0.842
Off-Campus	61 (25.4)	179 (74.6)		
Monthly Allowance (₦)				
<40,000	45 (25.7)	130 (74.3)	0.700	0.713
40,000-60,000	62 (23.3)	204 (76.7)		
>60,000	29 (27.1)	78 (72.9)		
Source of Income				
Parents	123 (25.7)	355 (74.3)	4.484*	0.364
Guardians	2 (10.0)	18 (90.0)		
Other Relatives	1 (8.3)	11 (91.7)		
Self-supporting	9 (27.3)	24 (72.7)		
Scholarships	1 (20.0)	4 (80.0)		
Knowledge of social media addiction				
Poor knowledge	38 (30.6)	86 (69.4)	2.719	0.122
Good knowledge	92 (23.3)	303 (76.7)		
Attitude towards social media addiction				
Negative attitude	18 (11.8)	134 (88.2)	18.980	**<0.001**
Positive attitude	118 (29.8)	278 (70.2)		
Social media addiction				
Absent	90 (18.9%)	386 (81.1%)	67.819	**<0.001**
Present	46 (63.9%)	26 (36.1%)		

*Fisher's exact test

Among respondents aged 15–19 years, 39 (25.3%) reported depression compared to 81 (26.0%) among those aged 20–24 years, 15 (20.3%) in the 25–29 years group, and 1 (12.5%) among those aged 30–34 years. The association between age group and prevalence of depression was not statistically significant ($\chi^2 = 1.711$, $p = 0.630$).

In terms of sex, females had a higher prevalence of depression, 84 (27.5%), compared to 52 (21.5%) among males. The association between sex and depression was not statistically significant ($\chi^2 = 2.576$, $p = 0.112$).

Across departments, depression prevalence was highest among students in Nursing Science 42 (33.3%) and English and Literature 27 (32.1%). Lower proportions were reported among Estate Management 4 (16.7%), Microbiology 15 (17.2%), and Medicine 26 (18.7%). Depression prevalence among Chemistry students was 22 (25.0%). The association between department and depression was statistically significant ($\chi^2 = 13.629$, $p = 0.018$).

By academic level, depression was reported among 50 (30.1%) of 200-level students, 37 (24.0%) of 300-level students, 41 (23.4%) of 400-level students, 5 (17.9%) of 500-level students, and 3 (12.0%) of 600-level students. The association between academic level and depression was not statistically significant ($\chi^2 = 5.663$, $p = 0.226$).

Edo indigenes had a prevalence of 66 (22.6%) compared to 70 (27.3%) among non-Edo indigenes. This association was not statistically significant ($\chi^2 = 1.643$, $p = 0.234$).

With respect to religion, Christians had a prevalence of 128 (24.5%) compared to 8 (32.0%) among respondents of other religions. The association was not statistically significant ($\chi^2 = 0.724$, $p = 0.476$).

For marital status, depression was present in 3 (27.3%) of those who had never married compared to 133 (24.8%) among ever married respondents. This association was not statistically significant (FET = 0.036, $p = 0.739$).

Students living on campus had a prevalence of 75 (24.4%) compared to 61 (25.4%) among those living off campus. The association was not statistically significant ($\chi^2 = 0.082$, $p = 0.842$).

Considering monthly allowance, depression prevalence was highest among respondents receiving more than ₦60,000, 29 (27.1%), followed by 45 (25.7%) among those receiving less than ₦40,000, and 62 (23.3%) among those receiving ₦40,000–₦60,000. This association was not statistically significant ($\chi^2 = 0.700$, $p = 0.713$).

For source of income, depression prevalence was 123 (25.7%) among those supported by parents, 2 (10.0%) among those supported by guardians, 1 (8.3%) among those supported by other relatives, 9 (27.3%) among self-supporting students, and 1 (20.0%) among scholarship recipients. The association between source of income and depression was not statistically significant (FET = 4.484, $p = 0.364$).

Respondents with poor knowledge of social media addiction had a higher prevalence of depression, 38 (30.6%), compared to 92 (23.3%) among those with good knowledge. The association between knowledge of social media addiction and depression was not statistically significant ($\chi^2 = 2.719$, $p = 0.122$).

Depression prevalence was considerably higher among respondents with a positive attitude towards social media addiction, 118 (29.8%), compared to 18 (11.8%) among those with a negative attitude. This association was statistically significant ($\chi^2 = 18.980$, $p < 0.001$).

Finally, depression was present in 46 (63.9%) of respondents with social media addiction compared to 90 (18.9%) of those without addiction. The association between social media addiction and depression was statistically significant ($\chi^2 = 67.819$, $p < 0.001$).

Table 21: Factors associated with prevalence of anxiety among undergraduates in the University of Benin

Variables	Prevalence of anxiety		Test statistic (χ^2)	p-value
	Present (n=163) (%)	Absent (n=385) (%)		
Age group (years)				
15-19	45 (29.2)	109 (70.8)	0.247	0.976
20-24	95 (30.4)	217 (69.6)		
25-29	21 (28.4)	53 (71.6)		
30-34	2 (25.0)	6 (75.0)		
Sex				
Male	69 (28.5)	173 (71.5)	0.315	0.638
Female	94 (30.7)	212 (69.3)		
Department				
English and Literature	31 (36.9)	53 (63.1)	8.246	0.143
Nursing Science	45 (35.7)	81 (64.3)		
Estate management	5 (20.8)	19 (79.2)		
Microbiology	25 (28.7)	62 (71.3)		
Medicine	32 (23.0)	107 (77.0)		
Chemistry	25 (28.4)	63 (71.6)		
Level				
200	60 (36.1)	106 (63.9)	7.354	0.117
300	43 (27.9)	111 (72.1)		
400	43 (24.6)	132 (75.4)		
500	11 (39.3)	17 (60.7)		
600	6 (24.0)	19 (76.0)		
Ethnicity				
Edo indigenes	80 (27.4)	212 (72.6)	1.648	0.224
Non-Edo indigenes	83 (32.4)	173 (67.6)		
Religion				
Christians	152 (29.1)	371 (70.9)	2.547	0.120
Others	11 (44.0)	14 (56.0)		
Marital status				
Ever married	160 (29.8)	377 (70.2)	0.033*	>0.999
Never married	3 (27.3)	8 (72.7)		
Residence				
On-Campus	97 (31.5)	211 (68.5)	1.029	0.346
Off-Campus	66 (27.5)	174 (72.5)		
Monthly Allowance (₦)				
<40,000	54 (30.9)	121 (69.1)	0.186	0.916
40,000-60,000	77 (28.9)	189 (71.1)		
>60,000	32 (29.9)	75 (70.1)		
Source of Income				
Parents	146 (30.5)	332 (69.5)	1.508*	0.892
Guardians	4 (20.0)	16 (80.0)		
Other Relatives	3 (25.0)	9 (75.0)		
Self-supporting	9 (27.3)	24 (72.7)		
Scholarships	1 (20.0)	4 (80.0)		
Knowledge of social media addiction				
Poor knowledge	48 (38.7)	76 (61.3)	6.985	**0.009**
Good knowledge	104 (26.3)	291 (73.7)		
Attitude towards social media addiction				
Negative attitude	24 (15.8)	128 (84.2)	19.602	**<0.001**
Positive attitude	139 (35.1)	257 (64.9)		
Social media addiction				
Absent	123 (25.8%)	353 (74.2%)	26.426	**<0.001**
Present	40 (55.6%)	32 (44.4%)		

*Fisher's exact test

Among respondents aged 15–19 years, 45 (29.2%) reported anxiety compared to 95 (30.4%) among those aged 20–24 years, 21 (28.4%) in the 25–29 years group, and 2 (25.0%) among those aged 30–34 years. The association between age group and anxiety was not statistically significant ($\chi^2 = 0.247$, $p = 0.976$).

In terms of sex, females had a higher prevalence of anxiety, 94 (30.7%), compared to 69 (28.5%) among males. The association between sex and anxiety was not statistically significant ($\chi^2 = 0.315$, $p = 0.638$).

Across departments, anxiety prevalence was highest among Nursing Science students, 45 (35.7%), and English and Literature students, 31 (36.9%). Lower proportions were reported among Estate Management, 5 (20.8%), Medicine, 32 (23.0%), Microbiology, 25 (28.7%), and Chemistry, 25 (28.4%). The association between department and anxiety was not statistically significant ($\chi^2 = 8.246$, $p = 0.143$).

By academic level, prevalence was 60 (36.1%) in 200-level students, 43 (27.9%) in 300 level, 43 (24.6%) in 400 level, 11 (39.3%) in 500 level, and 6 (24.0%) in 600 level. The association between academic level and anxiety was not statistically significant ($\chi^2 = 7.354$, $p = 0.117$).

Edo indigenes had a prevalence of 80 (27.4%) compared to 83 (32.4%) among non-Edo indigenes. This association was not statistically significant ($\chi^2 = 1.648$, $p = 0.224$).

With respect to religion, 152 (29.1%) of Christians reported anxiety compared to 11 (44.0%) of respondents practicing other religions. The association was not statistically significant ($\chi^2 = 2.547$, $p = 0.120$).

For marital status, 3 (27.3%) of those never married reported anxiety compared to 160 (29.8%) among those ever married. The association between marital status and anxiety was not statistically significant (FET = 0.033, $p > 0.999$).

Students residing on campus had a prevalence of 97 (31.5%) compared to 66 (27.5%) among those residing off campus. The association was not statistically significant ($\chi^2 = 1.029$, $p = 0.346$).

Considering monthly allowance, anxiety prevalence was highest among those receiving less than ₦40,000, 54 (30.9%), followed by those receiving more than ₦60,000, 32 (29.9%), and those receiving ₦40,000–₦60,000, 77 (28.9%). The association was not statistically significant ($\chi^2 = 0.186$, $p = 0.916$).

For source of income, prevalence was 146 (30.5%) among those supported by parents, 4 (20.0%) among those supported by guardians, 3 (25.0%) among those supported by other relatives, 9 (27.3%) among self-supporting students, and 1 (20.0%) among scholarship beneficiaries. The association between source of income and anxiety was not statistically significant (FET = 1.508, $p = 0.892$).

Respondents with poor knowledge of social media addiction had a higher prevalence of anxiety, 48 (38.7%), compared to 104 (26.3%) among those with good knowledge. This association was statistically significant ($\chi^2 = 6.985$, $p = 0.009$).

Prevalence of anxiety was also significantly higher among respondents with a positive attitude towards social media addiction, 139 (35.1%), compared to 24 (15.8%) among those with a negative attitude ($\chi^2 = 19.602$, $p < 0.001$).

Finally, respondents with social media addiction had a markedly higher prevalence of anxiety, 40 (55.6%), compared to 123 (25.8%) among those without addiction. The association between social media addiction and anxiety was statistically significant ($\chi^2 = 26.426$, $p < 0.001$).

Table 22: Factors associated with prevalence of stress among undergraduates in the University of Benin

Variables	Prevalence of stress		Test statistic (χ^2)	p-value
	Present (n=44) (%)	Absent (n=504) (%)		
Age group (years)				
15-19	16 (10.4)	138 (89.6)	5.376	0.131
20-24	22 (7.1)	290 (92.9)		
25-29	4 (5.4)	70 (94.6)		
30-34	2 (25.0)	6 (75.0)		
Sex				
Male	20 (8.3)	222 (91.7)	0.032	0.875
Female	24 (7.8)	282 (92.2)		
Department				
English and Literature	7 (8.3)	77 (91.7)	1.208	0.948
Nursing Science	9 (7.1)	117 (92.9)		
Estate management	1 (4.2)	23 (95.8)		
Microbiology	7 (8.0)	80 (92.0)		
Medicine	11 (7.9)	128 (92.1)		
Chemistry	9 (10.2)	79 (89.8)		
Level				
200	19 (11.4)	147 (88.6)	6.965	0.132
300	7 (4.5)	147 (95.5)		
400	12 (6.9)	163 (93.1)		
500	4 (14.3)	24 (85.7)		
600	2 (8.0)	23 (92.0)		
Ethnicity				
Edo indigenes	23 (7.9)	269 (92.1)	0.020	>0.999
Non-Edo indigenes	21 (8.2)	235 (91.8)		
Religion				
Christians	44 (8.4)	479 (91.6)	2.287*	0.249
Others	0 (0.0)	25 (100.0)		
Marital status				
Ever married	44 (8.2)	493 (91.8)	0.980*	>0.999
Never married	0 (0.0)	11 (100.0)		
Residence				
On-Campus	26 (8.4)	282 (91.6)	0.162	0.753
Off-Campus	18 (7.5)	222 (92.5)		
Monthly Allowance (₦)				
<40,000	17 (9.7)	158 (90.3)	>0.999	0.654
40,000-60,000	19 (7.1)	247 (92.9)		
>60,000	8 (7.5)	99 (92.5)		
Source of Income				
Parents	40 (8.4)	438 (91.6)	2.514*	0.647
Guardians	1 (5.0)	19 (95.0)		
Other Relatives	0 (0.0)	12 (100.0)		
Self-supporting	2 (6.1)	31 (93.9)		
Scholarships	1 (20.0)	4 (80.0)		
Knowledge of social media addiction				
Poor knowledge	8 (6.5)	116 (93.5)	0.470	0.571
Good knowledge	33 (8.4)	362 (91.6)		
Attitude towards social media addiction				
Negative attitude	5 (3.3)	147 (96.7)	6.399	**0.013**
Positive attitude	39 (9.8)	357 (90.2)		
Social media addiction				
Absent	24 (5.0%)	452 (95.0%)	43.778	**<0.001**
Present	20 (27.8%)	52 (72.2%)		

*Fisher's exact test

Among respondents aged 15–19 years, 16 (10.4%) reported stress compared to 22 (7.1%) in the 20–24 years group, 4 (5.4%) in the 25–29 years group, and 2 (25.0%) among those aged 30–34 years. The association between age group and stress was not statistically significant ($\chi^2 = 5.376$, $p = 0.131$).

With respect to sex, females had a slightly lower prevalence of stress, 24 (7.8%), compared to 20 (8.3%) among males. The association between sex and stress was not statistically significant ($\chi^2 = 0.032$, $p = 0.875$).

Across departments, stress prevalence was 7 (8.3%) in English and Literature, 9 (7.1%) in Nursing Science, 1 (4.2%) in Estate Management, 7 (8.0%) in Microbiology, 11 (7.9%) in Medicine, and 9 (10.2%) in Chemistry. The association between department and stress was not statistically significant ($\chi^2 = 1.208$, $p = 0.948$).

By academic level, stress prevalence was highest among 200-level students, 19 (11.4%), followed by 500-level students, 4 (14.3%), compared to 7 (4.5%) in 300 level, 12 (6.9%) in 400 level, and 2 (8.0%) in 600 level. This association was not statistically significant ($\chi^2 = 6.965$, $p = 0.132$).

Edo indigenes reported a stress prevalence of 23 (7.9%), while non-Edo indigenes had 21 (8.2%). The association between ethnicity and stress was not statistically significant ($\chi^2 = 0.020$, $p > 0.999$).

Regarding religion, stress prevalence was 44 (8.4%) among Christians, while none of the respondents from other religions reported stress. This association was not statistically significant (FET = 2.287, $p = 0.249$).

For marital status, stress prevalence was 44 (8.2%) among those who were ever married, while none was reported among those who had never married. The association between marital status and stress was not statistically significant (FET = 0.980, $p > 0.999$).

Students residing on campus had a stress prevalence of 26 (8.4%) compared to 18 (7.5%) among those residing off campus. The association was not statistically significant ($\chi^2 = 0.162$, $p = 0.753$).

Considering monthly allowance, 17 (9.7%) of those receiving less than ₦40,000 reported stress compared to 19 (7.1%) among those receiving ₦40,000–₦60,000 and 8 (7.5%) among those receiving more than ₦60,000. This association was not statistically significant ($\chi^2 > 0.999$, $p = 0.654$).

For source of income, stress prevalence was 40 (8.4%) among those supported by parents, 1 (5.0%) among those supported by guardians, none among those supported by other relatives, 2 (6.1%) among self-supporting respondents, and 1 (20.0%) among those on scholarships. The association between source of income and stress was not statistically significant (FET = 2.514, $p = 0.647$).

Respondents with poor knowledge of social media addiction had a slightly lower prevalence of stress, 8 (6.5%), compared to 33 (8.4%) among those with good knowledge. This association was not statistically significant ($\chi^2 = 0.470$, $p = 0.571$).

Prevalence of stress was higher among respondents with a positive attitude towards social media addiction, 39 (9.8%), compared to 5 (3.3%) among those with a negative attitude. The association between attitude and stress was statistically significant ($\chi^2 = 6.399$, $p = 0.013$).

Finally, respondents with social media addiction reported a higher prevalence of stress, 20 (27.8%), compared to 24 (5.0%) among those without addiction. This association was statistically significant ($\chi^2 = 43.778$, $p < 0.01$).

Table 23: Factors asscociated with the mental health status of undergraduates in the University of Benin

Variables	Mental health status		Test statistic (χ^2)	p-value
	Good (n=348) (%)	Poor (n=200) (%)		
Age group (years)				
15-19	91 (59.1)	63 (40.9)	2.391	0.513
20-24	201 (64.4)	111 (35.6)		
25-29	50 (67.6)	24 (32.4)		
30-34	6 (75.0)	2 (25.0)		
Sex				
Male	161 (66.5)	81 (33.5)	1.711	0.211
Female	187 (61.1)	119 (38.9)		
Department				
English and Literature	49 (58.3)	35 (41.7)	12.772	**0.025**
Nursing Science	69 (54.8)	57 (45.2)		
Estate management	19 (79.2)	5 (20.8)		
Microbiology	54 (62.1)	33 (37.9)		
Medicine	101 (72.7)	38 (27.3)		
Chemistry	56 (63.6)	32 (36.4)		
Level				
200	91 (54.8)	75 (45.2)	9.718	**0.045**
300	100 (64.9)	54 (35.1)		
400	121 (69.1)	54 (30.9)		
500	17 (60.7)	11 (39.3)		
600	19 (76.0)	6 (24.0)		
Ethnicity				
Edo indigenes	190 (65.1)	102 (34.9)	0.660	0.425
Non-Edo indigenes	158 (61.7)	98 (38.3)		
Religion				
Christians	335 (64.1)	188 (35.9)	1.496	0.287
Others	13 (52.0)	12 (48.0)		
Marital status				
Ever married	340 (63.3)	197 (36.7)	0.412*	0.754
Never married	8 (72.7)	3 (27.3)		
Residence				
On-Campus	191 (62.0)	117 (38.0)	0.674	0.422
Off-Campus	157 (65.4)	83 (34.6)		
Monthly Allowance (₦)				
<40,000	109 (62.3)	66 (37.7)	0.535	0.767
40,000-60,000	173 (65.0)	93 (35.0)		
>60,000	66 (61.7)	41 (38.3)		
Source of Income				
Parents	298 (62.3)	180 (37.7)	3.407*	0.537
Guardians	16 (80.0)	4 (20.0)		
Other Relatives	8 (66.7)	4 (33.3)		
Self-supporting	22 (66.7)	11 (33.3)		
Scholarships	4 (80.0)	1 (20.0)		
Knowledge of social media addiction				
Poor knowledge	70 (56.5)	54 (43.5)	3.784	0.055
Good knowledge	261 (66.1)	134 (33.9)		
Attitude towards social media addiction				
Negative attitude	119 (78.3)	33 (21.7)	19.841	**<0.001**
Positive attitude	229 (57.8)	167 (42.2)		
Social media addiction				
Absent	333 (70.0%)	143 (30.0%)	65.119	**<0.001**
Present	15 (20.8%)	57 (79.2%)		

*Fisher's exact test

Among respondents aged 15–19 years, 91 (59.1%) had good mental health status compared to 63 (40.9%) who reported poor mental health. In the 20–24 years category, 201 (64.4%) had good mental health while 111 (35.6%) had poor mental health. For those aged 25–29 years, 50 (67.6%) had good mental health compared to 24 (32.4%) with poor mental health, while among respondents aged 30–34 years, 6 (75.0%) reported good mental health against 2 (25.0%) with poor mental health. The association between age group and mental health status was not statistically significant ($\chi^2 = 2.391$, $p = 0.513$).

Regarding sex, 161 (66.5%) males had good mental health compared to 81 (33.5%) with poor mental health, while among females, 187 (61.1%) had good mental health compared to 119 (38.9%) with poor mental health. The association between sex and mental health status was not statistically significant ($\chi^2 = 1.711$, $p = 0.211$).

Across departments, 49 (58.3%) respondents from English and Literature had good mental health compared to 35 (41.7%) with poor mental health. In Nursing Science, 69 (54.8%) reported good mental health while 57 (45.2%) reported poor mental health. Estate Management students had the highest proportion with good mental health, 19 (79.2%), compared to 5 (20.8%) with poor mental health. In Microbiology, 54 (62.1%) had good mental health compared to 33 (37.9%) with poor mental health. Medicine students also showed high levels of good mental health, 101 (72.7%), compared to 38 (27.3%) with poor mental health. In Chemistry, 56 (63.6%) reported good mental health while 32 (36.4%) reported poor mental health. The association between department and mental health status was statistically significant ($\chi^2 = 12.772$, $p = 0.025$).

By academic level, 91 (54.8%) respondents in 200 level had good mental health compared to 75 (45.2%) with poor mental health. In 300 level, 100 (64.9%) had good mental health while 54 (35.1%) had poor mental health. Among 400-level respondents, 121 (69.1%) had good

mental health compared to 54 (30.9%) with poor mental health. At 500 level, 17 (60.7%) reported good mental health compared to 11 (39.3%) with poor mental health, while in 600 level, 19 (76.0%) had good mental health compared to 6 (24.0%) with poor mental health. The association between academic level and mental health status was statistically significant ($\chi^2 = 9.718$, $p = 0.045$).

For ethnicity, 190 (65.1%) Edo indigenes reported good mental health compared to 102 (34.9%) with poor mental health, while among non-Edo indigenes, 158 (61.7%) had good mental health compared to 98 (38.3%) with poor mental health. The association between ethnicity and mental health status was not statistically significant ($\chi^2 = 0.660$, $p = 0.425$).

Regarding religion, 335 (64.1%) Christians had good mental health compared to 188 (35.9%) with poor mental health, while among respondents of other religions, 13 (52.0%) reported good mental health compared to 12 (48.0%) with poor mental health. The association between religion and mental health status was not statistically significant ($\chi^2 = 1.496$, $p = 0.287$).

For marital status, 340 (63.3%) ever married respondents reported good mental health compared to 197 (36.7%) with poor mental health, while among those never married, 8 (72.7%) had good mental health compared to 3 (27.3%) with poor mental health. The association between marital status and mental health status was not statistically significant (FET = 0.412, $p = 0.754$).

By residence, 191 (62.0%) of those residing on-campus had good mental health compared to 117 (38.0%) with poor mental health, while among those living off-campus, 157 (65.4%) had good mental health compared to 83 (34.6%) with poor mental health. The association between residence and mental health status was not statistically significant ($\chi^2 = 0.674$, $p = 0.422$).

For monthly allowance, 109 (62.3%) of respondents receiving less than ₦40,000 reported good mental health compared to 66 (37.7%) with poor mental health. Among those receiving ₦40,000–₦60,000, 173 (65.0%) had good mental health compared to 93 (35.0%) with poor mental health, while for respondents receiving more than ₦60,000, 66 (61.7%) reported good mental health compared to 41 (38.3%) with poor mental health. The association between monthly allowance and mental health status was not statistically significant ($\chi^2 = 0.535$, $p = 0.767$).

Regarding source of income, 298 (62.3%) respondents supported by parents had good mental health compared to 180 (37.7%) with poor mental health. Among those supported by guardians, 16 (80.0%) had good mental health compared to 4 (20.0%) with poor mental health. Similarly, 8 (66.7%) respondents supported by other relatives had good mental health compared to 4 (33.3%) with poor mental health. For self-supporting respondents, 22 (66.7%) had good mental health compared to 11 (33.3%) with poor mental health, while those on scholarships had 4 (80.0%) with good mental health compared to 1 (20.0%) with poor mental health. The association between source of income and mental health status was not statistically significant (FET = 3.407, $p = 0.537$).

With respect to knowledge of social media addiction, 70 (56.5%) respondents with poor knowledge had good mental health compared to 54 (43.5%) with poor mental health, while among those with good knowledge, 261 (66.1%) had good mental health compared to 134 (33.9%) with poor mental health. The association between knowledge of social media addiction and mental health status was not statistically significant ($\chi^2 = 3.784$, $p = 0.055$).

Attitude towards social media addiction revealed that 119 (78.3%) respondents with negative attitude had good mental health compared to 33 (21.7%) with poor mental health, while among those with positive attitude, 229 (57.8%) had good mental health compared to 167

(42.2%) with poor mental health. The association between attitude towards social media addiction and mental health status was statistically significant ($\chi^2 = 19.841$, $p < 0.001$).

Finally, among respondents without social media addiction, 333 (70.0%) reported good mental health compared to 143 (30.0%) with poor mental health. Conversely, among those with social media addiction, only 15 (20.8%) had good mental health while 57 (79.2%) had poor mental health. The association between social media addiction and mental health status was statistically significant ($\chi^2 = 65.119$, $p < 0.001$).

Table 24: Predictors for presence of depression among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.011	1.011	0.906	1.128	0.845
Sex					
Male	-0.420	0.657	0.409	1.057	0.083
Female*		1			
Department					
Health related	-0.153	0.858	0.573	1.285	0.458
Non-health related		1			
Level					
200	-0.054	0.947	0.210	4.276	0.944
300	-0.353	0.703	0.159	3.105	0.642
400	-0.240	0.787	0.186	3.332	0.745
500	0.338	1.402	0.284	6.918	0.678
600*		1			
Ethnicity					
Edo indigenes	-0.113	0.893	0.563	1.418	0.632
Non-Edo indigenes*		1			
Religion					
Christians	-0.635	0.530	0.187	1.498	0.231
Others*		1			
Marital status					
Never married	0.657	1.930	0.271	13.717	0.511
Ever married*		1			
Residence					
On-campus	0.081	1.084	0.680	1.729	0.735
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	0.035	1.036	0.537	1.998	0.916
40,000-60,000	-0.109	0.897	0.482	1.667	0.731
>60,000*		1			
Source of Income					
Parents	0.680	1.974	0.904	4.310	0.088
Others*		1			
Knowledge of social media addiction					
Good knowledge	-0.543	0.581	0.344	0.982	**0.042**
Poor knowledge*		1			
Attitude towards social media addiction					
Positive attitude	1.088	2.968	1.613	5.463	**<0.001**
Negative attitude*		1			
Social media addiction					
Present	2.182	8.861	4.812	16.318	**<0.001**
Absent*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.011 times more likely to have depression (95% CI = 0.906 – 1.128, p = 0.845) and this was not statistically significant.

Respondents who were male were 1.522 times less likely to have depression compared to their female counterparts (95% CI = 0.409 – 1.057, p = 0.083) and this was not statistically significant. Respondents in health-related departments were 1.165 times less likely to have depression compared to those in non-health-related departments (95% CI = 0.573 – 1.285, p = 0.458), and this was not statistically significant.

With respect to academic level, respondents in 200 level were 1.056 times less likely to have depression compared to those in 600 level (95% CI = 0.210 – 4.276, p = 0.944) and this was not statistically significant. Those in 300 level were 1.423 times less likely to have depression compared to 600 level students (95% CI = 0.159 – 3.105, p = 0.642) and this was not statistically significant. Respondents in 400 level were 1.270 times less likely to have depression compared to those in 600 level (95% CI = 0.186 – 3.332, p = 0.745) and this was not statistically significant. Students in 500 level were 1.402 times more likely to have depression compared to those in 600 level (95% CI = 0.284 – 6.918, p = 0.678) and this was not statistically significant.

Edo indigenes were 1.120 times less likely to have depression compared to non-Edo indigenes (95% CI = 0.563 – 1.418, p = 0.632) and this was not statistically significant. Christians were 1.887 times less likely to have depression compared to respondents from other religions (95% CI = 0.187 – 1.498, p = 0.231) and this was not statistically significant.

Respondents who had never married were 1.930 times more likely to have depression compared to those who were ever married (95% CI = 0.271 – 13.717, p = 0.511) and this was not statistically significant. Those who resided on-campus were 1.084 times more likely to have depression compared to those living off-campus (95% CI = 0.680 – 1.729, p = 0.735) and this was not statistically significant.

Regarding monthly allowance, respondents who received less than ₦40,000 were 1.036 times more likely to have depression compared to those who received more than ₦60,000 (95% CI = 0.537 – 1.998, p = 0.916) and this was not statistically significant. Students who received between ₦40,000–₦60,000 were 1.115 times less likely to have depression compared to those with more than ₦60,000 (95% CI = 0.482 – 1.667, p = 0.731) and this was not statistically significant.

Respondents whose source of income was parents were 1.974 times more likely to have depression compared to those who earned from other sources (95% CI = 0.904 – 4.310, p = 0.088) and this was not statistically significant. Those who had good knowledge of social media addiction were 1.721 times less likely to have depression compared to respondents with poor knowledge (95% CI = 0.344 – 0.982, p = 0.042) and this was statistically significant.

Respondents with a positive attitude towards social media addiction were 2.968 times more likely to have depression compared to those with a negative attitude (95% CI = 1.613 – 5.463, p < 0.001) and this was statistically significant. Finally, respondents who were already addicted to social media were 8.861 times more likely to have depression compared to those who were not addicted (95% CI = 4.812 – 16.318, p < 0.001) and this was statistically significant.

Table 25: Predictors for presence of anxiety among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.046	1.048	0.949	1.157	0.359
Sex					
Male	-0.163	0.850	0.551	1.309	0.460
Female*		1			
Department					
Health related	-0.072	0.930	0.633	1.367	0.713
Non-health related		1			
Level					
200	-0.729	0.482	0.137	1.693	0.255
300	-1.152	0.316	0.092	1.087	0.068
400	-1.304	0.272	0.082	0.904	**0.034**
500	0.603	1.827	0.526	6.347	0.343
600*		1			
Ethnicity					
Edo indigenes	-0.184	0.832	0.545	1.270	0.393
Non-Edo indigenes*		1			
Religion					
Christians	-0.798	0.450	0.172	1.179	0.104
Others*		1			
Marital status					
Never married	1.076	2.932	0.441	19.499	0.266
Ever married*		1			
Residence					
On-campus	0.398	1.489	0.965	2.297	0.072
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	0.062	1.064	0.581	1.948	0.841
40,000-60,000	-0.014	0.986	0.559	1.737	0.961
>60,000*		1			
Source of Income					
Parents	0.492	1.635	0.815	3.279	0.166
Others*		1			
Knowledge of social media addiction					
Good knowledge	-0.742	0.476	0.292	0.777	**0.003**
Poor knowledge*		1			
Attitude towards social media addiction					
Positive attitude	1.013	2.753	1.601	4.737	**<0.001**
Negative attitude*		1			
Social media addiction					
Present	1.416	4.121	2.324	7.305	**<0.001**
Absent*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.048 times more likely to have anxiety (95% CI = 0.949 – 1.157, p = 0.359) and this was not statistically significant. Respondents

who were male were 1.176 times less likely to have anxiety compared to their female counterparts (95% CI = 0.551 – 1.309, p = 0.460) and this was not statistically significant. Respondents in health-related departments were 1.075 times less likely to have anxiety compared to those in non-health-related departments (95% CI = 0.633 – 1.367, p = 0.713), and this was not statistically significant.

At the academic level, students in 200 level were 2.075 times less likely to have anxiety compared to those in 600 level (95% CI = 0.137 – 1.693, p = 0.255) and this was not statistically significant. Respondents in 300 level were 3.165 times less likely to have anxiety compared to those in 600 level (95% CI = 0.092 – 1.087, p = 0.068) and this was not statistically significant. Those in 400 level were 3.676 times less likely to have anxiety compared to those in 600 level (95% CI = 0.082 – 0.904, p = 0.034) and this was statistically significant. Students in 500 level were 1.827 times more likely to have anxiety compared to those in 600 level (95% CI = 0.526 – 6.347, p = 0.343) and this was not statistically significant.

Edo indigenes were 1.201 times less likely to have anxiety compared to non-Edo indigenes (95% CI = 0.545 – 1.270, p = 0.393) and this was not statistically significant. Christians were 2.222 times less likely to have anxiety compared to respondents from other religions (95% CI = 0.172 – 1.179, p = 0.104) and this was not statistically significant. Respondents who had never married were 2.932 times more likely to have anxiety compared to those who were ever married (95% CI = 0.441 – 19.499, p = 0.266) and this was not statistically significant.

Those who resided on-campus were 1.489 times more likely to have anxiety compared to those living off-campus (95% CI = 0.965 – 2.297, p = 0.072) and this was not statistically significant.

With respect to monthly allowance, respondents who earned less than ₦40,000 were 1.064 times more likely to have anxiety compared to those who earned above ₦60,000 (95% CI = 0.581 – 1.948, p = 0.841) and this was not statistically significant. Students who earned between ₦40,000–₦60,000 were 1.014 times less likely to have anxiety compared to those who earned more than ₦60,000 (95% CI = 0.559 – 1.737, p = 0.961) and this was not statistically significant.

Respondents whose source of income was parents were 1.635 times more likely to have anxiety compared to those who earned from other sources (95% CI = 0.815 – 3.279, p = 0.166) and this was not statistically significant. Those with good knowledge of social media addiction were 2.101 times less likely to have anxiety compared to those with poor knowledge (95% CI = 0.292 – 0.777, p = 0.003) and this was statistically significant.

Respondents with a positive attitude towards social media addiction were 2.753 times more likely to have anxiety compared to those with a negative attitude (95% CI = 1.601 – 4.737, p < 0.001) and this was statistically significant. Finally, respondents who already had social media addiction were 4.121 times more likely to have anxiety compared to those who were not addicted (95% CI = 2.324 – 7.305, p < 0.001) and this was statistically significant.

Table 26: Predictors for presence of stress among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	-0.027	0.973	0.819	1.156	0.757
Sex					
Male	0.340	1.405	0.680	2.902	0.358
Female*		1			
Department					
Health related	-0.158	0.854	0.452	1.614	0.627
Non-health related		1			
Level					
200	-1.229	0.293	0.035	2.468	0.259
300	-2.590	0.075	0.008	0.689	0.022
400	-1.751	0.174	0.023	1.314	0.090
500	0.758	2.134	0.337	13.519	0.421
600*		1			
Ethnicity					
Edo indigenes	0.204	1.227	0.596	2.522	0.579
Non-Edo indigenes*		1			
Residence					
On-campus	0.332	1.394	0.665	2.924	0.379
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	0.503	1.654	0.581	4.713	0.346
40,000-60,000	0.160	1.174	0.434	3.179	0.752
>60,000*		1			
Source of Income					
Parents	0.668	1.951	0.558	6.820	0.295
Others*		1			
Knowledge of social media addiction					
Good knowledge	0.063	1.065	0.421	2.698	0.894
Poor knowledge*		1			
Attitude towards social media addiction					
Positive attitude	0.791	2.206	0.786	6.193	0.133
Negative attitude*		1			
Social media addiction					
Present	2.539	12.669	5.386	29.804	**<0.001**
Absent*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.03 times less likely to have stress (95% CI = 0.819 – 1.156, p = 0.757) and this was not statistically significant. Respondents who were male were 1.405 times more likely to have stress than respondents who were female (95% CI = 0.680 – 2.902, p = 0.358) and this was not statistically significant.

Respondents in health-related departments were 1.171 times less likely to experience stress compared to those in non-health-related departments (95% CI = 0.452 – 1.614, p = 0.627), and this was not statistically significant.

Relative to 600 level respondents, those in 200 level were 3.4 times less likely to have stress (95% CI = 0.035 – 2.468, p = 0.259) and this was not statistically significant. Respondents in 300 level were 13.3 times less likely to have stress (95% CI = 0.008 – 0.689, p = 0.022) and this was statistically significant. Those in 400 level were 5.7 times less likely to have stress (95% CI = 0.023 – 1.314, p = 0.090) and this was not statistically significant. In contrast, respondents in 500 level were 2.134 times more likely to have stress (95% CI = 0.337 – 13.519, p = 0.421) and this was not statistically significant.

Edo indigenes were 1.227 times more likely to have stress than non-Edo indigenes (95% CI = 0.596 – 2.522, p = 0.579) and this was not statistically significant. Respondents who resided on-campus were 1.394 times more likely to have stress than those residing off-campus (95% CI = 0.665 – 2.924, p = 0.379) and this was not statistically significant.

When compared with respondents who received more than ₦60,000 monthly allowance, those who received less than ₦40,000 were 1.654 times more likely to have stress (95% CI = 0.581 – 4.713, p = 0.346) and this was not statistically significant, while those who received between ₦40,000 and ₦60,000 were 1.174 times more likely to have stress (95% CI = 0.434 – 3.179, p = 0.752) and this was not statistically significant.

Respondents whose source of income was from their parents were 1.951 times more likely to have stress compared with those who had other sources of income (95% CI = 0.558 – 6.820, p = 0.295) and this was not statistically significant. Those who had good knowledge of social media addiction were 1.065 times more likely to have stress compared with those with poor knowledge (95% CI = 0.421 – 2.698, p = 0.894) and this was not statistically significant.

Respondents who had a positive attitude towards social media addiction were 2.206 times more likely to have stress compared with those with a negative attitude (95% CI = 0.786 – 6.193, p = 0.133) and this was not statistically significant. Finally, respondents who had social media addiction were 12.669 times more likely to have stress compared with those without social media addiction (95% CI = 5.386 – 29.804, p < 0.001) and this was statistically significant.

Table 27: Predictors for poor mental health status among undergraduates in the University of Benin

Predictors	β	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)	0.018	1.018	0.921	1.124	0.729
Sex					
Male	-0.241	0.786	0.512	1.205	0.269
Female*		1			
Department					
Health related	0.018	1.018	0.706	1.468	0.925
Non-health related		1			
Level					
200	-0.447	0.640	0.186	2.199	0.478
300	-0.944	0.389	0.116	1.306	0.127
400	-1.034	0.355	0.110	1.153	0.085
500	0.667	1.949	0.565	6.721	0.291
600*		1			
Ethnicity					
Edo indigenes	-0.090	0.914	0.602	1.387	0.672
Non-Edo indigenes*		1			
Religion					
Christians	-0.655	0.519	0.199	1.353	0.180
Others*		1			
Marital status					
Never married	1.308	3.699	0.536	25.551	0.185
Ever married*		1			
Residence					
On-campus	0.289	1.334	0.873	2.039	0.182
Off-campus*		1			
Monthly Allowance (₦)					
<40,000	-0.018	0.982	0.541	1.784	0.953
40,000-60,000	-0.106	0.899	0.513	1.576	0.711
>60,000*		1			
Source of Income					
Parents	0.626	1.870	0.937	3.733	0.076
Others*		1			
Knowledge of social media addiction					
Good knowledge	-0.564	0.569	0.351	0.922	**0.022**
Poor knowledge*		1			
Attitude towards social media addiction					
Positive attitude	0.821	2.272	1.382	3.734	**0.001**
Negative attitude*		1			
Social media addiction					
Present	2.333	10.309	5.337	19.914	**<0.001**
Absent*		1			

CI = Confidence interval; **OR** = Odd ratio; *reference category

For every one-year increase in age, respondents were 1.018 times more likely to have poor mental health (95% CI = 0.921 – 1.124, p = 0.729) and this was not statistically significant. Respondents who were male were 1.3 times less likely to have poor mental health than

respondents who were female (95% CI = 0.512 – 1.205, p = 0.269) and this was not statistically significant. Respondents in health-related departments were 1.018 times more likely to have poor mental health status compared to those in non-health-related departments (95% CI = 0.706 – 1.468, p = 0.925), and this was not statistically significant.

Students in 200 level were 1.6 times less likely to have poor mental health than those in 600 level (95% CI = 0.186 – 2.199, p = 0.478) and this was not statistically significant. Students in 300 level were 2.6 times less likely than those in 600 level (95% CI = 0.116 – 1.306, p = 0.127) and this was not statistically significant. Students in 400 level were 2.8 times less likely than those in 600 level (95% CI = 0.110 – 1.153, p = 0.085) and this was not statistically significant. Students in 500 level were 1.9 times more likely than those in 600 level (95% CI = 0.565 – 6.721, p = 0.291) and this was not statistically significant.

Edo indigenes were 1.1 times less likely to have poor mental health than non-Edo indigenes (95% CI = 0.602 – 1.387, p = 0.672) and this was not statistically significant. Christians were 1.9 times less likely to have poor mental health than respondents of other religions (95% CI = 0.199 – 1.353, p = 0.180) and this was not statistically significant.

Respondents who had never married were 3.7 times more likely to have poor mental health than those who were ever married (95% CI = 0.536 – 25.551, p = 0.185) and this was not statistically significant. Students residing on-campus were 1.3 times more likely to have poor mental health than those residing off-campus (95% CI = 0.873 – 2.039, p = 0.182) and this was not statistically significant.

Respondents receiving less than ₦40,000 monthly were 1.0 times less likely to have poor mental health than those receiving more than ₦60,000 (95% CI = 0.541 – 1.784, p = 0.953) and this was not statistically significant. Those receiving ₦40,000–₦60,000 were 1.1 times

less likely than those receiving more than ₦60,000 (95% CI = 0.513 – 1.576, p = 0.711) and this was not statistically significant.

Respondents whose source of income was their parents were 1.9 times more likely to have poor mental health than those with other sources (95% CI = 0.937 – 3.733, p = 0.076) and this was not statistically significant. Respondents with good knowledge of social media addiction were 1.8 times less likely to have poor mental health than those with poor knowledge (95% CI = 0.351 – 0.922, p = 0.022) and this was statistically significant.

Respondents with a positive attitude towards social media addiction were 2.3 times more likely to have poor mental health than those with a negative attitude (95% CI = 1.382 – 3.734, p = 0.001) and this was statistically significant. Respondents with social media addiction were 10.3 times more likely to have poor mental health than those without addiction (95% CI = 5.337 – 19.914, p < 0.001) and this was statistically significant.

CHAPTER FIVE

DISCUSSION

This study, revealed the knowledge, attitudes, prevalence, and factors affecting social media addiction on the mental health status among undergraduates in the University of Benin. A total of 548 respondents participated in this study with different ranges of sociodemographic characteristics, offering a comprehensive view of the population.

n this study, the mean age of respondents was 21.5 ± 2.9 years. The more than half of the students were within the 20–24 age range, followed by those in their late teens, while only a few were in their late twenties and early thirties. This finding aligns with the expected age distribution of undergraduates in Nigeria, who usually enter university in their late teens and graduate in their early to mid-twenties. More than half of the participants were females, while the remainder were males. This reflects the general trend seen in many higher institutions in the country, where enrolment is increasingly balanced but still slightly skewed towards females in certain disciplines. Most respondents were single, as is typical of an undergraduate population. Christianity was the predominant religion, with only a small minority practicing Islam or African Traditional Religion. The largest ethnic group represented were the Benin, followed by Esan, Igbo, and Yoruba, which is unsurprising given the study's location in Benin City and the university's appeal to students from different regions. More than half of the students lived in hostels within the campus environment, and nearly half received a monthly allowance in the mid-range, mainly supported by their parents, reflecting the strong family support systems common in Nigerian tertiary institutions.

These findings are comparable to a descriptive cross-sectional study conducted in 2021 at Wollo University, Ethiopia, which assessed the prevalence of social media addiction among undergraduates. The Ethiopian study reported a mean age of 21.4 years and found that the

majority of respondents were male [69]. While the mean ages were nearly identical, a contrast was observed in gender distribution, as males predominated in the Ethiopian context, unlike the slight female majority in this study. This variation could be attributed to differences in cultural and institutional enrolment patterns between the two regions.

The socio-demographic profile of university students has important public health implications. Young adults are particularly vulnerable to the psychological effects of excessive social media use, which has been linked to depression, anxiety, and reduced academic performance. Recognizing these demographic characteristics helps in tailoring interventions to the most at-risk groups. Universities and public health bodies should implement awareness campaigns on healthy social media use, strengthen student counseling services, and incorporate digital literacy programs into the curriculum. In addition, targeted interventions such as peer support groups and stress-management workshops could mitigate the potential negative effects of social media addiction on students' mental health.

Almost all the respondents were aware of social media addiction, showing a very high level of awareness among undergraduates. The most common source of information was social media itself, followed by friends or family, while far fewer obtained their knowledge from healthcare professionals or formal university courses. This pattern suggests that informal and easily accessible platforms dominate as sources of knowledge for students, which may reflect the pervasive role of digital media in their daily lives. The relatively low reliance on structured academic channels highlights a gap in formal education regarding the risks of social media use.

This finding is in partial agreement with a descriptive cross-sectional study carried out in 2020 among undergraduates in Edo State, Nigeria, to assess the prevalence and determinants of smartphone addiction [63]. That study reported that all respondents were aware of

smartphone addiction, with colleagues and the internet being their major sources of information, while radio was least cited. Both studies demonstrate a high level of awareness, although the present study identified social media as the dominant source of information, while the Edo State study emphasized interpersonal networks such as colleagues. This variation may be explained by differences in study focus, as smartphone addiction may be more directly discussed among peers, whereas social media use is often reinforced by the very platforms being assessed.

The high awareness of social media addiction among students has important public health implications. Despite widespread knowledge, dependence on informal sources such as social media for health-related information raises concerns about misinformation and distorted perceptions of addiction. Previous studies have linked problematic social media use with adverse mental health outcomes, including depression, anxiety, and reduced academic performance. It is therefore crucial for universities to integrate digital literacy and mental health education into their curricula, ensuring that students receive accurate, evidence-based information. Collaboration between academic institutions and healthcare professionals to organize awareness campaigns and peer-support programs could further promote healthy online habits and safeguard the mental well-being of undergraduates.

More than two-third of the respondents demonstrated a good knowledge of social media addiction.This relatively high level of knowledge may be attributed to the widespread use of social media platforms among young people and the increasing public discourse on its potential impact on mental health. The exposure of students to online content, peer discussions, and institutional sensitization programs could also contribute to their awareness of the concept.

This finding is in agreement with a descriptive cross-sectional study conducted in Edo State, Nigeria, in 2020, which assessed the prevalence and determinants of smartphone addiction among undergraduates. The study revealed that more than three-quarters of respondents had good knowledge of smartphone addiction, while only a minority had poor knowledge [63] . However, in contrast, a study carried out in Minia, Egypt, in 2020 to assess the knowledge, beliefs, and levels of internet and social media addiction among nursing students showed that only about a quarter of respondents were able to provide a complete definition of the concept [62] . These contrasting findings suggest that knowledge levels may vary across different cultural and academic contexts, possibly reflecting differences in exposure, access to information, or the emphasis placed on digital health literacy within the curriculum.

The high level of knowledge observed in this study has important public health implications. Awareness of social media addiction does not always translate into healthy usage patterns, as knowledge gaps may still exist regarding coping strategies and prevention of addictive behaviors. Previous research has shown that excessive use of social media, despite awareness of its risks, can still predispose young adults to mental health problems such as anxiety, depression, and impaired sleep quality. This highlights the need for targeted interventions that go beyond raising awareness. Universities and health authorities should integrate digital wellness programs into student orientation activities, strengthen counseling services, and promote peer-led initiatives aimed at fostering responsible use of social media. In addition, embedding digital health education within the curriculum could help bridge the gap between awareness and practice, thereby reducing the risk of addiction-related mental health challenges among undergraduates.

Knowledge of social-media addiction rose with age and year of study as students in the oldest age band and those in the highest levels showed the strongest knowledge while those in the youngest band and earlier years showed the weakest, and the association between age and

level with knowledge was statistically significant. By faculty, students enrolled in health and life-science programmes (Medicine, Microbiology, Nursing) had substantially better knowledge than students in Chemistry, who had the lowest level of knowledge; the association between department and knowledge was also statistically significant. Students in health-related departments had about double the odds of good knowledge compared with those in non-health related departments and this was statistically significant. A plausible explanation is greater exposure to health, behavioural and research content as students mature and progress through professional or clinical training — older and senior students have had more coursework, clinical contact, reading and peer discussions that raise awareness — and health-related curricula and practicum give Medical and Microbiology students repeated opportunities to encounter topics related to addiction and its consequences.

These results align with previous studies that assessed knowledge or related constructs. For example, a 2018 study at the University of Benin that assessed knowledge and attitude toward internet addiction among undergraduates found that more than half of respondents demonstrated good knowledge, supporting the pattern of generally high awareness in many student groups at this institution [97]. A 2018 study in Tehran that measured knowledge, attitude and self-efficacy regarding internet addiction among female undergraduates reported average-to-moderate knowledge overall and showed that educational level was associated with attitudes and related scores, which is consistent with our finding that higher year/age groups had better knowledge. [61]

The public-health significance of finding that more than half of students have good knowledge is that this knowledge is a strong foundation for prevention: better health literacy and targeted education make students more able to recognise risky patterns, seek help early, and adopt self-regulation strategies, reducing the likelihood that problematic use will develop or escalate [98]. Systematic reviews of prevention and digital-wellbeing interventions show that

education is a common component of effective programmes and that school/university interventions can produce modest but meaningful reductions in problematic technology use and screen time, especially when tailored to context and combined with practical skills training [23]. Based on this, recommended actions are: incorporate brief, credit-bearing digital-wellbeing modules and screening into early years of study (with refreshers in later years), prioritise outreach to departments with lower knowledge (for example Chemistry) and to younger cohorts, use peer educators and practical workshops (time-management, notification hygiene, sleep hygiene) and monitor progress with periodic campus surveys to guide and refine interventions. [23 98]

Almost three-quarter of the respondents expressed a positive attitude toward social media addiction, while only one-quarter held a negative attitude. A likely explanation is that social media is deeply woven into student life, being used for coursework updates, peer networking, entertainment, and business activities, so the risks may feel less immediate compared with its benefits. Additionally, normalization through peer influence and the easy availability of internet access on campus can make constant use seem acceptable, reducing the perception of harm.

This pattern is in contrast with a 2018 descriptive cross-sectional study among female undergraduates in Tehran, Iran, which assessed knowledge, attitude, and self-efficacy regarding internet addiction and found that nearly half reported a positive attitude toward internet addiction and its consequences [61]. It is similar with a 2020 descriptive cross-sectional study in Edo State, Nigeria, that assessed the prevalence and determinants of smartphone addiction among university undergraduates and reported an overwhelming majority with a

positive attitude toward smartphone addiction [63] . The shared context and overlap between smartphone use and social media engagement likely contributed to the similarity in findings.

Positive attitudes toward problematic social media use matter because they lower risk perception and may encourage patterns associated with anxiety, depression, and stress among young people. Universities should integrate digital well-being education into student orientation and general studies courses, offer screening and early support services through the health center, establish phone-free norms in lecture halls and study areas, train peer educators to provide psychoeducation on healthy online habits, and work with student bodies and ICT units to promote healthier digital practices and publicize available support services.

Negative attitudes toward social media addiction showed a small, non-significant rise with age. By discipline, roughly a third of students in Medicine and in English & Literature, and about a third in Estate Management held negative attitudes, whereas only about one in seven Microbiology students did. Negative attitude also tended to increase with level of study, with final-year students approaching about half and junior students showing lower proportions. This might be because exposure and perspective shift with progression through university: senior students and some disciplinary groups may have greater awareness of the risks of problematic use (or more lived experience of its harms) and so express stronger negative attitudes, while departmental differences likely reflect curriculum content, professional socialisation and differing functional uses of social media; the mismatch between crude proportions and adjusted odds suggests confounding by age, level or other covariates.

These patterns are consistent with prior work. A 2018 descriptive study at the University of Benin that set out to assess knowledge and attitudes toward internet addiction among undergraduates reported generally favourable awareness and attitudes in many student groups, supporting the idea that attitudes vary by student characteristics and programme of study [97]. A

2018 study in Tehran, Iran, that assessed knowledge, attitude and self-efficacy regarding internet addiction among female undergraduates similarly found that attitude measures were associated with educational level, with more advanced students showing different (often more critical) attitudes than juniors — a finding that echoes our observation of increasing negative attitudes with level of study [61]. These published studies lend external validity to the current findings while underscoring that measurement, sampling and curricular differences can shape observed patterns.

Where negative attitudes (i.e., recognition that social-media addiction is harmful) are more common, that awareness can support prevention, earlier recognition and help-seeking; where negative attitudes are less common, there is a risk that problematic use is normalized and that students are less likely to recognise problems or seek support. Improving mental-health literacy and attitudes toward help-seeking is therefore important because higher literacy and pro-help-seeking attitudes are linked to greater likelihood of seeking care and taking preventative action [99] [100] .Evidence reviews and policy guidance highlight that improving knowledge and attitudes in young people can facilitate help-seeking and reduce stigma, and that universities are effective settings for prevention and early-intervention programmes [95]. On this basis, recommended actions are: introduce brief, credit-bearing digital-wellbeing and mental-health literacy modules early in the curriculum with refreshers in later years; prioritise targeted outreach and practical workshops (time-use and notification hygiene, sleep hygiene) for departments showing lower negative attitudes; train peer educators to identify at-risk students and signpost services; implement routine screening with clear referral pathways at student health services; and repeat campus surveys to track trends and refine interventions.

Social media addiction was absent in more than four-fifths of the respondents, while one-fifth were found to be addicted. A plausible explanation for this is that although social media plays an important role in students' academic, social, and economic lives, many undergraduates

may be able to balance its use with other activities. This balance could be influenced by personal self-control, awareness of the negative effects of excessive use, family or peer support, and academic structures that limit the time available for continuous social media engagement.

These findings are similar to those of a 2024 descriptive cross-sectional study conducted in Anambra State, Nigeria, which assessed social media addiction among undergraduates using an adapted BSMAS questionnaire and found that less than half of the respondents were addicted to social media [72] . A related study carried out in Hong Kong, China, in 2021 to determine the level of social networking addiction among university students also reported that only about one-fifth of the participants met the criteria for addiction [67]. These similarities across different settings may reflect a general trend in which most students, despite frequent use of social media, do not engage at levels high enough to be classified as addicted. This may be due to shared protective factors such as academic demands, cultural expectations, and institutional rules that encourage moderation.

The fact that the majority of students were not addicted to social media suggests that a large proportion of undergraduates are likely maintaining good mental health and stable academic performance. This implies a lower risk of social media–related problems such as anxiety, depression, or poor sleep quality among most students. To maintain this positive trend, universities should continue to support healthy digital habits by incorporating digital literacy education into their curricula, promoting time management skills, and providing resources for students who may be at risk of developing problematic social media use. This preventive approach can help sustain the mental well-being and productivity of the student population.

Social media addiction was mostly seen among students in the early years of university. About one in six students in 200 and 300 levels showed signs of addiction, while there were

very few cases among students in higher levels such as 400, 500, and 600 levels. Addiction was also more common among students who had a positive attitude towards social media, those who used social media mostly at night, and those who had been using it for many years. Students who received higher monthly allowances were more likely to be addicted compared to those who received less. Although addiction seemed higher among students who spent more than four hours daily on social media, when other factors were considered, the relationship changed. This could mean that it is not just the total number of hours spent online that matters, but also how and when social media is used.

These findings are similar to other studies. A 2022 study in Turkey among university students found that spending more time daily on social media increased the chances of addiction, which supports our result about longer daily use being linked with addiction [101] . Another study in China in 2023 followed first-year university students and found that social media addiction was more common in the early years of study, just like we observed among 200 and 300 level students [102] . Also, a study among Norwegian students in 2021 showed that using social media mostly at night was connected to addiction and poor sleep, which matches our finding that night-time use was linked to higher addiction levels [103].

The public health importance of these findings is that addiction is mostly happening in younger students, which means there is an opportunity to prevent it before it becomes a long-term problem. Addiction to social media can affect mental health, sleep, and academic performance, which are very important for students' overall well-being [95] . To reduce this, universities can take simple steps such as teaching digital wellbeing and healthy social media habits during orientation and in early-level courses, especially for 200 and 300 level students. Campaigns to encourage limiting night-time use and reducing distractions can also help. Student health centers should screen for signs of addiction and provide support when needed.

These actions can prevent addiction from getting worse and improve students' mental health [104].

More than half of the students had good mental health status, while a little over a third experienced poor mental health. About a quarter of the respondents reported symptoms of depression, close to a third experienced anxiety, and less than one in ten reported stress. This indicates that while mental health challenges exist, most students were able to cope well with academic, social, and personal demands. A possible explanation for this is the presence of supportive structures such as family and peer relationships, involvement in extracurricular activities, and the availability of coping resources like faith-based or community support systems. These factors may have helped students maintain emotional balance and resilience despite the pressures of university life.

These findings are similar to a 2020 descriptive cross-sectional study conducted in Ogun State, Nigeria, which examined social media use, smartphone addiction, and psychological morbidity among undergraduates and reported that less than half of the participants experienced psychological morbidity, indicating that most students were mentally healthy [73]. Similarly, a 2023 study carried out at King Khalid University in Saudi Arabia found that less than a third of undergraduate medical students reported symptoms of depression or anxiety, showing that the majority did not experience these psychological issues [68]. A related study in 2021 at Wollo University, Ethiopia, also reported that only about one-fifth of the undergraduates had mental distress, further supporting the finding that most students across different settings tend to have good mental health status [68]. The consistency of these results across various regions suggests that while mental health challenges are present among university students, they affect a minority, with most students maintaining a stable psychological state.

The public health significance of these findings is that when most students have good mental health, they are more likely to succeed academically, maintain healthy social relationships, and contribute positively to the university community. Good mental health among students has been linked to better academic performance and reduced dropout rates, which are crucial for the development of a skilled and productive workforce [95]. To sustain this positive trend, universities should implement preventive mental health strategies such as integrating wellness education into curricula, organizing stress management and coping skills workshops, and providing accessible counseling services. Regular screening for depression, anxiety, and stress should also be conducted to identify at-risk students early and link them to appropriate interventions. Additionally, promoting peer support groups and creating safe spaces for open discussions about mental health can help reduce stigma and encourage help-seeking behavior [96].

This study revealed that about a third of students in Nursing Science and English and Literature experienced symptoms of depression, while smaller proportions were reported in Medicine, Microbiology, Chemistry, and Estate Management. Depression was almost three times more common among students who had a positive attitude towards social media use than among those with a negative attitude. Furthermore, almost two-thirds of students who were addicted to social media experienced depression compared to fewer than one in five of those who were not addicted. After adjusting for other factors, having good knowledge about social media addiction appeared to protect against depression, while a positive attitude and actual addiction greatly increased the likelihood of experiencing depressive symptoms. This suggests that social media addiction may directly affect mental wellbeing by contributing to stress, poor sleep, social isolation, and negative online comparisons, which can increase vulnerability to depression.

These findings are consistent with other studies conducted in similar settings. For instance, a 2024 cross-sectional study carried out at Addis Ababa University in Ethiopia examined the relationship between problematic social media use and depression among undergraduates. The study found that students who engaged in problematic social media use were significantly more likely to report depressive symptoms, supporting the link between addictive patterns and poor mental health observed in our study [68]. Similarly, a 2023 study at King Khalid University in Saudi Arabia found that students with higher scores for social media addiction were more likely to show symptoms of depression [22]. These studies reinforce the idea that problematic use of social media is strongly linked to mental health challenges among students.

Social media addiction is a modifiable risk factor for depression in young people. According to the World Health Organization, depression is one of the leading causes of illness and disability among adolescents and young adults, and early intervention is key to preventing long-term consequences [95]. Universities play a crucial role in addressing this by promoting mental health literacy, providing counseling services, and creating awareness about the risks of addictive social media use. Practical recommendations include incorporating digital wellbeing education into the curriculum, especially for first- and second-year students, organizing campaigns to promote healthy online habits and better sleep practices, and providing regular screening for depression and problematic social media use through student health services. These interventions can help reduce the risk of depression and improve the overall wellbeing of students [75, 105].

Anxiety was found to be more common among students who had poor knowledge of social media addiction, with more than a third of them experiencing anxiety, compared to about a quarter of those who had good knowledge. Similarly, anxiety was higher among students who had a positive view of social media addiction, with about a third experiencing anxiety,

compared to about one in six among those who had a negative view. More than half of the students who were addicted to social media experienced anxiety, compared to about a quarter of those who were not addicted. After adjusting for other factors, good knowledge of social media addiction was linked to a lower likelihood of anxiety, while having a positive attitude towards social media and being addicted to it were linked to a higher likelihood of anxiety. A possible explanation is that students with better knowledge may be more aware of the risks of excessive social media use and take steps to limit it, whereas those with a positive attitude may see heavy use as normal and are less likely to practice self-control. Over time, addictive social media use can lead to poor sleep, stress, and harmful social comparisons, which can increase anxiety levels.

These findings are similar to those reported in a 2023 three-wave longitudinal study carried out in China among first-year undergraduates. The study aimed to examine problematic social media use and its impact on mental health. It found that problematic social media use was associated with an increase in anxiety over time and that the relationship between excessive social media use and anxiety was bidirectional, meaning that each one worsened the other over time [102]. This supports the idea that problematic social media use and anxiety are closely linked among university students.

Problematic social media use is a modifiable risk factor, meaning that it can be addressed through education and support. Anxiety disorders are among the most common mental health conditions in young people, and universities provide a key opportunity for prevention and early intervention. A systematic review reported a consistent moderate link between problematic social media use and anxiety in adolescents and young adults, highlighting the urgent need for interventions [106] . The World Health Organization also emphasises the importance of promoting mental health and reducing risk factors like problematic social media use among young people [95] . To address this issue, the University of Benin could

introduce digital wellbeing and media literacy programs for new students, organise campaigns to promote healthy sleep and limit late-night social media use, screen students for problematic use and anxiety at the university health centre, and provide counselling and peer support services. Regular surveys could also help monitor progress and guide improvements.

Stress was more common in students who held a positive attitude toward social media, with about one in ten of those students reporting stress compared with only a few of those with a negative attitude. Students who met criteria for social media addiction showed much higher levels of stress around one in four while students without addiction showed much lower levels. After adjustment, being addicted to social media was associated with a substantially higher likelihood of stress, more than tenfold. A plausible reason is that addictive social-media behaviours (compulsive checking, heavy night-time use and poor sleep) increase psychological arousal and reduce coping capacity, which in turn raises stress levels [106].

These results agree with other studies. For example, a 2024 cross-sectional study in Selangor, Malaysia, that set out to measure social media addiction, stress and loneliness among university students found a clear association between social media addiction and higher perceived stress [107]. Systematic reviews and meta-analyses of adolescents and young adults also report a consistent moderate link between problematic social media use and stress, reinforcing the idea that addiction-like patterns of use carry greater stress risks than simple time spent online [106].

The public-health importance of this finding is that clustering of stress among students with addictive social-media use is a preventable threat to student wellbeing and learning; international health authorities stress the need to protect young people's mental health and to implement prevention and early-intervention measures in education settings [105]. Practical recommendations are: introduce short digital-wellbeing and sleep-hygiene modules during

orientation and in early-year courses; run campus campaigns to discourage heavy night-time use and teach notification- and time-management strategies; implement brief screening for problematic social-media use and stress at student health services with clear referral pathways to counselling; train peer supporters to identify and refer at-risk students; and monitor the problem with periodic campus surveys so interventions can be refined and scaled [95, 106]

More than half of students in most departments had good mental health while smaller proportions had poor mental health; for example, about three-quarters of Medicine students and about four-fifths of Estate Management students reported good mental health, whereas only about one-fifth of students with social media addiction reported good mental health. By year of study, roughly half of 200-level students had good mental health while about two-thirds or more of students in higher levels did. Students who held a negative attitude toward social media were much more likely to report good mental health than those with a positive attitude, and students with better knowledge about social media addiction were less likely to have poor mental health. In contrast, students with social media addiction were far more likely to have poor mental health on the order of ten times the risk compared with non-addicted peers. A plausible reason is that good knowledge and sceptical attitudes encourage self-regulation and protective behaviours (better sleep habits, time limits, help-seeking), while addictive patterns disrupt sleep, increase harmful social comparison and withdrawal from face-to-face supports, which together raise the risk of poor mental health.

These findings agree with other real studies of students. A three-wave longitudinal study in China in 2023 set out to examine problematic social media use and mental health risks among first-year undergraduates and found that higher problematic use was positively associated with increases in depression, anxiety and stress over time, with evidence that the relationship can be bidirectional [102] .A 2023 cross-sectional study at a Saudi university that aimed to measure the prevalence and determinants of social media addiction among medical students

reported a high prevalence of addictive use and showed that students with symptoms of depression or anxiety had higher social-media-addiction scores than their peers, supporting the link between addiction-like use and poorer mental health in student populations [22].

The public-health significance is twofold: first, the fact that many students have good mental health suggests there is a strong base of resilience that universities can protect and build on; second, the large excess risk of poor mental health among students with social media addiction means targeted prevention and early support could prevent many harms. Systematic reviews show a consistent link between problematic social media use and greater depression, anxiety and stress in adolescents and young adults, underlining that this is a replicable finding across settings. [106] Young people's mental health is also a major public-health priority because mental disorders often begin during adolescence and young adulthood and have long-term consequences for education and work [95] The recommended actions are easy, affordable, and based on evidence. They include adding short sessions on digital wellbeing and mental health during orientation and first-year classes, running campaigns and workshops on healthy phone use, sleep habits, and managing notifications, setting up regular screening and clear referral systems at student health centers, training peer supporters to recognize and guide students at risk, and carrying out short campus surveys regularly to track changes and improve the programs.

CONCLUSION

In relation to knowledge of social media addiction about three-quarters of the respondents demonstrated a good knowledge of social media addiction, while less than a quarter had poor knowledge and the department was a significant predictor for good knowledge of social media addiction

For the attitude towards social media addiction, almost three-quarters of the respondents expressed a positive attitude toward social media addiction, while only a minority held a negative attitude. The department and level were factors which strongly predicted positive attitude towards social media addiction

In regards to social media addiction was present in less than one-fifth and the monthly allowance, knowledge of social media addiction, attitudes towards social media addiction, average daily hours spent on social media and the time of the day when social media is used strongly predicted social media addiction

While on mental health status, while less than a third of the respondents experienced poor mental health. About a quarter of the respondents had symptoms of depression, nearly a third experienced anxiety, and less than a tenth reported stress and knowledge of social media addiction, attitudes towards social media addiction, and presence of social media addiction strongly predicted poor mental health status.

RECOMMENDATIONS

The following recommendations were made based on the findings from this study with the hope that if implemented, they will reduce social media addiction among undergraduates in the University of Benin and improve their mental health status

RECOMMENDATIONS TO THE FEDERAL GOVERNMENT OF NIGERIA

1. The government should develop a national digital well-being policy to guide safe and responsible social media use among young people and students.
2. The government should provide funding for research on social media addiction and its effects on mental health to guide evidence-based interventions.
3. The government should work with social media companies to introduce features that help users limit excessive use, such as time limit reminders and night-time restrictions.
4. The government should integrate digital health and social media addiction prevention strategies into national mental health policies.
5. The government should allocate funds to support mental health services and awareness programs in tertiary institutions across the country.

RECOMMENDATIONS TO THE MINISTRY OF EDUCATION

1. The ministry should incorporate digital literacy and responsible social media use into the national curriculum at all levels of education.
2. The ministry should provide training for teachers and educators on how to identify and address signs of social media addiction and poor mental health in students.

3. The ministry should encourage universities to set policies promoting healthy technology use within academic environments.
4. The ministry should promote peer education programs that encourage students to lead campaigns on balanced digital habits and mental well-being.
5. The ministry should establish systems for routine mental health assessments in tertiary institutions to detect and address emerging issues early.

RECOMMENDATIONS TO THE ADMINISTRATIVE DEPARTMENT OF THE UNIVERSITY OF BENIN

1. The university should establish a campus-based mental health center that offers counseling and support services for students.
2. The university should organize regular workshops on digital balance, stress management, and mental well-being for students and staff.
3. The university should set up peer support groups where students can share experiences and receive guidance on healthy social media habits.
4. The university should introduce policies to discourage excessive night-time use of social media by limiting campus Wi-Fi access during late hours.
5. The university should train academic staff to identify early warning signs of mental health problems and refer affected students for appropriate care.

RECOMMENDATIONS TO THE MINISTRY OF HEALTH

1. The ministry should include social media addiction and digital health in national public health campaigns.

2. The ministry should train healthcare professionals to screen for and manage social media addiction and related mental health conditions.
3. The ministry should develop digital health clinics within existing health facilities to provide specialized care for social media addiction.
4. The ministry should create early intervention programs targeting young people before digital addiction becomes severe.
5. The ministry should collaborate with educational institutions to promote mental health literacy and awareness on campus.

RECOMMENDATIONS TO THE STATE GOVERNMENT

1. The state government should launch state-wide awareness campaigns on the risks of social media addiction and promote healthy online behaviors.
2. The state government should support school-based programs focused on mental health and digital well-being.
3. The state government should work with community and youth organizations to spread messages on balanced technology use and mental health.
4. The state government should provide grants for local research on social media addiction and mental health trends among students.
5. The state government should strengthen referral systems between schools, health facilities, and community services for students at risk.

RECOMMENDATIONS TO INDIVIDUALS (STUDENTS)

1. Students should set daily limits for social media use and avoid excessive night-time scrolling.
2. Students should balance online activities with offline hobbies, physical exercise, and face-to-face social interactions.
3. Students should practice mindful social media use by reflecting on their reasons for using these platforms.
4. Students should seek help from counselors or mental health professionals when experiencing stress, anxiety, or depression linked to social media use.
5. Students should support their peers by encouraging healthy digital habits and sharing resources for mental well-being.

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APPENDIX I

INFORMED CONSENT FORM

TITLE OF STUDY: Assessment of Social Media Addiction on the Mental Health Status of Undergraduates of the University of Benin

INVESTIGATOR: ETIEYIBO OGHENEFEJIREH STEPHANIE

SUPERVISOR: Prof. Obi I.A

FINANCIAL SPONSORSHIP: This research project is self-sponsored.

PURPOSE OF THE STUDY: The purpose of this study is to assess the impact of social media addiction on the mental health status of undergraduates at the University of Benin.

PROCEDURES INVOLVED IN THE STUDY: You are kindly requested to complete a questionnaire designed to assess your social media usage habits and its effects on your mental health. The questionnaire is for research purposes only and will take approximately 10 minutes to complete.

COMPENSATION: There will be no financial compensation for participating in this study.

VOLUNTARY PARTICIPATION: Your participation in this study is completely voluntary. You may choose not to participate or to withdraw at any time without any penalty or loss of benefits to which you are otherwise entitled.

POTENTIAL RISKS: There are no known risks or adverse effects anticipated from participating in this study.

BENEFITS: Although there may be no direct benefit to you, the information collected may help to better understand how social media addiction affects students' mental health. This knowledge could inform future support services or policies to improve student wellbeing.

CONFIDENTIALITY: All information collected will be kept strictly confidential. Your name or any identifying details will not be recorded on the questionnaire, and data will be stored securely.

CONTACT INFORMATION:

For any questions or concerns about the study, please contact:

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Email: etieyibofejireh@gmail.com

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Ethics and Research Committee

University of Benin Teaching Hospital

Benin City

Tel: +2347063331337

CERTIFICATE OF CONSENT

I have read the above information (or it has been read to me). I had the opportunity to ask questions and the questions were answered to my satisfaction.

I voluntarily consent to take part in this study.

Signed: _____

APPENDIX II

QUESTIONNAIRE DESIGN ON ASSESSEMENT OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS OF UNDERGRADUATES OF THE UNIVERSITY OF BENIN

S/N_____

We are 600 level medical students of the University of Benin, Benin City. This questionnaire is designed to assess social media addiction and on the mental health status of Undergraduates of the University of Benin. All information given will be treated as confidential. Please mark and fill as appropriate. Thank you.

SECTION A: SOCIODEMOGRAPHIC DATA

1. Age (as at last birthday): _____
2. Sex: Male ( ) Female ( )
3. Department: English and Literature[ ] Nursing Science [ ] Environmental Management and Toxicology [ ] Microbiology [ ] Medicine [ ] Chemistry [ ]
4. Level (please specify): 200 [ ] 300 [ ] 400 [ ] 500 [ ] 600 [ ]
5. Ethnic group: Benin [ ] Esan [ ] Igbo [ ] Yoruba [ ] Hausa [ ] Others (specify)_____
6. Religion: Christianity ( ) Islam ( ) African Traditional religion ( ) Others _____
7. Marital status: Single ( ) Married ( ) Separated/Divorced ( ) Widowed ( )
8. Residence: Hostel On-Campus ( ) Hostel Off-Campus ( ) Private residence ( ) Junior Staff Quarters ( ) Senior Staff Quarters ( ) Others (specify)_____
9. Monthly allowance: (₦) _____

10. What is your main source of income? Parents ( ) Guardians ( ) Other relatives ( ) Self-supporting ( ) Scholarships ( ) Others (specify): _____

11. What are your other sources of income? Parents ( ) Guardians ( ) Other relatives ( ) Self-supporting ( ) Scholarships ( ) Others (specify):---------- (You can tick more than one option)

SECTION B: KNOWLEDGE OF SOCIAL MEDIA ADDICTION

12. Have you heard of social media addiction? Yes [ ] No [ ] **If No, SKIP TO NO. 23**

13. If yes, what was your source of information (**Select all that apply**): University courses [ ] News articles [ ] Friends/Family [ ] Healthcare professionals [ ] Social media [ ]

14. Which of the following best describe social media addiction? (**Select one**) Use of social media interfering with daily life [ ] Using social media for business only [ ] Difficulty controlling the urge to check social media [ ] Occasional checking of social media for updates [ ]

15. What are signs of social media addiction? (**Select all that apply**) Feeling anxious when unable to access social media [ ] Prioritizing social media over important activities [ ] Feeling relaxed and disconnected from online activities [ ] Neglecting schoolwork or responsibilities due to social media use [ ]

16. Social media addiction can lead to which of the following? (**Select all that apply**) Sleep disturbances [ ] Depression [ ] Improved physical fitness [ ] Anxiety [ ] Better concentration skills [ ]

17. Which behaviors can contribute to developing social media addiction? (**Select all that apply**) Checking social media immediately after waking up [ ] Using social media during

lectures [ ] Using social media only during scheduled breaks [ ] Constantly refreshing feeds for new content [ ]

18. Which mental health challenges are associated with social media addiction? (**Select all that apply**) Anxiety [ ] Stress [ ] Improved academic performance [ ] Depression [ ] Improved sleep quality [ ]
19. What preventive measures can help avoid social media addiction? (**Select all that apply**) Setting time limits for social media use [ ] Practicing mindfulness [ ] Ignoring signs of excessive use [ ] Engaging in offline hobbies [ ] Leaving apps running all day [ ] Others (specify): _____
20. Withdrawal symptoms of social media addiction include: (**Select all that apply**) Irritability when unable to check social media [ ] Calmness and peace of mind [ ] Restlessness or agitation [ ] Craving to go online [ ]
21. Which of the following are TRUE about the effects of excessive social media use? (**Select all that apply**) It can cause interpersonal conflicts [ ] It can improve exam grades automatically [ ] It can cause decreased productivity [ ] It can worsen self-esteem issues [ ]
22. Which of the following strategies can help manage social media usage? (**Select all that apply**) Scheduling specific times for social media use [ ] Deleting apps that cause distraction [ ] Avoiding social media completely without a plan [ ] Practicing digital detox occasionally [ ] Others (specify): _____

SECTION C: ATITTUDE TOWARDS SOCIAL MEDIA ADDICTION

Please pick one answer per row, where SA = strongly agree, A = agree, N = Neutral, D = disagree, SD = strongly disagree

S/N		SA	A	N	D	SD
23.	I feel anxious when I am not able to check social media for a long time.					
24.	Spending too much time on social media negatively affects my academic performance.					
25.	Taking breaks from social media will cause me to feel left out.					
26.	Social media addiction can harm my relationships with family and friends.					
27.	Reducing time on social media will make me miss important updates from my friends.					
28.	I often find myself unable to control how much time I spend on social media.					
29.	Engaging more in offline activities will make me more likely to become addicted to social media.					
30.	I believe social media addiction is a serious problem among students.					
31.	Spending time on social media helps me relieve stress.					
32.	Trying to limit my social media use makes me feel stressed and disconnected.					

SECTION D: PREVALENCE OF SOCIAL MEDIA ADDICTION

33. Do you own an electronic device that can access the internet? Yes ( ) No ( )

34. Which of the following devices do you own? (**Tick all that apply**) smartphone ( )
Tablet ( ) Laptop ( ) Desktop ( ) Smartwatch ( ) Others (specify): _____

35. Do you have regular internet access? Yes ( ) No ( )

36. Which of the following social media platforms do you use? (**Tick all that apply**) Facebook ( ) Instagram ( ) WhatsApp ( ) Twitter/X ( ) Snapchat ( ) TikTok ( ) LinkedIn ( ) YouTube ( ) Others (specify): _____

37. Which social media platform do you use most frequently? (**Select one**): Facebook ( ) Instagram ( ) WhatsApp ( ) Twitter/X ( ) Snapchat ( ) TikTok ( ) LinkedIn ( ) YouTube ( ) Others (specify): _____

38. On average, how many hours per day do you spend on social media? (**Select one**) <1 hour ( ) 1 hour ( ) 2 hours ( ) 3 hours ( ) 4 hours ( ) 5 hours ( ) Others (specify): _____

39. What are your reasons for using social media? (**Tick all that apply**) Academic purposes ( ) Socializing ( ) Entertainment ( ) News/Information ( ) Business ( ) Others (specify): _____

40. At what time of day do you use social media the most? (**Select one**) Morning ( ) Afternoon ( ) Evening ( ) Night ( )

41. How often do you check your social media accounts daily? (**Select one**) Once ( ) 2 times ( ) 3 times ( ) 4 times ( ) 5 times ( )6 times ( ) Others (specify): _____

42. How long have you been using social media? (**Select one**) 6 months ( ) 1 year ( ) 2 years ( ) 3 years ( ) 4 years ( ) 5 years ( )Others (specify): _____

Please pick one answer per row, where 1 = Very rarely, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often

In the past year, how often have you:

S/N		1	2	3	4	5
43.	Spent a lot of time thinking about social media or how to use it?					
44.	Felt an urge to use social media more and more?					
45.	Used social media to forget about personal problems?					
46.	Tried to cut down on social media use without success?					
47.	Felt restless or troubled when unable to use social media?					
48.	Used social media so much that it had a negative impact on your studies, sleep, or relationships?					
49.	Felt guilt or regret after spending a long time on social media?					
50.	Prioritized social media over spending time with friends or family?					
51.	Hidden the extent of your social media use from others?					
52.	Stayed online longer than originally intended?					

SECTION E: MENTAL HEALTH STATUS

Please read each statement and tick the options that applied to you in the over the past weeks. From DASS-21 (Depression, Anxiety, Stress Scale), pick one answer per row, where 0 = NEVER - Did not apply to me at all**, 1 = SOMETIMES** - Applied to me to some degree, or some of the time**, 2 = OFTEN** - Applied to me to a considerable degree, or a good part of time**, 3 = ALMOST ALWAYS** - Applied to me very much, or most of the time**.**

S/N		0	1	2	3
53.	I found it hard to relax after using social media.				
54.	I noticed dryness of my mouth while or after using social media.				
55.	I couldn't enjoy or feel good after spending time on social media.				
56.	I had trouble breathing or felt short of breath when using social media, even if I wasn't physically active				
57.	found it hard to start or stay motivated to do other things after using social media.				

58.	I overreacted to small things I saw or read on social media.				
59.	I felt nervous or shaky while using or thinking about social media.				
60.	I felt like using social media drained a lot of my energy.				
61.	I worried a lot about saying or doing something embarrassing on social media.				
62.	I felt like there was nothing to look forward to outside of social media.				
63.	I became easily upset or agitated when I couldn't check or use social media.				
64.	I found it difficult to relax after spending time on social media.				
65.	I felt sad or down after comparing myself to others on social media.				
66.	I felt annoyed or frustrated when something interrupted my time on social media.				
67.	I felt I was close to panic.				
68.	I didn't feel excited or interested in other things outside social media.				
69.	I didn't feel good about myself after spending time on social media.				
70.	I felt easily irritated or overly sensitive about things I saw online.				
71.	I noticed my heart beating fast even when I wasn't active, often while using or thinking about social media.				
72.	I felt scared or anxious for no clear reason after being on social media.				
73.	I felt like life had little meaning when I wasn't using social media.				

Thank you for your co-operation!!!

HEALTH RESEARCH ETHICS COMMITTEE (HREC)

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PROTOCOL NUMBER: ADM/E 22/A/VOL. VII/148654912580

PROPOSAL TITLE: "ASSESSMENT OF SOCIAL MEDIA ADDICTION ON THE MENTAL HEALTH STATUS OF UNDERGRADUATES OF THE UNIVERSITY OF BENIN"

PRINCIPAL INVESTIGATOR(S): ETIEYIBO OGHENEFEJIREH STEPHANIE

DEPARTMENT/INSTITUTION: DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA

DATE CONSIDERED: JULY 7TH, 2025

DECISION OF THE COMMITTEE: APPROVED

THIS APPROVAL DATES 7/7/2025 TO 6/7/2026. IF THERE IS DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY

REMARK:

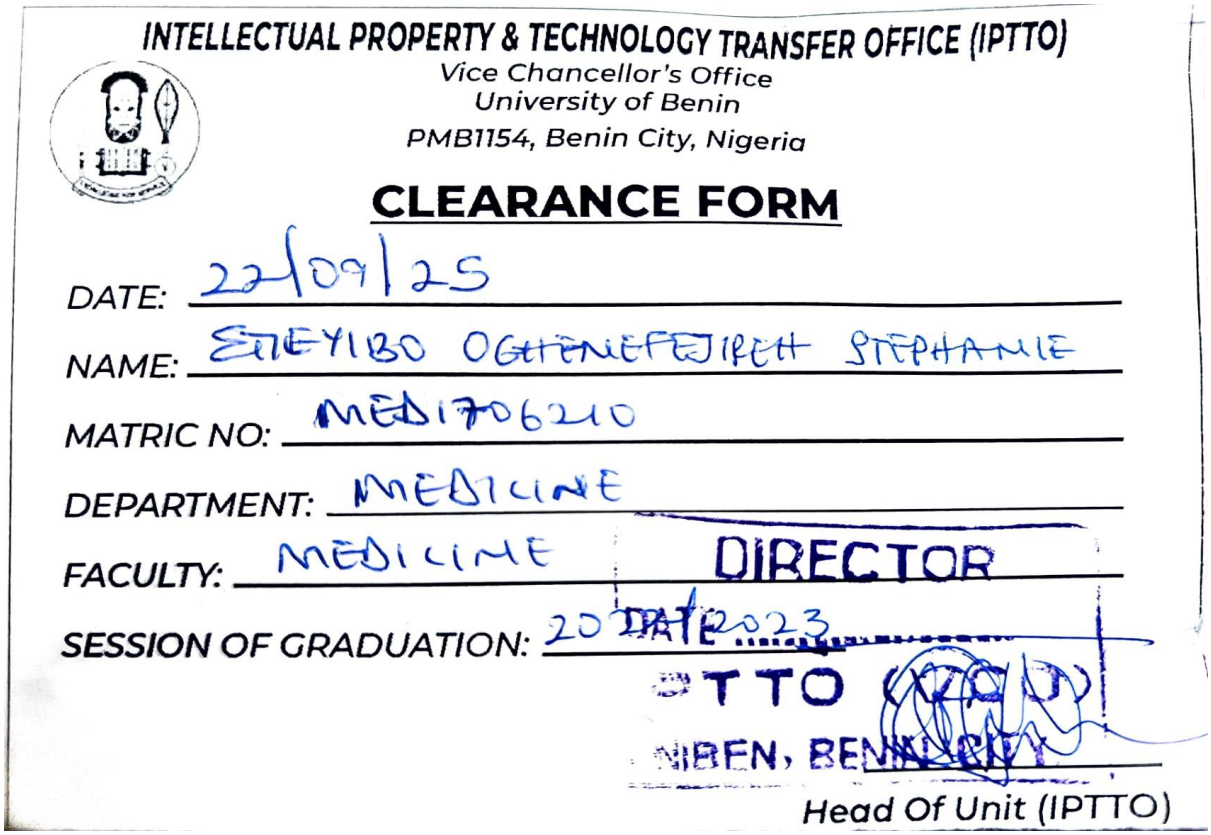
CHAIRMAN: PROF. (MRS) A.N. OFILI **SIGNATURE & DATE**..... APli 7/7/2025

SUPERVISOR (S): PROF. A. I. OBI

DECLARATION BY INVESTIGATOR(S):
PROTOCOL NUMBER (please quote in all enquiries)
Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual re-port to the HREC early in order to obtain renewal of your approval and avoid disruption of your research. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification

Signature & Date..... 11/08/25

Original Copy Bleeded by me
Etieyibo Oghenefejireh Stephanie
11/08/25



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SESSION OF GRADUATION: 2023

DIRECTOR
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Head Of Unit (IPTTO)

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