ENSIGN GLOBAL UNIVERSITY, KPONG

EASTERN REGION, GHANA

FACULTY OF PUBLIC HEALTH

DEPARTMENT OF COMMUNITY HEALTH

THE RELATIONSHIP BETWEEN SOCIAL MEDIA USAGE AND ADOLESCENT MENTAL HEALTH AT SELECTED SCHOOLS IN ADENTA MUNICIPALITY, IN THE GREATER ACCRA REGION OF GHANA

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BY

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A THESIS SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, DEPARTMENT OF COMMUNITY HEALTH, ENSIGN GLOBAL UNIVERSITY, KPONG IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF PUBLIC HEALTH

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DECLARATION

I, Margaret Dansowaa Asare, hereby declare that this submission is my own work towards the award of the Master of Public Health (MPH) degree and, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

Margaret Dansowaa Asare (247100302)  ……

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Dr. Edward Kofi Sutherland ……... ……

(Supervisor's Name) **Signature** **Date**

Certified by:

Dr Stephen Manortey …… ……

(Head of Academic Program) **Signature** **Date**

DEDICATION

This work is dedicated to the Almighty God for his endless favor and protection on my life. This work is dedicated to my beloved husband, whose unwavering support, encouragement, and prayers have been the foundation of my academic journey. I also dedicate this study to all adolescents striving to find balance in a digital world. May this research contribute in some small way to their well-being.

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ABBREVIATION/ACRONYMS

AOR	Adjusted Odds Ratio
CHPS	Community-based Health Planning and Services
CI	Confidence Interval
COR	Crude Odds Ratio
COVID-19	Coronavirus Disease 2019
DASS-21	Depression Anxiety Stress Scale – 21 Items
FOMO	Fear of Missing Out
GAD-7	Generalized Anxiety Disorder – 7 Items
GES	Ghana Education Service
GHS	Ghana Health Service
GSS	Ghana Statistical Service
IRB	Institutional Review Board
LI	Legislative Instrument
MOE	Ministry of Education
MOH	Ministry of Health
MPH	Master of Public Health
NIMH	National Institute of Mental Health
OR	Odds Ratio

PHC	Population and Housing Census
RSES	Rosenberg Self-Esteem Scale
SD	Standard Deviation
SDG	Sustainable Development Goal
SHS	Senior High School
STATA	Statistics and Data Analysis (software)
UNICEF	United Nations International Children's Emergency Fund
UN-OCHA	United Nations Office for the Coordination of Humanitarian Affairs
WHO	World Health Organization
YLD	Years Lived with Disability

ABSTRACT

Background: Adolescence is a critical developmental stage marked by heightened vulnerability to peer pressure. With the rapid growth of digital technology, social media has become an integral part of adolescent life, offering both opportunities and risks. While global evidence links social media use to depression, anxiety, stress, and self-esteem, limited context-specific data exist in Ghana, particularly in semi-urban settings like Adenta Municipality.

General Objective: This study sought to examine the relationship between social media usage patterns and mental health outcomes, specifically depression, anxiety, stress, and self-esteem, among adolescents in selected schools within the Adenta Municipality.

Methods: A cross-sectional quantitative study was to sample 178 adolescents aged 13–19 years from two senior high schools in Adenta Municipality. Data were collected using a structured questionnaire that included the Depression Anxiety Stress Scale-21 (DASS-21) and Rosenberg Self-Esteem Scale (RSES). Multi-stage sampling was employed, and data were analyzed with STATA version 18 using descriptive statistics, chi-square tests, and multivariate logistic regression.

Findings: Social media usage was nearly universal (93.8%), with WhatsApp (70.8%), TikTok (47.8%), and Snapchat (36.0%) being the most popular platforms. Over one-third (39.5%) of respondents reported spending three or more hours daily on social media, with evening (47.9%) and late-night (35.3%) use most common. Educational purposes (65.7%) and entertainment (62.9%) were the primary reasons for use. Mental health assessments revealed that 68% experienced mild-to-extremely severe depression, 66.3% reported severe-to-extremely severe anxiety, 49% reported mild-to-extremely severe stress, and 44.9% had low self-esteem. Regression analysis identified significant predictors: adolescents who regularly used TikTok had lower odds

of experiencing anxiety (AOR = 0.52, 95% CI: 0.29–0.93, p = 0.028), while those who spent five or more hours daily on social media were at increased odds of low self-esteem (AOR = 2.31, 95% CI: 1.08–4.92, p = 0.031). Non-use of social media was strongly associated with higher stress (AOR = 3.45, 95% CI: 1.15–10.36, p = 0.027).

Conclusions: Adolescents in Adenta report high social media use alongside concerning levels of depression, anxiety, stress, and low self-esteem. Usage patterns, particularly duration of use and platform choice, are significantly linked to mental health outcomes. These findings highlight the need for targeted interventions such as school-based digital literacy programs, parental guidance, and integration of mental health support into adolescent health services to promote safe and balanced social media use.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Mental health is universally recognized as a fundamental component of human well-being, influencing how individuals think, feel, interact, and make decisions in everyday life (World Health Organization, 2025). Mental health, encompassing emotional, psychological, and social well-being, is a critical determinant of how individuals perceive, feel, behave, manage stress, engage in interpersonal relationships, and make choices. (WHO, 2025). Social relationships have been shown to significantly affect mental health by fostering a sense of belonging and social identity, which in turn enhances quality of life (Chang, Wray and Lin, 2014; Nazari et al., 2023). However, in recent years, social media platforms have emerged as critical spaces where these relationships are negotiated, and their impact on mental health has become a topic of both global and local concern (NaKaYa, 2015; Hemayatkhah, 2021).

According to the World Health Organization (WHO), one in seven adolescents (10–19 years) experiences mental health disorders, with half of all mental illnesses emerging by the age of 14 (WHO, 2024). Adolescence constitutes a pivotal developmental stage, characterized by profound psychological, biological, and social transformations that underpin the emergence of autonomy and identity formation. (O'reilly et al., 2018). During this phase, mental health disorders such as depression and anxiety are most commonly detected (O'reilly et al., 2018). Social media use has been identified as one of the contributing factors influencing adolescent mental health, with its widespread adoption reshaping social interactions and mental health outcomes (Alonzo et al., 2021; Plackett, Sheringham and Dykxhoorn, 2023).

Globally, the increasing prevalence of mental health issues among the youth has become a significant public health concern, necessitating urgent and sustained interventions *(Plackett, Sheringham and Dykxhoorn, 2023).* Globally, approximately 97% of adolescents use at least one social media platform, with platforms such as YouTube, Instagram, Facebook, Snapchat, and TikTok being the most popular *(Pew Research Center, 2018; Global Web Index, 2025).* Adolescents spend an average of three hours daily on social media, often using these platforms to network, seek support, and express creativity *(Pew Research Center, 2021; Dodemaide et al., 2022).* While social media offers benefits including access to information, opportunities for self-expression, and reduced feelings of loneliness: it has also been linked to negative mental health outcomes, such as depression, anxiety, and psychological distress (Keles, McCrae and Grealish, 2020; Cunningham, Hudson and Harkness, 2021). Research indicates that excessive social media use can lead to problematic behaviours resembling addiction, which negatively affects mental health, including lower self-esteem, anxiety, and sleep disturbances *(Schou Andreassen and Pallesen, 2014; Cheng et al., 2021).*

In Sub-Saharan Africa, although internet penetration remains lower than global averages, it is growing rapidly. From a mere 0.4% in 2000, penetration rose to 22% by 2021, driven largely by mobile access, which currently stands at 83% *(Delaporte, 2021; Statista, 2024).* Social media is increasingly being accessed through mobile phones, with Facebook, WhatsApp, TikTok, Instagram, and YouTube ranking among the most frequently used platforms *(Statista, 2024).* In this region, young people are the primary drivers of digital media use, utilizing these platforms for communication, information exchange, academic purposes, and entertainment *(Asare-Donkoh, 2018; Kituyi and Kyeyune, 2024).* However, the increasing immersion in digital environments has also coincided with a rise in psychological concerns, including cyberbullying, social comparison,

addiction, and feelings of inadequacy among youth *(Kearney and Levine, 2024; Kituyi and Kyeyune, 2024).*

Ghana, like other Sub-Saharan African nations, is witnessing a surge in digital engagement among its youthful population. It is estimated that approximately 99% of adolescents in Ghana have access to mobile phones, with 58% owning smartphones equipped with internet access *(Alhassan et al., 2019).* Social networking platforms are widely used for various purposes including entertainment, academic engagement, social messaging, and creative expression *(Keeley and Little, 2017; Asare-Donkoh, 2018).* A study in the Tema Metropolitan Area revealed that 87.5% of children had used social media, with TikTok being the most popular platform *(Kyei-Gyamfi, 2024).* As of January 2023, there were 6.60 million active social media users in Ghana representing nearly 20% of the national population *(DataReportal, 2025).* Despite this growing trend, the mental health implications of social media usage among Ghanaian adolescents remain understudied. Existing research often highlights general influences of social media but tends to overlook the direct relationships between specific usage patterns and mental health outcomes *(Churchill, 2018; Abdul-Aziz and Maigah, 2024).*

In light of the preceding context, the current study endeavors to elucidate the relationship between social media usage patterns and mental health outcomes among adolescents within the Adenta Municipality of the Greater Accra Region, Ghana. This study is timely and necessary, providing context-specific insights to inform policy and intervention strategies that support adolescent mental well-being in a digitally evolving society.

1.2 Problem Statement

The rapid proliferation of social media platforms and the near-constant engagement of adolescents with these digital spaces have raised growing concerns about their mental health and well-being (Keles et al., 2020; Twenge & Campbell, 2018). In Ghana, mobile phone ownership among young people is nearly universal. A study by Alhassan et al. (2019) reported that approximately 99% of adolescents and young adult owned mobile phones, with over 80% using social networking sites and mobile applications. Similarly, the DataReportal (2025) report indicates that about 39% of Ghana's population actively uses social media, reflecting the growing integration of digital platforms such as WhatsApp, Facebook, Instagram, and TikTok, into daily life. Adolescents in Ghana rely heavily on social media for communication, creative expression, and even as a means of coping with personal distress *(Asare-Donkoh, 2018)*. However, the same platforms that facilitate these benefits also contribute to negative mental health outcomes, as evidenced by rising cases of cyberbullying, addiction, and socio-psychological challenges among young users *(Kituyi and Kyeyune, 2024)*.

Despite this widespread usage, existing studies in Ghana have largely focused on the general influence of social media on youth behaviour, often overshadowing its specific mental health implications *(Asare-Donkoh, 2018; Abdul-Aziz and Maigah, 2024).* There is a limited socio-cultural understanding of how distinct social media usage patterns such as frequency, type of content consumed and duration of use relate to mental health outcomes among adolescents, particularly within the Adenta Municipality of the Greater Accra Region.

The absence of such data creates a critical gap in addressing the mental health needs of Ghanaian adolescents, particularly in rapidly urbanizing areas like the Adenta Municipality of the Greater Accra Region. Without such data, policymakers, educators, and health professionals may lack the

evidence required to design targeted interventions that promote healthy digital habits and mental well-being among young people.

This study therefore seeks to address this gap by examining the relationship between social media usage patterns and mental health outcomes among adolescents in the Adenta Municipality. By identifying specific usage patterns and their associated risks, this research aims to inform interventions and policies to mitigate the negative effects of social media use while maximizing its potential benefits for adolescent mental health

1.3 Rationale of the Study

Despite global concerns about the links between excessive social media use and mental health issues, there is limited localized evidence from Ghana with regard to Adolescents, especially within semi-urban communities like the Adenta Municipality in the Greater Accra Region. Ghana's mental health policy, embodied in the 2012 Mental Health Act and the 2019-2030 National Mental Health Policy, as well as the Ghana National Adolescent Health and Development Programme, demonstrate mental health promotion and psychosocial support as key priorities, particularly for adolescents who face complex emotional and social transitions *(Ministry of Health, 2012; Ministry of Health, 2019).* These frameworks, however, are currently limited in their engagement with contemporary digital influences most notably, social media use which has emerged as a significant factor influencing adolescent mental well-being.

This study is therefore justified on several grounds. This research will benefit multiple stakeholders. Policymakers and public health officials will gain insights to shape adolescent mental health frameworks that account for the influence of social media. Educators and school administrators will be better equipped to identify digital-related emotional distress and promote healthier online habits. Mental health practitioners and NGOs will benefit from data that informs

adolescent-friendly psychosocial support services. Parents and caregivers will be empowered with knowledge to guide their children's media use. Most importantly, adolescents themselves stand to gain from interventions and policies that promote digital well-being and mental resilience.

Additionally, this study also aligns with key international priorities, particularly Sustainable Development Goal (SDG) 3, which seeks to ensure healthy lives and promote well-being for all at all ages. It contributes to Target 3.4, which focuses on reducing premature mortality from non-communicable diseases, including mental health conditions *(Howden-Chapman et al., 2017).* Additionally, the study supports SDG 4 (Quality Education) by informing school-based interventions that promote emotional and digital literacy. It also aligns with the World Health Organization's Comprehensive Mental Health Action Plan (2013–2030) *(Saxena, Funk and Chisholm, 2013),* which calls for research that strengthens the evidence base for mental health promotion in youth.

1.4 Conceptual Framework

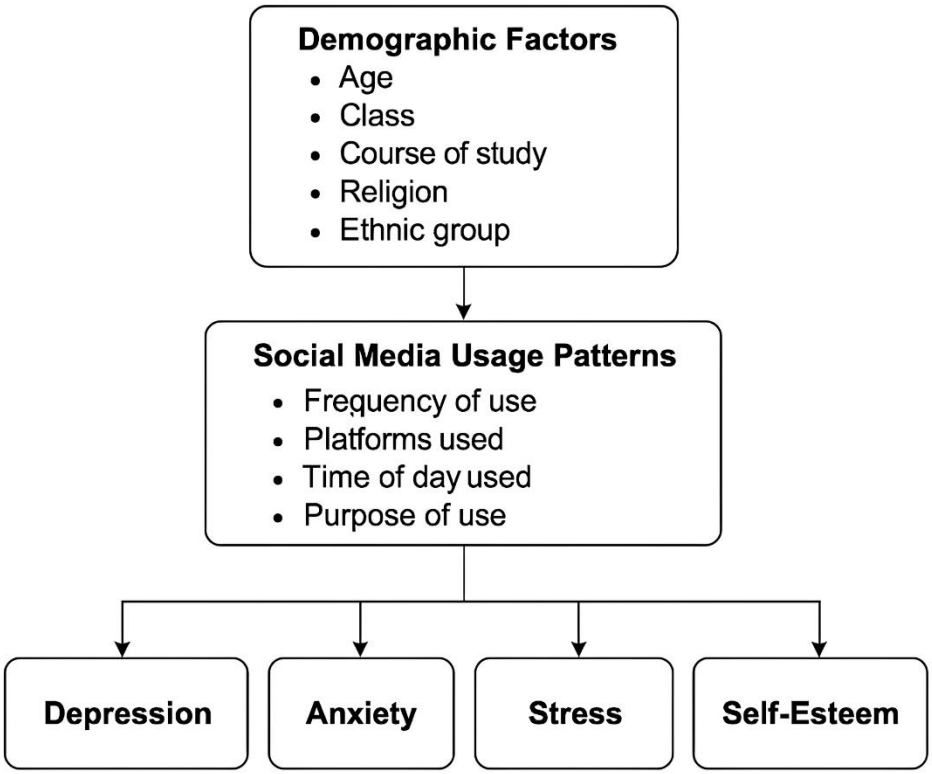

Figure 1.0: *Conceptual Framework of Study*

Source: Adapted from *(Rajesh and Priya, 2019)*

The conceptual framework for this study is anchored on the premise that social media usage patterns influence adolescent mental health outcomes. This framework posits that variables such as frequency of use, time spent, platforms accessed, and purposes for engaging with social media can have varying effects on psychological states, particularly in relation to depression, anxiety, stress, and self-esteem. These mental health outcomes are treated as dependent variables, while social media usage characteristics are the key independent variables. Additionally, demographic factors including age, class level, course of study, religion, and ethnic background are considered moderating variables that may influence the strength or direction of these relationships. The

framework reflects a multidimensional interaction between behavioural patterns in social media engagement and mental well-being, and it guides the study's data collection and analytical approach to understand the extent and nature of these associations among adolescents in the Adenta Municipality of the Greater Accra Region, Ghana.

1.5 Research Questions

1. What is the prevalence and pattern of social media usage among adolescents in selected schools within the Adenta Municipality?
2. What are the levels of depression, anxiety, stress, and self-esteem among adolescents in selected schools within the Adenta Municipality?
3. What is the relationship between social media usage and the mental health outcomes (depression, anxiety, stress, and self-esteem) among adolescents in selected schools within the Adenta Municipality?

1.6 General Objective

To examine the relationship between social media usage patterns and mental health outcomes among adolescents the Adenta Municipality of the Greater Accra Region, Ghana.

1.7 Specific Objectives

1. To assess the prevalence and patterns of social media usage among adolescents in selected schools within the Adenta Municipality.
2. To measure the levels of depression, anxiety, stress, and self-esteem among adolescents in selected schools within the Adenta Municipality.
3. To determine the relationship between social media usage and the mental health outcomes among adolescents in selected schools within the Adenta Municipality.

1.8 Profile of Study Area

The Adenta Municipality, located in the northeastern part of Accra, Ghana, was established in February 2008 through the promulgation of Legislative Instrument (LI 1888). It was carved out of the then Tema Municipal Assembly, with Adenta serving as its Central Business District *(Adentan Municipal Assembly, 2024).* The municipality, spanning a land area of approximately 123 square kilometers, lies 10 kilometers from Accra on latitude 5°43' North and longitude 0°09' West. It shares boundaries with Kpone Katamanso, Tema West, and Ashaiman Municipalities to the east; Ayawaso West and La Nkwantanang-Madina Municipalities to the west; Kpone Katamanso to the north; and Tema West, Ledzokuku, and Krowor Municipalities to the south *(Adentan Municipal Assembly, 2024).*

Based on the 2021 Population and Housing Census, Adentan Municipality has a total population of 237,546, comprising 117,841 males (49.6%) and 119,705 females (50.4%) *(GSS, 2021).* The municipality is entirely urbanized, with a population density constituting 4.35% of the Greater Accra Region's total. There are 73,281 households in the municipality, with an average household size of 3.2 people, and a household population of 236,188. Non-household residents make up 1,358 individuals *(GSS, 2021).*

The municipality is divided into 12 electoral areas, each with an elected Assembly Member, along with six members appointed by the President. Each electoral area is managed by a five-member Unit Committee that collaborates with traditional authorities, zonal councils, and the public *(Adentan Municipal Assembly, 2024).* The General Assembly is headed by an elected Presiding Member. Adentan is further divided into four functional Zonal Councils: Gbentanaa, Sutsurunaa, Koose, and Nii Ashaley. Politically, the municipality forms a single constituency, the Adentan Constituency *(Adentan Municipal Assembly, 2024).*

The municipality's road network spans 864.6 kilometers, with 139 kilometers paved and 725 kilometers unpaved. However, the majority (77.78%) of roads are in poor condition, and only 6.35% are asphalted. Adentan boasts 80 health facilities, including government-owned polyclinics, health centers, maternity homes, and CHPS zones *(Adentan Municipal Assembly, 2024).* The municipality is also a beneficiary of Ghana's Agenda 111 project, which involves constructing a 100-bed district hospital to improve healthcare accessibility. In education, there are 19 public primary schools, 19 public junior high schools, two public senior high school, and various private educational institutions, including three universities and one nursing training school *(Adenta Municipal Assembly, 2024).*

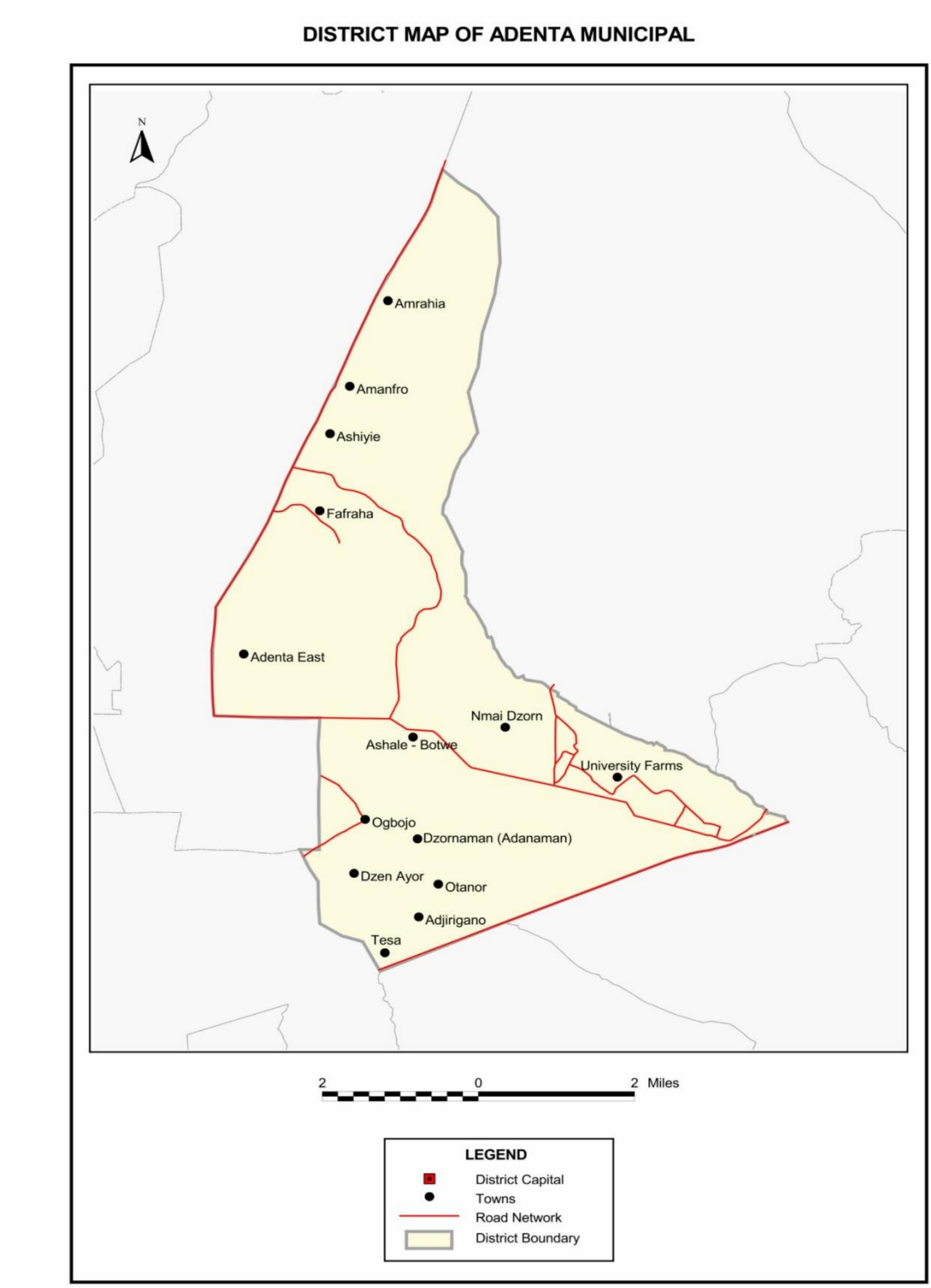

Figure 2.0: *Map of the Adenta Municipality*

Source: *(GSS, 2021)*

1.9 Scope of Study

This study focused on examining the relationship between social media usage and adolescent mental health within the Adenta Municipality in the Greater Accra Region of Ghana. It specifically targeted adolescents enrolled in selected junior and senior high schools within the municipality. The study explored the prevalence and patterns of social media use, as well as key mental health indicators including depression, anxiety, stress, and self-esteem. The research adopted a cross-sectional design and is limited to data collected during the 2025 academic year. The findings are context-specific and may not be generalized to adolescents outside the selected municipality or those not in formal education.

1.10 Organization of Report

This thesis is structured into six distinct chapters. Chapter one is dedicated to an introductory overview of the study, detailing its background, problem statement, research objectives, research questions, significance, scope, and the overall organization of the report. Chapter 2 presents a comprehensive literature review, critically examining existing research on social media, adolescent mental health, and related theoretical frameworks. Chapter 3 outlines the methodological approach employed, including research design, participant selection, data collection instruments, and analytical strategies (Okeke et al., 2023). Chapter four presents the findings of the study, chapter five discusses these findings in relation to existing literature and the theoretical framework, and chapter six concludes with a summary, recommendations, and suggestions for future research.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews existing literature related to social media usage and its impact on adolescent mental health. It examines key concepts, and previous empirical studies that inform the study. The review focuses on areas such as the patterns of social media use among adolescents, and how these relate to mental health outcomes including depression, anxiety, stress, and self-esteem.

2.2 Prevalence and Patterns of Social Media Usage Among Adolescents

The global reach of social media among adolescents has reached unprecedented levels, with platform penetration rates varying significantly across different regions and demographic groups (Statista, 2024; Pew Research Center, 2023; DataReportal, 2025). In 2018, the Pew Research Center found that 85% of teens used YouTube, 72% used Instagram, 69% used Snapchat, 51% used Facebook, and 32% used Twitter *(Rutledge et al., 2025).* Four years later, updated data from Pew revealed a shift in these patterns of use, with 95% of teens turning to YouTube, 67% to TikTok, 52% to Instagram, 41% to Snapchat, and 32% to Facebook *(Rutledge et al., 2025).*

Another study by *Nagata et al. (2025)* among adolescents revealed that adolescents ages 11–15, 69.5% had at least one social media account. Among these social media users, the most frequently used platforms were TikTok (67.1%), Instagram (66.0%), and YouTube (64.7%) *(Nagata et al., 2025).* A majority (63.8%) of participants under the minimum age of 13 also used social media. These younger users had, on average, 3.38 social media accounts, with 68.2% having a TikTok account and 39.0% identifying TikTok as their most used platform *(Nagata et al., 2025).*

Additionally, *Nagata et al. (2025)* emphasized that girls were more likely to use TikTok, Snapchat, Instagram, and Pinterest, while boys reported higher use of YouTube and Reddit. Additionally, 6.3% of participants with social media accounts kept at least one account secret from their parents *(Nagata et al., 2025).*

A longitudinal cohort study examining Indian adolescents found that social media usage among boys increased dramatically from 13.9% to 57.6%, while usage among girls increased from 3.8% to 26.6% (Maurya *et al.*, 2024). The study highlighted that male adolescents demonstrated higher overall engagement rates and longer daily usage times (Maurya *et al.*, 2024).

In Kenya, findings reveal that Generation Z adolescents have widespread access to media, primarily engaging with social media (38%), with at least 35% using media for over 6 hours, notably on social media and mobile phones (Adhiambo, Odera and Maragia, 2024).

According to a study by *Akafa et al. (2024)* among adolescents in Abuja, Nigeria, the most frequently used platforms include Facebook (55.4%) and WhatsApp (45.0%), with social media primarily serving as a way to connect with friends and family. Additionally, entertainment plays a significant role in social media use, with 39.2% of respondents turning to platforms like TikTok and YouTube for entertainment purposes *(Akafa et al., 2024).*

In Ghana, a study by *Kyei-Gyamfi (2024)* indicate that 87.5% of children have used social media at least once, with males (91.7%) more likely to do so than females (83.5%). The primary reason for using social media, reported by 87% of children, is entertainment. Among the platforms, TikTok stands out with the highest usage rate, accounting for 88.7% of all platforms used *(Kyei-Gyamfi, 2024).*

2.3 Mental Health in Adolescents

Adolescence is a formative period, yet many young people face significant mental health challenges during this time. Currently, one in seven (14%) of 10–19-year-olds experiences a mental disorder: a major contributor to disease burden in this age group (WHO, 2024).

Anxiety, depression, and behavioural disorders are the most frequently encountered conditions, affecting both well-being and daily functioning. Anxiety disorders are more prevalent in older than in younger adolescents, while behavioral disorders are more commonly found in younger teens (WHO, 2024).

Some disorders, like eating disorders and psychosis, emerge during late adolescence and can profoundly undermine health, relationships, and future opportunities. Furthermore, suicide is the third leading cause of death among 15–29-year-olds, reflecting the urgency of addressing mental health struggles in a vulnerable population (WHO, 2024).

The global landscape of adolescent mental health has deteriorated markedly over the past decade, with multiple large-scale epidemiological studies documenting concerning trends across developed nations. Data from the 2019 Global Burden of Disease Study reveals that among adolescents ages 10 to 14, the number of YLDs due to depressive disorders stands at 1,175,000 (Kieling *et al.*, 2024). This number further climbs in adolescents ages 15 to 19, where it reaches 3,090,000 which is a 2.6-fold increase (Kieling *et al.*, 2024).

A meta-analysis by *Polanczyk et al. (2015)* indicated a global pooled prevalence of mental disorders among adolescents at 13.4%. Specifically, the worldwide prevalence rates were reported as 6.5% for any anxiety disorder, 2.6% for any depressive disorder, 3.4% for attention-deficit hyperactivity disorder, and 5.7% for any disruptive disorder (Polanczyk *et al.*, 2015).

Recent analysis by *Bie et al. (2024)* examining global trends in anxiety disorders among adolescents and young adults from 1990-2021 revealed a 52% increase in incident cases over this period, with females showing higher prevalence rates than males. The study documented that global anxiety disorder incidence rose from 708.02 per 100,000 in 1990 to 883.10 per 100,000 in 2021, with particularly sharp increases observed after 2019 (Bie *et al.*, 2024). The research identified significant regional variations, with middle-SDI (Socio-Demographic Index) regions reporting the highest incidence and prevalence rates, while high-SDI regions experienced the largest percentage increases (Bie *et al.*, 2024).

In the United States, adolescent mental health trends have been particularly concerning. It is estimated that in 2018-2019, approximately 15% of adolescents aged 12-17 years experienced at least one major depressive episode, representing nearly 3.7 million adolescents (Mental Health America, 2025). The *National Institute of Mental Health (2025)* reports that 31.9% of adolescents aged 13-18 have experienced any anxiety disorder in their lifetime. The prevalence of any anxiety disorder among adolescents was higher for females (38.0%) than for males (26.1%) (National Institute of Mental Health, 2025).

Canadian data reveals similar patterns of mental health deterioration among adolescents. National health surveys indicate that the prevalence of selected mood and anxiety disorders was found to have increased substantially over the past 10 years, the percentage of Canadians aged 15 years and older who met diagnostic criteria for generalized anxiety disorder in the 12 months before the survey doubled from 2.6% to 5.2% between 2012 and 2022 (Statistics Canada, 2023). Similar increases were observed for the 12-month prevalence of major depressive episodes, from 4.7% in 2012 to 7.6% in 2022 and bipolar disorders, from 1.5% in 2012 to 2.1% in 2022 (Statistics Canada, 2023).

In Australian, a meta-analysis by *Kasturi et al. (2023)* among young Australians aged 10-24 years revealed an overall pooled prevalence of depression and anxiety of 25.3% (95% CI: 19.9-31.0%), with anxiety disorders showing higher prevalence (29.9%; 95% CI: 21.6-39.0%) compared to depression (21.3%; 95% CI: 14.9-28.5%) (Kasturi *et al.*, 2023).

An Indian longitudinal cohort study by *Maurya et al. (2024)* examining adolescents found that moderate depressive symptoms increased from 1.7% in 2015-16 to 3.0% in 2018-19. Among female adolescents specifically, the study documented increases in mild depressive symptoms from 12.6% to 18.4%, moderate symptoms from 2.23% to 3.92%, and severe symptoms from 0.68% to 1.99% over the same period (Maurya *et al.*, 2024).

Recent reviews in sub-Saharan Africa revealed a 27% prevalence of depression, 30% prevalence of anxiety disorders, 21% prevalence of post-traumatic stress disorder (PTSD), and 12% prevalence of suicidal ideation for adolescents in the region (Jorns-Presentati *et al.*, 2021; Sequeira *et al.*, 2022). These figures are notably higher than global prevalence estimates for these conditions (Hart and Norris, 2024).

In an analysis focusing on Ghana and Nigeria, the prevalence of mental health disorders among adolescents was found to be 16%, with frequently observed conditions including depression, bipolar affective disorder, epilepsy, and substance abuse disorder (Kumbet *et al.*, 2023).

2.4 The Impact of Social Media on Adolescent Mental Health

The relationship between social media usage and adolescent mental health has emerged as one of the most scrutinized areas of contemporary public health research, with evidence suggesting complex associations that vary considerably across populations, platforms, and usage patterns

(Khalaf *et al.*, 2023; Fumagalli, Shrum and Lowrey, 2024; Sala, Porcaro and Gómez, 2024; Agyapong-Opoku, Agyapong-Opoku and Greenshaw, 2025).

A meta-analysis by *Gabrielle, Sonne and Indolo (2024)* examining 45 studies comprising 153,285 adolescents worldwide, revealed statistically significant associations between increased social media use and negative mental health outcomes. The analysis found that higher social media use was associated with increased depressive symptoms ($r = 0.12$), anxiety symptoms ($r = 0.10$), and loneliness ($r = 0.15$), while showing negative associations with self-esteem ($r = -0.08$) (Gabrielle, Sonne and Indolo, 2024).

Nagata et al. (2025) highlighted that when a person's social media use increases above their own average, their depressive symptoms are more likely to increase in the following year. This was true from year 1 to year 2 ($\beta = 0.07$; $p = 0.01$) and year 2 to year 3 ($\beta = 0.09$; $p < 0.001$) *(Nagata et al., 2025).*

In Australia, *Li et al. (2025)* conducted a 5-year prospective cohort study examining cross-sectional and longitudinal associations between screen time and adolescent depression and anxiety. The study found that screen time was associated with mental health symptoms cross-sectionally, with each additional hour of screen time corresponding with a 1.25 and .79 increase in measures of depression and anxiety, respectively (Li *et al.*, 2025).

Similarly, A large-scale longitudinal study by *Viner et al. (2019)* among English adolescents found that social media use was associated with poorer sleep quality, reduced physical activity, and increased exposure to cyberbullying, which collectively mediated much of the association between social media use and poorer mental health outcomes (Viner *et al.*, 2019).

A longitudinal study by *Maurya et al. (2024)* examining Indian adolescents emphasized that while cross-sectional associations between social media use and depressive symptoms were observed, the study found no significant cross-lagged effects over time. This suggests that relationships may be more complex in non-Western contexts (Maurya *et al.*, 2024).

The study by *Kyei-Gyamfi (2024)* examining benefits of social media among children aged 8-17 in Tema metropolitan area revealed the complex nature of social media's impacts in Ghanaian contexts. While the research documented substantial benefits, including enhanced communication opportunities, access to educational resources, and social support networks, it also identified concerning patterns that may negatively impact mental health like exposure to sexually explicit material, addiction in children, and diminished academic achievement in children who become too engrossed in its usage *(Kyei-Gyamfi, 2024).*

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter outlines the methodological approach employed in this study. It details the study design, study site, population, sampling techniques, data collection methods, data handling procedures, statistical analysis, ethical considerations, and expected outcomes. The methodology is carefully structured to ensure the reliability, validity, and reproducibility of the findings, while adhering to ethical research principles and addressing the study's objectives effectively.

3.2 Research Methods and Design

This research employed a cross-sectional survey, study design to examine the relationship between social media usage patterns and mental health outcomes among adolescents. The cross-sectional approach was particularly suitable as it allowed for data collection at a single point in time, providing a snapshot of the current situation regarding social media use and mental health status among adolescents in the Adenta Municipality (Wang and Cheng, 2020). This design enabled the examination of multiple variables simultaneously while maintaining cost-effectiveness and time efficiency (Setia, 2016).

3.3 Data Collection Techniques and Tools

Data was collected using a validated structured questionnaire developed based on the study objectives and existing literature and administered via KoboCollect, a reliable mobile tool for real-time data collection in field settings (UN-OCHA, 2024). The questionnaire included 4 sections: Demographic information, social media usage patterns, Depression Anxiety Stress Scale-21 (DASS-21), and the Rosenberg Self-Esteem Scale (RSES). Below is a brief summary of each section of the questionnaire.

Section A Sociodemographic Information: This section obtained background information about the respondents, including age, gender, academic level, course of study, religion, and ethnic background. The responses were categorical in nature and provided essential contextual data for subsequent statistical analyses.

Section B Social Media Usage Patterns: This section assessed the prevalence and patterns of social media use among participants. It covered items such as whether respondents used social media, number of platforms used, specific platforms accessed, average daily duration of use, time of day most frequently used, and primary reasons for use. The items were adapted from instruments used in prior studies by Kyei-Gyamfi (2024) and Nagata et al. (2025) on adolescent social media behavior.

Section C Depression Anxiety Stress Scale – 21 Items (DASS-21)

The Depression Anxiety Stress Scale–21 Items (DASS-21), developed by Lovibond and Lovibond (1995), was utilized to measure the emotional states of depression, anxiety, and stress among adolescents. This instrument is composed of 21 items, systematically divided into three subscales, each comprising seven items. Participants' responses were captured on a 4-point Likert scale, ranging from 0 to 3. To derive a final score, the scores for each subscale were summed and subsequently multiplied by two, with the resultant score then classified into severity levels according to the DASS-21 manual. The DASS-21 has demonstrated extensive validation within adolescent populations, exhibiting robust internal consistency. For this study, the Cronbach's alpha coefficients were 0.88 for Depression, 0.82 for Anxiety, and 0.90 for Stress, thereby indicating excellent reliability.

Section D Rosenberg Self-Esteem Scale (RSES): The Rosenberg Self-Esteem Scale (RSES), developed by Morris Rosenberg (1965), was used to assess participants' global self-worth and

perception of personal value. The scale contains 10 items; each rated on a 4-point Likert scale ranging from 1 ("Strongly Disagree") to 4 ("Strongly Agree"). Five items were positively worded and scored directly, while five were negatively worded and therefore reverse-coded. Total scores ranged from 10 to 40, with higher scores reflecting higher self-esteem. Scores were categorized as Low (≤25), Normal (26–34), and High (≥35) self-esteem. The RSES has demonstrated high reliability, with a Cronbach's alpha of 0.86 obtained in this study, indicating strong internal consistency.

3.4 Study Setting

The study was conducted in two selected Senior High Schools located within the Adentan Municipality of the Greater Accra Region, Ghana, specifically Frafraha SHS, and West Africa SHS. The municipality, characterized by its urban setting, diverse socioeconomic population and access to technological infrastructure, is home to 10 senior high schools including 2 Public SHS, and 8 Private SHS. The selected schools were a representative sample of the adolescent population in the municipality.

3.5 Study Population

The study population consisted of adolescents aged 13-19 years attending selected secondary schools in the Adenta Municipality. This age range represents the typical secondary school age group and the period during which mental health issues and social media usage patterns are particularly pronounced. The population included both male and female students from different socioeconomic backgrounds, reflecting the demographic diversity of the municipality.

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion Criteria:

- Adolescent students aged 13-19 years

- Currently enrolled in selected secondary schools in the Adenta Municipality
- Willing to participate and provide informed consent/assent
- Have access to at least one social media platform
- Able to read and understand English
- Available during the study period

3.6.2 Exclusion Criteria:

Students were excluded from the study if they are outside the age range of 13–19 years, have been diagnosed with chronic or severe mental health conditions that could confound the findings, do not use any social media platforms, are unable to comprehend the questionnaire, are absent during the data collection period, or are unwilling or unable to provide informed consent (or assent, where applicable).

3.7 Study Variables

3.7.1 Dependent Variables

A dependent variable is the outcome of interest for any given study (National Library of Medicine, 2025). The dependent variables in this study are the mental health outcomes of adolescents, specifically depression, anxiety, stress, and self-esteem.

3.7.2 Independent Variables

Independent variables are the factors or conditions that a researcher manipulates or observes to see how they affect other variables specifically, the dependent variables (National Library of Medicine, 2025). The independent variables for this study include various aspects of social media usage, such as: whether the adolescent uses social media or not, type of platforms used (e.g.,

WhatsApp, Facebook, TikTok), frequency and duration of daily social media use, time of day social media is accessed, as well as, purpose of use.

3.8 Sampling

A multi-stage sampling technique was used in this study. First, mixed (co-educational) senior high schools within the Adenta Municipality were randomly selected using the lottery method. Within each selected school, a stratified sampling technique was be applied based on academic levels (SHS 1, 2, and 3) to ensure adequate representation across grade levels. From each stratum, participants were then selected using systematic random sampling. Additionally, proportional allocation was used to ensure that students from the various academic programmes (General Science, General Arts, Business, Home Economics, Visual Arts, and Agriculture) are represented according to their actual distribution within the school population. The sample size was calculated using the Cochran formula (Snedecor and Cochran, 1989) with a 95% confidence interval and 5% margin of error:

$$n = \frac{Z^2 \times p \times (1-p)}{(e)^2}$$

where:

n = required sample size

z = reliability co-efficient (1.96 for 95% confidence interval)

p = estimated prevalence of social media usage

e = margin of error (5% or 0.05)

Based on a study by Kyei-Gyamfi in the Tema Metropolitan Area (Kyei-Gyamfi, 2024a), the prevalence of social media use among adolescents (p) is approximately 88% (0.88). Using a 95%

confidence level (Z = 1.96) and a margin of error of 5% (0.05), the sample size was calculated as follows:

$$n = \frac{(1.96)^2 \times (0.88) \times (1 - 0.88)}{(0.05)^2}$$

$$n = \frac{3.8416 \times (0.63) \times (0.22)}{0.0025} = 162$$

Adjusting for a 10% non-response rate (16), the final sample size

= 162 + 16 = 178 participants

The total number of students at the two selected schools is 5100. The proportional allocation of the sample size was calculated using:

$$n = \frac{\text{Number Of Students Per Unit}}{\text{Total Number Of Students In The School}} \; x \; \text{Population Sample Size}$$

1. Sample Allocation by School

School	Population	Proportion of Total	Sample Allocation	Rounded
Frafraha SHS	2000	0.392	69.8	70
West Africa SHS	3100	0.608	108.2	108
Total	5100			178

2. Sample Allocation by Academic Level

Frafraha SHS

Level	%	Students	Rounded
SHS 1	30%	21.0	21
SHS 2	35%	24.5	25
SHS 3	35%	24.5	24
Total			70

West Africa SHS

Level	%	Students	Rounded
SHS 1	30%	32.4	32
SHS 2	35%	37.8	38

SHS 3	35%	37.8	38
Total			108

3. Sample Allocation by Academic Programme

Frafraha SHS

Programme	%	Students	Rounded
General Arts	30%	21.0	21
Business	20%	14.0	14
General Science	15%	10.5	11
Home Economics	15%	10.5	10
Visual Arts	10%	7.0	7
Agriculture	10%	7.0	7
Total			70

West Africa SHS

Programme	%	Students	Rounded
General Arts	30%	32.4	32
Business	20%	21.6	22
General Science	15%	16.2	16
Home Economics	15%	16.2	16
Visual Arts	10%	10.8	11
Agriculture	10%	10.8	11
Total			108

3.9 Pretesting

A pretest was conducted with 10% of the calculated sample size in a secondary school within the municipality that was not included in the main study. This helped assess the clarity of questions, relevance, time required for completion, and functionality of the digital data collection system. Feedback from the pretest was used to refine the questionnaire and data collection procedures.

3.10 Data Handling

To ensure the confidentiality and security of participant data, all responses were anonymized, and no personally identifiable information was collected. Data collected through the KoboCollect

application was encrypted and stored on password-protected devices. Once uploaded to a secure server, the data was accessible only to authorized members of the research team. Backups of the data will be stored to prevent data loss. Data will be stored for a duration of ten (10) years for future reference checks. Data cleaning was performed to identify and correct any inconsistencies or missing values.

3.11 Data Analysis

Data analysis was conducted using STATA version 18. Descriptive statistics was used to summarize participants' demographics and patterns of social media use, calculating frequencies and percentages for categorical variables and means, medians, and standard deviations for continuous variables. The prevalence of mental health outcomes was calculated with 95% confidence intervals. The next analyses involved the derivation of composite scores for the mental health outcomes. These included depression, anxiety, stress, and self-esteem. Each outcome was measured using standardized instruments whose responses were scored, summed, and subsequently categorized according to established cut-off points. Depression, anxiety, and stress were measured using the Depression, Anxiety and Stress Scale – 21 items (DASS-21). This instrument contains twenty-one (21) items, with seven (7) items each assessing symptoms of depression, anxiety, and stress. Each item was rated on a four-point Likert-type scale: “Did not apply to me at all” (0), “Applied to me to some degree or some of the time” (1), “Applied to me to a considerable degree or a good part of the time” (2), and “Applied to me very much or most of the time” (3). Scores for each subscale were obtained by summing the responses to the corresponding seven items and multiplying the total by two, as recommended in the DASS-21 scoring manual. Composite scores were then categorized into severity levels: Normal, Mild, Moderate, Severe, and Extremely Severe. For regression analyses, binary outcome variables were

created, with Moderate to Extremely Severe classified as cases (coded "1") and Normal to Mild as non-cases (coded "0"). Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES). This scale comprises ten (10) items rated on a four-point Likert-type scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). Five of the items were positively worded and scored directly, while five were negatively worded and therefore reverse-coded prior to analysis. The individual item scores were summed to generate a total score ranging from 10 to 40. Higher scores indicated higher self-esteem. The total scores were further categorized into Low, Normal, and High self-esteem. For logistic regression analyses, a binary variable was created, with Low self-esteem coded as "1" and Normal/High self-esteem coded as "0". Inferential statistics was applied to assess associations between variables. These covered: bivariate analysis using chi-square tests to assess associations between categorical variables including social media use and mental health outcomes. A p-value of <0.05 was considered statistically significant. Results were presented in tables and charts for clarity and ease of interpretation.

3.12 Dissemination of Results

The findings of this study will be disseminated through submission of the thesis to the graduate school at Ensign Global University, presentation at academic conferences and seminars, publication in peer-reviewed journals, sharing with stakeholders, including school administrators and local health authorities, to inform interventions targeting adolescent mental health.

3.13 Ethical Consideration

Ethical approval was obtained from the Ethical Review Committee of Ensign Global University. Before recruitment, informed consent was obtained from all participants and their guardians where applicable. Permission was obtained from GES of Adentan Municipality as well as the secondary schools involved. Participation was voluntary, and confidentiality was maintained throughout the

study. Data was used solely for research purposes, and participants' right to withdraw at any time without consequences was respected.

3.14 Limitations of Study

This study was subject to a number of limitations. Firstly, the use of a cross-sectional design limited the ability to establish causal relationships between social media usage and mental health outcomes. Secondly, data was collected through self-reported questionnaires, which may be affected by social desirability bias or inaccurate recall. Thirdly, the study was geographically limited to selected schools in the Adenta Municipality, which affected the generalizability of the findings to adolescents in other regions or settings. Lastly, other factors such as internet access, parental influence, and school policies on device usage were not accounted for, though they may influence social media behavior and mental health.

3.15 Assumptions

The study was based on several key assumptions. Firstly, the study presumed that respondents provided honest and accurate answers to the questionnaire items. The DASS-21 and Rosenberg Self-Esteem Scale are valid and reliable tools for assessing adolescent mental health in the Ghanaian context. The study also presumed that participants understand the questions and respond based on their genuine experiences over the specified time period. Furthermore, social media usage patterns reported by participants reflect their typical daily habits. These assumptions were necessary to support the validity and interpretation of the data collected.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter presents the findings of the study on the relationship between social media usage and mental health outcomes among adolescents in selected schools within the Adenta Municipality, Greater Accra Region, Ghana. The analysis is organized in line with the study objectives. The results are presented using descriptive statistics, frequency distributions, and inferential analyses, supported by tables and figures where necessary. A total of 178 questionnaires were administered to the respondents, and all were retrieved as cleaned data and used for the final analysis, thereby yielding a 100% response rate.

4.2 Sociodemographic Characteristics of Respondents

This study comprised of 178 respondents. The sociodemographic profile of these study participants is presented in Table 4.1. The cohort was composed of adolescent students with a mean age of 16.52 years (±1.46), ranging from 13 to 19 years. The sample was nearly evenly divided between younger adolescents aged 13-16 years (44.4%) and older adolescents aged 17-19 years (55.6%).

Regarding gender distribution, the sample was balanced, with a near-equal representation of males (51.1%) and females (48.9%). Academically, the respondents were spread across the three levels of Senior High School (SHS), with SHS 3 students being the most represented (36.0%), followed by SHS 2 (34.3%) and SHS 1 (29.8%) students.

The diversity of the student body was further illustrated by the courses of study pursued by the participants. General Arts was the most prevalent course (24.7), followed by Visual Arts (21.3%)

and General Science (19.7%). The remaining students were enrolled in Business (13.5%), Home Economics (10.7%), and Agriculture (10.1%).

In terms of religious affiliation, the vast majority of respondents identified as Christian (82.0%), followed by Islam (16.3%). A small minority (1.7%) practice African Traditional Religion. Ethnically, the Akan group constituted the largest proportion of the sample (35.4%), followed by the Ewe (24.7%), Ga-Dangme (16.9%), Mole-Dagbon (4%), and Guan (1%).

A significant proportion of participants (18.0%) identified with other ethnic groups, including Fulani, Hausa, Igbo, Kotokoli, Sundama and Tchamba highlighting the ethnic heterogeneity of the study population.

Table 4.1: Sociodemographic Characteristics of Respondents

Variables	**Frequency (N=178)**	**Percentages (%)**
Mean age of respondents	16.52±1.46	
Age categories		
Younger adolescents (13-16)	79	44.4
Older adolescents (17-19)	99	55.6
Gender		
Female	87	48.9
Male	91	51.1
Academic Level		
SHS 1	53	29.8

SHS 2	61	34.3
SHS 3	64	36.0
Course of Study		
Agriculture	18	10.1
Business	24	13.5
General Arts	44	24.7
General Science	35	19.7
Home Economics	19	10.7
Visual Arts	38	21.3
Religion		
African Traditional Religion	3	1.7
Christianity	146	82.0
Islam	29	16.3
Ethnic Group		
Akan	63	35.4
Ewe	44	24.7
Ga-Dangme	30	16.9
Guan	2	1.1
Mole-Dagbon	7	3.9

Other	32	18.0

Source: Field Survey, 2025

4.3 Social Media Usage Prevalence and Patterns

The findings presented in Tables 4.2 and 4.3 demonstrate an exceptionally high prevalence of social media engagement among the study participants. The vast majority (93.8%) of the sample, reported using social media.

Analysis of usage patterns reveals different engagement behaviours. Participants reported using a mean of 2 (±1.6) platforms regularly, with a near-even split between those using 1-2 platforms (53.3%) and those using three or more (46.7%).

In terms of temporal investment, the most common daily usage was 1-2 hours (38.9%,), though a significant proportion (39.5%) reported spending 3 or more hours per day on these platforms. Furthermore, the timing of social media use was notably concentrated during the latter parts of the day. Combined, the evening (47.9%, n=80) and late night (35.3%, n=59) were the predominant periods of use, accounting for over 83% of all activity. While nearly all respondents (93.8%) reporting regular use of at least one platform, the prevalence varies significantly across different platforms.

WhatsApp emerged as the dominant platform, with 70.8% of all respondents using it regularly. This was followed by TikTok (47.8%) and Snapchat (36.0%). In contrast, more established platforms like Facebook (30.3%) and Instagram (29.2%) showed moderate penetration, while Twitter/X (8.4%) and other niche platforms (6.7) like YouTube and Telegram were used by a small minority.

Regarding the reasons for use, the data indicate that social media serves a dual purpose for respondents, fulfilling both practical task and entertainment needs. The primary motivation was for educational purposes (65.7%), closely followed by Entertainment (62.9%). Communication with friends and family (48.9%) and using social media to relieve stress or boredom (46.6%) were also significant drivers.

A smaller, though substantial, proportion of users (37.1%) cited news/information as a key reason, positioning social media as an important, though not primary, information channel for this group. The others (1.7%) stated that they use it to pursue their dreams of gaining online popularity and inventing.

Table 4.2: Social Media Usage Prevalence and Patterns

Questions	**Frequency (N)**	**Percentages (%)**
Do you use social media?		
Yes	167	93.8
No	11	6.2
Number of platforms used		
1-2 platforms	89	53.3
3 or more platforms	78	46.7
Mean number of platforms (Std. Dev.)	2.4 (1.6)	
Daily hours spent on social media		
Less than 1 hour	36	21.6
1-2 hours	65	38.9

3-4 hours	38	22.8
5 or more hours	28	16.8
Time of day mostly used		
Morning	1	0.6
Afternoon	27	16.2
Evening	80	47.9
Late Night	59	35.3

Source: Field Survey, 2025

Table 4.3: Social Media Usage Prevalence and Patterns (Multiple Response)

Variable	**Yes**	**No**	**Total**
	N (%)	**N (%)**	**N (%)**
Platforms used regularly			
WhatsApp	126 (70.8)	41 (23.0)	167 (93.8)
TikTok	85 (47.8)	82 (46.1)	167 (93.8)
Snapchat	64 (36.0)	103 (57.9)	167 (93.8)
Facebook	54 (30.3)	113 (63.5)	167 (93.8)
Instagram	52 (29.2)	115 (64.6)	167 (93.8)
Twitter/X	15 (8.4)	152 (85.4)	167 (93.8)
Other	12 (6.7)	155 (87.1)	167 (93.8)

Reasons for use			
Entertainment	112 (62.9)	55 (30.9)	167 (93.8)
Educational purposes	117 (65.7)	50 (28.1)	167 (93.8)
Communication with friends/family	87 (48.9)	80 (44.9)	167 (93.8)
To relieve stress or boredom	83 (46.6)	84 (47.2)	167 (93.8)
News/Information	66 (37.1)	101 (56.7)	167 (93.8)
Other	3 (1.7)	164 (92.1)	167 (93.8)

Source: Field Survey, 2025

4.4 Mental Health Outcomes of Respondents

Table 4.4 presents the findings from the assessment of key mental health variables among the study respondents, including depression, anxiety, stress, and self-esteem. The results reveal a significant prevalence of psychological distress within the sample.

4.4.1 Anxiety

The Depression, Anxiety, and Stress Scales (DASS-21) outcomes indicate a population experiencing considerable mental health challenges. Notably, anxiety levels were particularly severe, with over half of the respondents (66.3%) reporting severe to extremely severe symptoms. This is a critical finding, as an extremely severe anxiety level was the most common single category (33.71%).

4.4.2 Depression

The depression scale also revealed substantial morbidity, with over half of the participants (68%) exhibiting symptoms ranging from mild to extremely severe depression. While a third of the

sample (32.02%) fell within the normal range, the presence of 17.42% in the extremely severe category points to a cohort within the population that is at high risk.

4.4.3 Stress

In contrast, the respondents reported comparatively lower levels of stress. A majority (51.12%) were categorized within the normal range for stress. However, a combined 49% still experienced mild to extremely severe stress.

4.4.4 Self-Esteem

Complementing the DASS-21 results, the Rosenberg Self-Esteem Scale (RSES) findings provide further insight into the psychological well-being of the group. Nearly half (44.94%) of the respondents were classified as having low self-esteem.

Table 4.4: Mental Health Outcomes of Respondents

Variable	Category	Frequency (N)	Percentage (%)
DASS-21 Depression			
	Extremely Severe	31	17.42
	Severe	22	12.36
	Moderate	33	18.54
	Mild	35	19.66
	Normal	57	32.02
DASS-21 Anxiety			
	Extremely Severe	60	33.71
	Severe	33	18.54

	Moderate	41	23.03
	Mild	11	6.18
	Normal	33	18.54
DASS-21 Stress			
	Extremely Severe	19	10.67
	Severe	21	11.80
	Moderate	30	16.85
	Mild	17	9.55
	Normal	91	51.12
Rosenberg Self-Esteem			
	Low Self-Esteem	80	44.94
	Normal Range	98	55.06

Source: Field Survey, 2025

4.5 Bivariate Analysis of Social Media Usage and Mental Health Outcomes (Depression)

A series of bivariate analyses using chi-square tests of independence were conducted to assess the associations between various social media usage variables and the likelihood of clinically significant depression (coded as moderate, severe, or extremely severe). The results, summarized in Table 4.5, reveal a complex and distinct relationship.

The analysis identified one variable with a statistically significant association with depression: overall social media use. The chi-square test was highly significant ($\chi^2 = 12.54$, $p < 0.001$).

Notably, all participants without depression (100%) reported using social media, whereas a small but distinct subset of those with depression (12.8%) were non-users.

However, the specific characteristics of social media engagement among users showed no significant statistical associations with depression status. The amount of time spent on social media per day ($\chi^2 = 4.29$, $p = 0.231$), the primary time of day of use ($\chi^2 = 2.14$, $p = 0.544$), and the total number of platforms used ($\chi^2 = 2.46$, $p = 0.117$) were not significantly different between the two groups.

Furthermore, the use of individual social media platforms including WhatsApp, Facebook, Instagram, Snapchat, Twitter/X, and others was not significantly associated with depression. A marginally significant trend was observed for TikTok use ($\chi^2 = 3.69$, $p = 0.055$), with a lower prevalence of use among the depression group (42.7%) compared to the non-depression group (57.6%), warranting cautious interpretation and further investigation.

Table 4.5: Bivariate Analysis of Social media usage and Mental Health outcomes (Depression)

Variables	**Depression Case (N=178)**		**χ^2 (p-Value)**
	No (N=92) N (%)	**Yes (N=86) N (%)**	
Do you use social media?			12.54 (<0.001)*
No	0 (0.0)	11 (12.8)	
Yes	92 (100.0)	75 (87.2)	

On average, how many hours do you spend on social media per day? (Among users) (N=167)			4.29 (0.231)
1-2 hours	41 (44.6)	24 (32.0)	
3-4 hours	16 (17.4)	22 (29.3)	
5 or more hours	15 (16.3)	13 (17.3)	
Less than 1 hour	20 (21.7)	16 (21.3)	
What time of day do you mostly use social media? (Among users)			2.14 (0.544)
Afternoon	17 (18.5)	10 (13.3)	
Evening	42 (45.7)	38 (50.7)	
Late Night	33 (35.9)	26 (34.7)	
Morning	0 (0.0)	1 (1.3)	
Social Media Platforms Used Regularly (Among users)			
WhatsApp	69 (75.0)	57 (76.0)	0.02 (0.881)
Facebook	34 (37.0)	20 (26.7)	2.00 (0.157)
Instagram	31 (33.7)	21 (28.0)	0.63 (0.429)
TikTok	53 (57.6)	32 (42.7)	3.69 (0.055)
Snapchat	39 (42.4)	25 (33.3)	1.43 (0.231)
Twitter/X	10 (10.9)	5 (6.7)	0.89 (0.345)

Other	5 (5.4)	7 (9.3)	0.94 (0.332)
Number of platforms (categories) (Among users)			2.46 (0.117)
1-2	44 (47.8)	45 (60.0)	
3+	48 (52.2)	30 (40.0)	

Note: ** for statistically significant associations*

4.6 Bivariate Analysis of Social Media Usage and Anxiety

A bivariate analysis was conducted to assess the associations between various social media usage variables and the likelihood of experiencing clinically significant anxiety symptoms (classified as moderate, severe, or extremely severe). The results, presented in Table 4.6, indicate that the majority of the sample (93.8%) reported using social media.

Among these users, a significant association was found between the use of a specific platform and anxiety case status ($\chi^2 = 5.39$, $p = 0.020$). A lower proportion of anxious students (45.5%) reported using TikTok regularly compared to their non-anxious peers (65.9%), suggesting that TikTok use may be associated with a lower likelihood of high anxiety in this sample, or alternatively, that students with anxiety may avoid this platform.

Other aspects of social media engagement, including the mere use of social media (versus non-use) ($\chi^2 = 3.85$, $p = 0.050$), the number of hours spent daily ($\chi^2 = 5.97$, $p = 0.113$), the time of day of most frequent use ($\chi^2 = 3.88$, $p = 0.275$), and the total number of platforms used ($\chi^2 = 0.74$, $p = 0.389$) were not significantly associated with anxiety at the bivariate level.

Table 4.6: Bivariate Analysis of Social media usage and mental health outcomes (Anxiety)

Variables	**Anxiety Case (N=178)**		**χ^2 (p-Value)**
	No	Yes	
	N (%)	N (%)	
Do you use social media?			3.85 (0.050)
No	0 (0.0)	11 (8.2)	
Yes	44 (100.0)	123 (91.8)	
On average, how many hours do you spend on social media per day? (Among users, N=167)			5.97 (0.113)
1-2 hours	15 (34.1)	50 (40.7)	
3-4 hours	7 (15.9)	31 (25.2)	
5 or more hours	7 (15.9)	21 (17.1)	
Less than 1 hour	15 (34.1)	21 (17.1)	
What time of day do you mostly use social media? (Among users)			3.88 (0.275)
Afternoon	11 (25.0)	16 (13.0)	
Evening	20 (45.5)	60 (48.8)	
Late Night	13 (29.5)	46 (37.4)	
Morning	0 (0.0)	1 (0.8)	

Which social media platforms do you use regularly? (Among users, N=167)			
WhatsApp			0.01 (0.936)
No	11 (25.0)	30 (24.4)	
Yes	33 (75.0)	93 (75.6)	
Facebook			0.44 (0.506)
No	28 (63.6)	85 (69.1)	
Yes	16 (36.4)	38 (30.9)	
Instagram			0.24 (0.622)
No	29 (65.9)	86 (69.9)	
Yes	15 (34.1)	37 (30.1)	
TikTok			5.39 (0.020)*
No	15 (34.1)	67 (54.5)	
Yes	29 (65.9)	56 (45.5)	
Snapchat			1.29 (0.257)
No	24 (54.5)	79 (64.2)	
Yes	20 (45.5)	44 (35.8)	
Twitter/X			0.00 (0.977)
No	40 (90.9)	112 (91.1)	
Yes	4 (9.1)	11 (8.9)	

Other			0.01 (0.912)
No	41 (93.2)	114 (92.7)	
Yes	3 (6.8)	9 (7.3)	
Number of platforms (categories) (Among users)			0.74 (0.389)
1-2	21 (47.7)	68 (55.3)	
3+	23 (52.3)	55 (44.7)	

Note: ** for statistically significant associations*

4.7 Bivariate Analysis of Social Media Usage and Mental Health Outcomes (Stress)

This section presents the findings of the bivariate analysis conducted to assess the association between various social media usage variables and the likelihood of experiencing moderate to extremely severe stress. The results, detailed in Table 4.7, indicate a statistically significant relationship between the fundamental use of social media and stress levels.

Notably, all participants who reported not using social media (n=11) were classified in the stress case group (100%), whereas the majority of social media users (108 out of 167, or 64.67%) fell into the non-case (normal/mild stress) category. This association was highly significant ($\chi^2 = 18.09$, $p < 0.001$), suggesting that non-use of social media is a strong correlate of higher stress in this sample.

However, upon further examination of specific usage patterns among social media users, no other variables demonstrated a statistically significant association with stress. The number of hours spent on social media per day ($\chi^2 = 3.50$, $p = 0.321$), the time of day of most frequent use ($\chi^2 = 3.58$, $p =$

0.311), and the total number of platforms used (χ^2 = 0.26, p = 0.613) were not significantly associated with stress case status.

Furthermore, the use of any specific social media platform including WhatsApp, Facebook, Instagram, TikTok, Snapchat, and Twitter/X was not found to be a significant correlate of stress, with all p-values well above the 0.05 threshold.

Table 4.7: Bivariate analysis of social media usage and mental health outcomes (Stress)

Variables	**Stress Case (N=178)**		**χ^2 (p-Value)**
	No N (%)	**Yes** N (%)	
Do you use social media?			18.0893 (<0.001)*
No	0 (0.00)	11 (15.71)	
Yes	108 (100.00)	59 (84.29)	
On average, how many hours do you spend on social media per day? (Among users, N=167)			3.4962 (0.321)
1-2 hours	43 (39.81)	22 (37.29)	
3-4 hours	20 (18.52)	18 (30.51)	
5 or more hours	19 (17.59)	9 (15.25)	
Less than 1 hour	26 (24.07)	10 (16.95)	
What time of day do you mostly use social media? (Among users)			3.5784 (0.311)
Afternoon	19 (17.59)	8 (13.56)	

Evening	48 (44.44)	32 (54.24)	
Late Night	41 (37.96)	18 (30.51)	
Morning	0 (0.00)	1 (1.69)	
Which social media platforms do you use regularly? (Among users)			
WhatsApp			0.8949 (0.344)
No	24 (22.22)	17 (28.81)	
Yes	84 (77.78)	42 (71.19)	
Facebook			0.1019 (0.750)
No	74 (68.52)	39 (66.10)	
Yes	34 (31.48)	20 (33.90)	
Instagram			0.2298 (0.632)
No	73 (67.59)	42 (71.19)	
Yes	35 (32.41)	17 (28.81)	
TikTok			0.0987 (0.753)
No	54 (50.00)	28 (47.46)	
Yes	54 (50.00)	31 (52.54)	
Snapchat			1.2737 (0.259)
No	70 (64.81)	33 (55.93)	
Yes	38 (35.19)	26 (44.07)	

Twitter/X			0.0287 (0.865)
No	98 (90.74)	54 (91.53)	
Yes	10 (9.26)	5 (8.47)	
Other			0.2273 (0.634)
No	101 (93.52)	54 (91.53)	
Yes	7 (6.48)	5 (8.47)	
Number of platforms (categories) (Among users)			0.2552 (0.613)
1-2	56 (51.85)	33 (55.93)	
3+	52 (48.15)	26 (44.07)	

4.8 Bivariate Analysis of Social Media Usage and Mental Health Outcomes (Self-esteem)

A bivariate analysis was conducted to examine the associations between various social media usage patterns and levels of self-esteem among the study participants (refer to Table 4.8). Self-esteem was operationalized as a binary variable, where 1 indicated low self-esteem and 0 indicated normal or high self-esteem.

The analysis revealed a statistically significant association between the use of social media and low self-esteem ($\chi^2 = 9.57$, $p = 0.002$). All participants (100.0%) reporting low self-esteem were social media users, compared to 88.8% of those with normal/high self-esteem.

However, among social media users, the specific patterns of use showed no statistically significant relationships with self-esteem. The number of hours spent on social media per day, whether less than 1 hour or 5 or more, was not significantly associated with self-esteem levels ($\chi^2 = 4.70$, $p =$

0.195). Similarly, the time of day when social media was mostly used, be it morning, afternoon, evening, or late at night, did not demonstrate a significant relationship with self-esteem (χ^2 = 1.56, p = 0.668).

Furthermore, the analysis explored the relationship between self-esteem and the use of specific social media platforms. No individual platform including WhatsApp, Facebook, Instagram, TikTok, Snapchat, Twitter/X, or others showed a statistically significant association with low self-esteem. The number of platforms used regularly was also not significantly associated with self-esteem (χ^2 = 0.04, p = 0.844).

Table 4.8: Bivariate Analysis of Social media usage and mental health outcomes (Self-esteem)

Variables	**Low Self-Esteem (N=178)**		**χ^2 (p-Value)**
	Low N (%)	**Normal N (%)**	
Do you use social media?			9.57 (0.002)*
No	0 (0.0)	11 (11.2)	
Yes	80 (100.0)	87 (88.8)	
On average, how many hours do you spend on social media per day? (Among users)			4.70 (0.195)
Less than 1 hour	15 (18.8)	21 (24.1)	
1-2 hours	32 (40.0)	33 (37.9)	
3-4 hours	15 (18.8)	23 (26.4)	

5 or more hours	18 (22.5)	10 (11.5)	
What time of day do you mostly use social media? (Among users)			1.56 (0.668)
Morning	1 (1.3)	0 (0.0)	
Afternoon	13 (16.3)	14 (16.1)	
Evening	36 (45.0)	44 (50.6)	
Late Night	30 (37.5)	29 (33.3)	
Which social media platforms do you use regularly? (Among users)			
WhatsApp	63 (78.8)	63 (72.4)	0.90 (0.342)
Facebook	26 (32.5)	28 (32.2)	0.00 (0.965)
Instagram	28 (35.0)	24 (27.6)	1.07 (0.301)
TikTok	46 (57.5)	39 (44.8)	2.68 (0.102)
Snapchat	32 (40.0)	32 (36.8)	0.18 (0.669)
Twitter/X	9 (11.3)	6 (6.9)	0.97 (0.326)
Other	4 (5.0)	8 (9.2)	1.10 (0.294)
Number of platforms (categories) (Among users)			0.04 (0.844)
1-2	42 (52.5)	47 (54.0)	
3+	38 (47.5)	40 (46.0)	

4.9 Bivariate Analysis: Mental Health Outcome (Depression Status) by Sociodemographic Characteristics Among Social Media Users

A series of bivariate analyses using Pearson's chi-square test of independence were conducted to examine the association between various sociodemographic characteristics and depression status among social media users. The results, presented in Table 4.9, indicate that none of the examined demographic variables demonstrated a statistically significant association with depression at the conventional significance level of $p < 0.05$.

Table 4.9: Bivariate Analysis: Mental Health Outcome (Depression Status) by Sociodemographic Characteristics Among Social Media Users

Variables	**Depression Case (N=167)**		**χ^2 (p-Value)**
	Normal/Mild	**Elevated**	
	N (%)	**N (%)**	
Age Categories			0.0576 (0.810)
Younger adolescents	40 (54.05)	34 (45.95)	
Older adolescents	52 (55.91)	41 (44.09)	
Gender			0.6665 (0.414)
Female	42 (51.85)	39 (48.15)	
Male	50 (58.14)	36 (41.86)	
Academic Level			4.1446 (0.126)
SHS 1	27 (55.10)	22 (44.90)	
SHS 2	27 (45.76)	32 (54.24)	

SHS 3	38 (64.41)	21 (35.59)	
Course of Study			6.8057 (0.235)
Agriculture	13 (81.25)	3 (18.75)	
Business	14 (63.64)	8 (36.36)	
General Arts	21 (52.50)	19 (47.50)	
General Science	16 (45.71)	19 (54.29)	
Home Economics	10 (55.56)	8 (44.44)	
Visual Arts	18 (50.00)	18 (50.00)	
Religion			0.6181 (0.734)
African Traditional	1 (33.33)	2 (66.67)	
Christianity	77 (55.80)	61 (44.20)	
Islam	14 (53.85)	12 (46.15)	
Ethnic Group			2.0940 (0.836)
Akan	30 (50.85)	29 (49.15)	
Ewe	27 (61.36)	17 (38.64)	
Ga-Dangme	12 (48.00)	13 (52.00)	
Guan	1 (50.00)	1 (50.00)	
Mole-Dagbon	4 (66.67)	2 (33.33)	
Other	18 (58.06)	13 (41.94)	

*NB: * Elevated = (Moderate/Severe/Extremely Severe)*

4.10 Bivariate Analysis: Mental Health Outcome (Anxiety Status) by Sociodemographic Characteristics Among Social Media Users

A series of bivariate analyses using Pearson's chi-square test of independence were conducted to examine the association between sociodemographic characteristics and anxiety status among social media users. The results, presented in Table 4.10, indicate that none of the examined demographic variables demonstrated a statistically significant association with the likelihood of being an anxiety case (defined as having moderate, severe, or extremely severe anxiety) within this sample ($p > 0.05$ for all variables).

Table 4.10: Bivariate Analysis: Mental Health Outcome (Anxiety Status) by Sociodemographic Characteristics Among Social Media Users

Variables	Anxiety Status (N=167)		χ^2 (p-Value)
	Normal/Mild N (%)	Elevated N (%)	
Age Categories			0.78 (0.376)
Younger adolescents	22 (29.7)	52 (70.3)	
Older adolescents	22 (23.7)	71 (76.3)	
Gender			0.22 (0.637)
Female	20 (24.7)	61 (75.3)	
Male	24 (27.9)	62 (72.1)	
Academic Level			0.04 (0.978)
SHS 1	13 (26.5)	36 (73.5)	

SHS 2	16 (27.1)	43 (72.9)	
SHS 3	15 (25.4)	44 (74.6)	
Course of Study			4.77 (0.444)
Agriculture	5 (31.3)	11 (68.8)	
Business	4 (18.2)	18 (81.8)	
General Arts	14 (35.0)	26 (65.0)	
General Science	10 (28.6)	25 (71.4)	
Home Economics	2 (11.1)	16 (88.9)	
Visual Arts	9 (25.0)	27 (75.0)	
Religion			0.85 (0.652)
African Traditional	1 (33.3)	2 (66.7)	
Christianity	38 (27.5)	100 (72.5)	
Islam	5 (19.2)	21 (80.8)	
Ethnic Group			5.64 (0.343)
Akan	21 (35.6)	38 (64.4)	
Ewe	9 (20.5)	35 (79.5)	
Ga-Dangme	4 (16.0)	21 (84.0)	
Guan	0 (0.0)	2 (100.0)	
Mole-Dagbon	2 (33.3)	4 (66.7)	

Other	8 (25.8)	23 (74.2)

*NB: * Elevated = (Moderate/Severe/Extremely Severe)*

4.11 Bivariate Analysis: Mental Health Outcome (Stress Status) by Sociodemographic Characteristics Among Social Media Users

A bivariate analysis was conducted using Pearson's chi-square test of independence to examine the association between sociodemographic characteristics and stress status among social media users. The results, presented in Table 4.11, indicate that there were no statistically significant associations between any of the sociodemographic variables and the prevalence of moderate-to-extremely severe stress.

Table 4.11: Bivariate Analysis: Mental Health Outcome (Stress Status) by Sociodemographic Characteristics Among Social Media Users

Variables	**Stress Case (N=167)**		**χ^2 (p-Value)**
	Normal/Mild	**Elevated**	
	N (%)	**N (%)**	
Age Categories			1.05 (0.306)
Younger adolescents	51 (68.92)	23 (31.08)	
Older adolescents	57 (61.29)	36 (38.71)	
Gender			0.04 (0.842)
Female	53 (65.43)	28 (34.57)	
Male	55 (63.95)	31 (36.05)	

Academic Level			2.01 (0.366)
SHS 1	34 (69.39)	15 (30.61)	
SHS 2	34 (57.63)	25 (42.37)	
SHS 3	40 (67.80)	19 (32.20)	
Course of Study			3.45 (0.630)
Agriculture	13 (81.25)	3 (18.75)	
Business	14 (63.64)	8 (36.36)	
General Arts	26 (65.00)	14 (35.00)	
General Science	20 (57.14)	15 (42.86)	
Home Economics	13 (72.22)	5 (27.78)	
Visual Arts	22 (61.11)	14 (38.89)	
Religion			4.46 (0.108)
African Traditional	1 (33.33)	2 (66.67)	
Christianity	94 (68.12)	44 (31.88)	
Islam	13 (50.00)	13 (50.00)	
Ethnic Group			3.11 (0.682)
Akan	37 (62.71)	22 (37.29)	
Ewe	31 (70.45)	13 (29.55)	
Ga-Dangme	17 (68.00)	8 (32.00)	

Guan	2 (100.00)	0 (0.00)
Mole-Dagbon	3 (50.00)	3 (50.00)
Other	18 (58.06)	13 (41.94)

*NB: * Elevated = (Moderate/Severe/Extremely Severe)*

4.12 Bivariate Analysis: Mental Health Outcome (Self-Esteem Status) by Sociodemographic Characteristics Among Social Media Users

A series of bivariate analyses using Pearson's chi-square test of independence were conducted to examine the association between sociodemographic characteristics and self-esteem status among adolescent social media users. The results, presented in Table 4.12, indicate that none of the examined demographic variables demonstrated a statistically significant association with low self-esteem at the conventional significance level of $p < 0.05$.

Table 4.12: Bivariate Analysis: Mental Health Outcome (Self-Esteem Status) by Sociodemographic Characteristics Among Social Media Users

Variables	**Self-Esteem Status (N=167)**		**χ^2 (p-Value)**
	Normal/High N (%)	**Low N (%)**	
Age Categories			0.03 (0.864)
Younger adolescents	38 (51.4)	36 (48.6)	
Older adolescents	49 (52.7)	44 (47.3)	
Gender			2.22 (0.137)
Female	47 (58.0)	34 (42.0)	

Male	40 (46.5)	46 (53.5)	
Academic Level			1.96 (0.375)
SHS 1	23 (46.9)	26 (53.1)	
SHS 2	29 (49.2)	30 (50.8)	
SHS 3	35 (59.3)	24 (40.7)	
Course of Study			2.21 (0.819)
Agriculture	8 (50.0)	8 (50.0)	
Business	11 (50.0)	11 (50.0)	
General Arts	19 (47.5)	21 (52.5)	
General Science	21 (60.0)	14 (40.0)	
Home Economics	11 (61.1)	7 (38.9)	
Visual Arts	17 (47.2)	19 (52.8)	
Religion			0.92 (0.631)
African Traditional	1 (33.3)	2 (66.7)	
Christianity	74 (53.6)	64 (46.4)	
Islam	12 (46.2)	14 (53.8)	
Ethnic Group			4.84 (0.436)
Akan	32 (54.2)	27 (45.8)	
Ewe	23 (52.3)	21 (47.7)	

Ga-Dangme	11 (44.0)	14 (56.0)
Guan	1 (50.0)	1 (50.0)
Mole-Dagbon	1 (16.7)	5 (83.3)
Other	19 (61.3)	12 (38.7)

4.13 Multivariate Analysis of Factors Associated with Depression

A multivariate logistic regression analysis was conducted to identify factors independently associated with depression among social media users, after adjusting for all other variables in the model (refer to Table 4.13). The model included sociodemographic characteristics, social media usage patterns, and platform preferences. The findings reveal that specific academic and behavioral factors are significant predictors of depression risk in this population, while many traditional sociodemographic variables showed no independent association.

The course of study emerged as a significant predictor of depression status. Compared to students in General Arts, those enrolled in General Science had significantly higher odds of being in the depression case group (AOR = 6.17, 95% CI: 1.01 – 37.51, p = 0.048). This suggests that the academic pressure or the specific social environment associated with science-based programs may contribute to an increased risk of depressive symptoms, even after accounting for other factors.

The intensity of social media use was also a critical factor. Participants who reported spending 3–4 hours daily on social media had significantly greater odds of depression compared to those who spent 1–2 hours (AOR = 3.45, 95% CI: 1.20 – 9.92, p = 0.022).

Interestingly, the use of individual social media platforms such as WhatsApp, Facebook, Instagram, TikTok, Snapchat, and Twitter/X was not significantly associated with depression in

the adjusted model. This indicates that the choice of platform may be less important than the overall time spent and the context of use. Furthermore, sociodemographic characteristics including age, gender, academic level, religion, and ethnicity were not independently associated with depression after controlling for other variables.

Table 4.13: Multivariate Analysis of Factors Associated with Depression

Variables	**COR**	**(95% CI)**	**p-value**	**AOR**	**(95% CI)**	**p-value**
Age group (years)						
13 – 16 (Ref)	Ref	-	-	Ref	-	-
Older adolescent (17-19)	0.93	0.50 – 1.71	0.810	1.39	0.50 – 3.85	0.524
Gender						
Female (Ref)	Ref	-	-	Ref	-	-
Male	0.78	0.42 – 1.43	0.415	0.54	0.22 – 1.31	0.171
Academic Level						
SHS 1 (Ref)	Ref	-	-	Ref	-	-
SHS 2	1.45	0.68 – 3.11	0.335	1.66	0.55 – 5.01	0.367
SHS 3	0.68	0.31 – 1.47	0.326	0.54	0.15 – 1.92	0.340
Course of Study						
General Arts (Ref)	Ref	-	-	Ref	-	-
Business	2.48	0.54 – 11.40	0.244	2.46	0.39 – 15.65	0.341

General Science	5.15	1.24 – 21.30	**0.024***	6.17	1.01 – 37.51	**0.048***
Home Economics	3.47	0.73 – 16.53	0.119	2.90	0.42 – 20.01	0.280
Visual Arts	4.33	1.05 – 17.84	**0.042***	4.67	0.82 – 26.49	0.082
Religion						
Christianity (Ref)	Ref	-	-	Ref	-	-
Islam	0.43	0.03 – 5.33	0.510	0.49	0.02 – 15.75	0.688
African Traditional	(omitted)	-	-	omitted	-	-
Ethnic Group						
Akan (Ref)	Ref	-	-	Ref	-	-
Ewe	0.65	0.29 – 1.44	0.289	0.54	0.20 – 1.46	0.227
Ga-Dangme	1.12	0.44 – 2.86	0.811	1.44	0.45 – 4.66	0.542
Guan	1.03	0.06 – 17.33	0.981	1.95	0.07 – 51.74	0.691
Mole-Dagbon	0.52	0.09 – 3.04	0.466	0.26	0.01 – 4.99	0.371
Other	0.75	0.31 – 1.80	0.515	0.29	0.05 – 1.62	0.160
Social Media Platform Use						
Use WhatsApp						
No (Ref)	Ref	-	-	Ref	-	-
Yes	1.06	0.52 – 2.15	0.881	0.95	0.31 – 2.90	0.922
Use TikTok						

No (Ref)	Ref	-	-	Ref	-	-
Yes	0.55	0.30 – 1.01	0.056	1.05	0.33 – 3.38	0.934
Use Facebook						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.62	0.32 – 1.21	0.159	0.93	0.37 – 2.36	0.877
Use Instagram						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.77	0.39 – 1.49	0.430	1.07	0.36 – 3.20	0.901
Use Snapchat						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.68	0.36 – 1.28	0.230	0.95	0.33 – 2.71	0.923
Use Twitter/X						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.59	0.19 – 1.79	0.349	0.65	0.15 – 2.88	0.575
Daily Hours on Social Media						
1 – 2 hours (Ref)	Ref	-	-	Ref	-	-
Less than 1 hour	1.37	0.60 – 3.13	0.460	0.97	0.34 – 2.76	0.947
3 – 4 hours	2.35	1.04 – 5.32	**0.041***	3.45	1.20 – 9.92	**0.022***
5 or more hours	1.48	0.60 – 3.63	0.391	1.98	0.64 – 6.11	0.233

Time of Day (Most Use)						
Evening (Ref)	Ref	-	-	Ref	-	-
Late Night	1.34	0.53 – 3.41	0.540	1.22	0.37 – 4.04	0.740
Morning	-	-	-	-	-	-
Number of Platforms Used						
1 – 2 platforms (Ref)	Ref	-	-	Ref	-	-
3+ platforms	0.61	0.33 – 1.13	0.118	0.57	0.09 – 3.64	0.549

Note: COR: *Crude Odds Ratio;* ***AOR:*** *Adjusted Odds Ratio;* ***CI:*** *Confidence Interval*
**Statistically significant (p-value < 0.05). Certain categories were empty or omitted due to perfect prediction or collinearity.*

4.14 Multivariate Analysis of Factors Associated with Anxiety

A multivariate logistic regression analysis was conducted to identify factors independently associated with anxiety among the study participants, after adjusting for all other variables in the model (refer to Table 4.14). The overall model was not statistically significant (LR chi2 = 29.61, p = 0.3318), indicating that, collectively, the included variables did not significantly predict anxiety case status. However, examination of individual adjusted odds ratios (AORs) can still provide insight into the strength and direction of associations.

The analysis revealed that none of the socio-demographic variables including age, gender, academic level, course of study, religion, and ethnicity were statistically significant independent predictors of anxiety. Although not significant, older adolescents (AOR = 2.54, 95% CI: 0.81–

7.94) and males (AOR = 1.25, 95% CI: 0.48–3.27) showed a trend toward higher odds of anxiety compared to their reference groups.

Regarding social media use patterns, the use of TikTok approached statistical significance in the adjusted model (AOR = 0.24, 95% CI: 0.05–1.02, p = 0.053). This suggests a potential protective effect, wherein TikTok users had 76% lower adjusted odds of experiencing anxiety compared to non-users, though this finding was marginally outside the threshold of statistical significance. In the crude analysis, this protective effect was statistically significant (COR = 0.43, 95% CI: 0.21–0.89, p = 0.022). No other social media platforms demonstrated a significant association with anxiety in the multivariate model.

Other behavioral factors, such as the number of hours spent on social media daily, the time of day of use, and the number of platforms used regularly, also failed to reach statistical significance as independent predictors in the adjusted analysis.

Table 4.14: Multivariate Analysis of Factors Associated with Anxiety

Variables	**COR**	**(95% CI)**	**p-value**	**AOR**	**(95% CI)**	**p-value**
Age group						
13–16 years	Ref	-	-	Ref	-	-
Older adolescence (17–19)	1.37	0.68 – 2.72	0.377	2.54	0.81 – 7.94	0.110
Gender						
Female	Ref	-	-	Ref	-	-
Male	0.85	0.42 – 1.69	0.637	1.25	0.48 – 3.27	0.654

Academic level						
SHS 1	Ref	-	-	Ref	-	-
SHS 2	0.97	0.41 – 2.28	0.946	0.78	0.23 – 2.63	0.686
SHS 3	1.06	0.45 – 2.51	0.897	0.60	0.15 – 2.45	0.478
Course of study						
General Arts	Ref	-	-	Ref	-	-
Business	2.05	0.45 – 9.29	0.354	2.04	0.31 – 13.41	0.459
General Science	1.14	0.31 – 4.11	0.846	1.00	0.19 – 5.39	1.000
Home Economics	3.64	0.59 – 22.23	0.162	1.59	0.18 – 14.33	0.680
Visual Arts	1.36	0.37 – 5.00	0.640	0.80	0.15 – 4.19	0.792
Religion						
Christianity	Ref	-	-	Ref	-	-
Islam	2.10	0.16 – 28.02	0.575	3.10	0.08 – 124.38	0.548
African Traditional Religion	Omitted	-	-	omitted	-	-
Ethnic group						
Akan	Ref	-	-	Ref	-	-
Ewe	2.15	0.87 – 5.32	0.098	1.81	0.61 – 5.39	0.285
Ga-Dangme	2.90	0.88 – 9.58	0.081	2.24	0.53 – 9.42	0.269
Guan	(omitted)	-	-	(omitted)	-	-

Mole-Dagbon	1.11	0.19 – 6.55	0.912	0.37	0.01 – 9.43	0.545
Other	1.59	0.61 – 4.17	0.347	1.09	0.21 – 5.69	0.914
Social Media Platform Use						
Use Whatsapp						
No (Ref)	Ref	-	-	Ref	-	-
Yes	1.03	0.47 – 2.29	0.936	0.66	0.17 – 2.55	0.543
Use TikTok						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.43	0.21 – 0.89	0.022*	0.24	0.05 – 1.02	0.053
Use Facebook						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.78	0.38 – 1.61	0.508	0.73	0.24 – 2.19	0.578
Use Instagram						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.83	0.40 – 1.73	0.624	0.49	0.15 – 1.66	0.251
Use Snapchat						
No (Ref)	Ref	-	-	Ref	-	-
Yes	0.67	0.33 – 1.34	0.260	0.82	0.24 – 2.75	0.749
Use Twitter/X						

No (Ref)	Ref	-	-	Ref	-	-
Yes	0.98	0.30 – 3.26	0.977	1.56	0.29 – 8.33	0.600
Daily hours on social media						
1–2 hours	Ref	-	-	Ref	-	-
3–4 hours	1.33	0.49 – 3.62	0.579	2.15	0.63 – 7.33	0.220
5 or more hours	0.90	0.32 – 2.53	0.841	1.13	0.31 – 4.20	0.851
Less than 1 hour	0.42	0.17 – 1.01	0.053	0.35	0.11 – 1.14	0.081
Time of day						
Evening	Ref	-	-	Ref	-	-
Late Night	2.43	0.91 – 6.51	0.077	2.98	0.84 – 10.63	0.091
Morning	(omitted)	-	-	(omitted)	-	-
Number of platforms used						
1–2 platforms	Ref	-	-	Ref	-	-
3+ platforms	0.74	0.37 – 1.47	0.389	2.64	0.28 – 24.56	0.394

***Note:** COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval. Statistically significant (p-value < 0.05). Certain categories were empty or omitted due to perfect prediction or collinearity.*

4.15 Multivariate Analysis of Factors Associated with Stress

A multivariate logistic regression was performed to ascertain the independent associations between socio-demographic characteristics, social media usage patterns, and the odds of experiencing elevated stress among the student population, after adjusting for all other variables in the model (refer to Table 4.15). The overall model was not statistically significant (LR chi2 (27) = 30.80, p = 0.2795), indicating that, as a whole, the included variables may not robustly predict stress status in this sample. However, several individual factors demonstrated associations with stress that approached conventional levels of statistical significance, suggesting potential trends worthy of discussion.

The analysis indicated that older adolescents (≥17 years) had higher adjusted odds of stress (AOR = 2.61, 95% CI: 0.88 – 7.73, p = 0.083) compared to their younger peers (13-16 years), though this result was not definitive. Notably, specific social media usage behaviours emerged as salient factors. The use of Snapchat was strongly associated with increased odds of stress, a finding that bordered on significance (AOR = 2.98, 95% CI: 0.95 – 9.37, p = 0.061).

Similarly, spending 3-4 hours daily on social media was associated with notably higher odds of stress (AOR = 2.71, 95% CI: 0.94 – 7.84, p = 0.065) compared to the reference of 1-2 hours. Conversely, using a greater number of social media platforms (3 or more) appeared to be associated with a substantial reduction in the odds of stress (AOR = 0.15, 95% CI: 0.02 – 1.09, p = 0.061), a counterintuitive result that also approached significance.

Other variables, including gender, academic level, course of study, religion, ethnicity, and the use of other specific social media platforms (e.g., WhatsApp, Facebook, Instagram, Twitter/X), did not demonstrate statistically significant independent associations with stress in the adjusted model.

Table 4.15: Multivariate Analysis of Factors Associated with Stress among Students

Variables	COR	(95% CI)	p-value	AOR	(95% CI)	p-value
Age group						
13–16 years	Ref	-	-	Ref	-	-
Older adolescence (≥17)	1.40	0.73 – 2.67	0.306	2.61	0.88 – 7.73	0.083
Gender						
Female	Ref	-	-	Ref	-	-
Male	1.07	0.57 – 2.01	0.843	0.68	0.26 – 1.74	0.420
Academic Level						
SHS 1	Ref	-	-	Ref	-	-
SHS 2	1.67	0.75 – 3.70	0.209	1.24	0.39 – 3.93	0.720
SHS 3	1.08	0.48 – 2.44	0.859	0.44	0.12 – 1.67	0.227
Course of Study						
General Arts	Ref	-	-	Ref	-	-
Business	2.48	0.54 – 11.40	0.244	2.58	0.39 – 17.01	0.324
General Science	3.25	0.78 – 13.48	0.104	3.74	0.60 – 23.37	0.158
Home Economics	1.67	0.33 – 8.46	0.538	1.12	0.15 – 8.55	0.917
Visual Arts	2.76	0.66 – 11.44	0.162	3.41	0.58 – 20.20	0.177
Religion						

Christianity	Ref	-	-	Ref	-	-
Islam	0.50	0.04 – 6.22	0.590	0.12	0.00 – 4.50	0.255
African Traditional Religion	(omitted)	-	-	omitted	-	-
Ethnic Group						
Akan	Ref	-	-	Ref	-	-
Ewe	0.71	0.31 – 1.63	0.413	0.43	0.15 – 1.26	0.125
Ga-Dangme	0.79	0.29 – 2.13	0.644	0.99	0.29 – 3.33	0.983
Guan	(omitted)	-	-	omitted	-	-
Mole-Dagbon	1.68	0.31 – 9.07	0.545	0.93	0.05 – 16.97	0.962
Other	1.21	0.50 – 2.95	0.669	0.54	0.11 – 2.77	0.461
Social Media Platform Use						
Use WhatsApp						
No	Ref	-	-	Ref	-	-
Yes	0.71	0.34 – 1.46	0.345	0.94	0.29 – 3.09	0.924
Use TikTok						
No	Ref	-	-	Ref	-	-
Yes	1.11	0.59 – 2.09	0.753	2.48	0.72 – 8.58	0.152
Use Facebook						

No	Ref	-	-	Ref	-	-
Yes	1.12	0.57 – 2.19	0.750	1.86	0.67 – 5.15	0.232
Use Instagram						
No	Ref	-	-	Ref	-	-
Yes	0.84	0.42 – 1.69	0.631	0.66	0.20 – 2.16	0.497
Use Snapchat						
No	Ref	-	-	Ref	-	-
Yes	1.45	0.76 – 2.78	0.261	2.98*	0.95 – 9.37	0.061
Use Twitter/X						
No	Ref	-	-	Ref	-	-
Yes	0.91	0.29 – 2.79	0.865	1.83	0.39 – 8.57	0.444
Daily Hours on Social Media						
1–2 hours	Ref	-	-	Ref	-	-
3–4 hours	1.76	0.78 – 3.99	0.176	2.71*	0.94 – 7.84	0.065
5 or more hours	0.93	0.36 – 2.38	0.873	0.84	0.24 – 2.92	0.787
Less than 1 hour	0.75	0.31 – 1.83	0.531	0.42	0.13 – 1.36	0.149
Time of Day Most Used						
Evening	Ref	-	-	Ref	-	-

Late Night	1.04	0.39 – 2.82	0.934	1.92	0.56 – 6.64	0.302
Morning	(omitted)	-	-	omitted	-	-
Number of Platforms Used						
1–2 platforms	Ref	-	-	Ref	-	-
3+ platforms	0.85	0.45 – 1.61	0.614	0.15*	0.02 – 1.09	0.061

***Note:** COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval. *Statistically significant (p-value < 0.05). Certain categories were empty or omitted due to perfect prediction or collinearity.*

4.16 Multivariate Analysis of Factors Associated with Self-Esteem

A multivariate logistic regression analysis was conducted to identify the factors independently associated with low self-esteem among the study participants, after controlling for potential confounders (refer to Table 4.16). The model assessed the influence of socio-demographic characteristics, social media usage patterns, and platform preferences.

The analysis revealed that the use of specific social media platforms was a significant predictor of low self-esteem. The odds of having low self-esteem were significantly higher among users of WhatsApp (AOR = 4.49; 95% CI: 1.43 – 14.06; p = 0.010) and TikTok (AOR = 6.43; 95% CI: 1.81 – 22.82; p = 0.004) compared to non-users of these platforms. Conversely, a protective effect was observed for the number of platforms used. Adolescents who used three or more platforms had significantly lower odds of low self-esteem compared to those who used only one or two (AOR = 0.05; 95% CI: 0.01 – 0.35; p = 0.002).

In contrast, none of the traditional socio-demographic variables including age, gender, academic level, course of study, religion, and ethnicity demonstrated a statistically significant independent association with low self-esteem in the final adjusted model. Furthermore, the daily time spent on social media and the time of day it was most frequently used were not significant predictors of self-esteem outcome.

Table 4.16: Multivariate Analysis of Factors Associated with Low Self-Esteem

Variables	**COR**	**(95% CI)**	**p-value**	**AOR**	**(95% CI)**	**p-value**
Age groups (in years)						
Younger Adolescents (13-16 years)	Ref	-	-	Ref	-	-
Older Adolescent (17-19)	0.95	0.51 – 1.75	0.865	1.56	0.56 – 4.32	0.395
Gender						
Female	Ref	-	-	Ref	-	-
Male	1.59	0.86 – 2.93	0.138	1.34	0.57 – 3.12	0.502
Academic Level						
SHS 1	Ref	-	-	Ref	-	-
SHS 2	0.92	0.43 – 1.95	0.819	0.86	0.29 – 2.54	0.786
SHS 3	0.61	0.28 – 1.30	0.200	0.47	0.13 – 1.65	0.235
Course of Study						
General Arts	Ref	-	-	Ref	-	-

Business	1.00*	0.28 – 3.63	1.000	1.08	0.20 – 5.90	0.931
General Science	0.67	0.20 – 2.19	0.504	0.91	0.19 – 4.37	0.908
Home Economics	0.64	0.16 – 2.49	0.516	1.38	0.24 – 7.93	0.719
Visual Arts	1.12	0.34 – 3.63	0.853	1.61	0.36 – 7.22	0.531
Religion						
Christianity	Ref	-	-	Ref	-	-
Islam	0.58	0.05 – 7.26	0.675	0.41	0.01 – 13.40	0.617
African Traditional Religion	2.00*	0.18 – 22.06	0.571	(Omitted)	-	-
Ethnic Group						
Akan	Ref	-	-	Ref	-	-
Ewe	1.08	0.49 – 2.37	0.843	0.87	0.33 – 2.24	0.767
Ga-Dangme	1.51	0.59 – 3.87	0.392	1.72	0.53 – 5.62	0.366
Guan	1.19	0.07 – 19.86	0.906	0.75	0.03 – 16.38	0.857
Mole-Dagbon	5.93	0.65 – 53.87	0.114	2.16	0.09 – 49.69	0.629
Other	0.75	0.31 – 1.82	0.522	0.33	0.07 – 1.64	0.176
Social Media Platform Use						
Use WhatsApp						
No	Ref	-	-	Ref	-	-

Yes	1.41	0.69 – 2.88	0.344	4.49*	1.43 – 14.06	**0.010**
Use TikTok						
No	Ref	-	-	Ref	-	-
Yes	1.67	0.90 – 3.07	0.103	6.43*	1.81 – 22.82	**0.004**
Use Facebook						
No	Ref	-	-	Ref	-	-
Yes	1.01	0.53 – 1.94	0.965	1.24	0.48 – 3.19	0.660
Use Instagram						
No	Ref	-	-	Ref	-	-
Yes	1.41	0.73 – 2.73	0.301	1.79	0.62 – 5.19	0.285
Use Snapchat						
No	Ref	-	-	Ref	-	-
Yes	1.15	0.61 – 2.14	0.669	2.07	0.74 – 5.79	0.167
Use Twitter/X						
No	Ref	-	-	Ref	-	-
Yes	1.71	0.58 – 5.04	0.325	2.24	0.51 – 9.81	0.287
Daily Hours on Social Media						
1–2 hours	Ref	-	-	Ref	-	-
Less than 1 hour	0.74	0.32 – 1.68	0.466	0.53	0.18 – 1.53	0.240

3-4 hours	0.67	0.30 – 1.52	0.338	0.62	0.23 – 1.71	0.360
5 or more hours	1.86	0.74 – 4.63	0.184	1.00	0.33 – 3.05	0.997
Time of Day Most Used						
Evening	Ref	-	-	Ref	-	-
Morning	(Omitted)	-	-	(Omitted)	-	-
Late Night	1.11	0.45 – 2.77	0.817	0.91	0.29 – 2.87	0.870
Number of Platforms Used						
1–2 platforms	Ref	-	-	Ref	-	-
3+ platforms	1.06	0.58 – 1.95	0.844	0.05*	0.01 – 0.35	**0.002**

***Note:** COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval. *Statistically significant (p-value < 0.05). Certain categories were empty or omitted due to perfect prediction or collinearity.*

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter discusses the findings of the study in relation to the objectives and existing literature. The discussion highlights the prevalence and patterns of social media usage among adolescents in the Adenta Municipality, as well as their levels of depression, anxiety, stress, and self-esteem. Furthermore, the chapter interprets the associations between social media usage and mental health outcomes, situating the results within the broader context of existing literature.

5.2 Prevalence and Patterns of Social Media Usage

One of the most striking findings of the study was the exceptionally high prevalence of social media use within the adolescent population. Nearly all of the respondents (93.8%) reported engaging with social media, leaving only a minority of 6.2 percent as non-users. This supports the evidence that there is increasing use of social media in Sub-Saharan Africa and most of the internet users are young people *(Idiedo and Posigha, 2024; Okoye and Saewyc, 2024).*

This is similar to a report by *Office of the Surgeon General (2023)* in the USA which indicated that up to 95% of adolescents aged 13–17 years report using a social media platform. *Nagata et al. (2025)* revealed from a sample of 10,092 11-to-15-year-old adolescents, 69.5% had at least one social media account with 6.3% of participants having a secret social media account hidden from their parents' knowledge.

The study found that the most frequently used platforms were WhatsApp (70.8%), TikTok (47.8%), and Snapchat (36.0%), while platforms such as Facebook and Instagram had moderate uptake. This partially mirrors findings from *Nagata et al. (2025)* where among social media users,

the most common platforms utilized were TikTok (67.1%), YouTube (64.7%), and Instagram (66.0%). Additionally, *Kyei-Gyamfi (2024)* reported that a significant majority of young people including adolescents in Tema, Ghana, specifically 88.7%, used TikTok, followed closely by WhatsApp at 88.4%.

In exploring patterns of use, the study noted that respondents typically engaged with an average of two platforms, with a fairly even divide between light users of one to two platforms and more diversified users with three or more. This trend reflects research by *Purwaningtyas and Alicya (2020)* among Indonesian youth which highlighted a growing tendency for youth to simultaneously operate accounts on multiple platforms.

Time investment in social media was also noteworthy. Patterns of usage showed that nearly four in ten respondents spent 3 hours or more daily on social media. This aligns with findings by *American Psychological Association (2024)*, who reported that specifically, 37% of adolescents say they spend 5 or more hours a day, 14% spend 4 to less than 5 hours a day, 26% spend 2 to less than 4 hours a day, and 23% spend less than 2 hours a day on these three apps. Similar patterns have been noted by *Office of the Surgeon General (2023)*, who state that more than a third of adolescents self-report that they use social media "almost constantly.

Also, the time patterns of social media usage showed concerning behavioral features that need attention. The concentration of usage during evening (47.9%) and late night (35.3%) periods, accounting for over 83% of all activity, suggests possible interference with sleep patterns and school routines. This finding is particularly troubling given established research that adolescents engaging with social media during late hours may contribute to sleep problems, which have also been consistently linked with increased rates of depression and anxiety in this age group (Scott, Biello and Woods, 2019; van Den Eijnden *et al.*, 2021; Zubair, Khan and Albashari, 2023).

The present study also highlights that social media was primarily used for educational purposes (65.7%) and entertainment (62.9%), while communication and stress relief were additional motivations. This dual purpose supports earlier Ghanaian research presented by *Kyei-Gyamfi (2024)* where 87.2% of young people use social media platforms for entertainment (engaging in activities such as listening to music, watching films, and playing games), and 80% for communication and social networking activities. Slightly over 70% of them affirmed that social media served as a dependable resource for school-related tasks and other academic obligations while inspiring creativity and learning in another 58.9% (Kyei-Gyamfi, 2024b).

This finding also challenges the common stereotype of social media as purely entertainment-oriented. Nevertheless, the equally strong motivations of leisure and stress relief suggest that these platforms fulfill both functional and hedonic needs, aligning with uses and gratifications theory (Bhatiasevi, 2024).

5.3 Mental Health Outcomes of Adolescents

Anxiety emerged as the most common mental health concern, with 66.3% of participants experiencing severe to extremely severe symptoms according to the DASS-21 assessment, and one in three adolescents classified as extremely severe. The finding that extremely severe anxiety was the single most common category (33.7%) represents a critical public health concern requiring immediate attention. This anxiety rate substantially exceeds rates reported in comparable studies. *Dong, Wang and Lin (2025)* conducted 2,716 secondary school adolescents in Southwest China which found that 4.34% of students were extremely anxious, 4.09% were severely anxious, 18.37% were moderately anxious, and 14.62% were mildly anxious. It is also comparable to rates mentioned in a cross-sectional study done in the al-Qassim region in Saudi Arabia among 1245 secondary school students using the GAD7 for anxiety (Alharbi *et al.*, 2019). The study shows that

34.1% were having mild anxiety, 19.5% were having moderate anxiety, and 9.8% were having severe anxiety (Alharbi *et al.*, 2019).

Depression levels were similarly concerning, with 68% of participants showing symptoms ranging from mild to extremely severe depression. The presence of 17.4% of participants in the extremely severe depression category indicates a substantial subgroup experiencing severe psychological distress that likely requires immediate clinical help. These depression rates observed in this study are similar to those reported in *Nakie et al. (2022)* in Ethiopia. The overall prevalence of depression was found to be 41.4% (Nakie *et al.*, 2022). Amongst this percentage, 109 (13.5%) respondents had mild depression, 124 (15.3%) had moderate depression, 8.0% had severe depression, and 37 (4.6%) had extremely severe depression (Nakie *et al.*, 2022).

In contrast to anxiety and depression, stress levels showed a more balanced distribution, with 51.1% of participants falling within the normal range. However, the remaining 49% still experienced mild to extremely severe stress, indicating that stress remains a significant concern for approximately half of the population. This finding aligns with *Amadu et al. (2024)* who found the overall stress level among the high school adolescents to be 76.2% (305) in northern region, Ghana. This is also fairly consistent with rates among high school students in Northwest Ethiopia which found the overall prevalence of stress to be 66.7% (Nakie *et al.*, 2022).

The self-esteem assessment showed that nearly half (44.9%) of participants had low self-esteem according to the Rosenberg Self-Esteem Scale. This finding is particularly concerning given the established relationship between low self-esteem and various negative developmental outcomes, including increased vulnerability to depression, anxiety, and risky behaviors (Schöne, Tandler and Stiensmeier-Pelster, 2015; Lee, Patel and Scior, 2023).

5.4 Relationship Between Social Media Usage and Mental Health Outcomes

The multivariate analysis provided additional insights into factors independently associated with depression. Students enrolled in General Science courses showed significantly higher odds of depression (AOR = 6.17, 95% CI: 1.01-37.51, p = 0.048) compared to those in General Arts. This finding may reflect the particular academic pressures and competitive environment associated with science-based educational tracks, which are often perceived as more demanding and stressful. The finding aligns with global evidence that there exists significant positive association between high academic pressure and adolescent depression (Han, 2024). Additionally, the findings are also consistent with that of *Chokshi et al. (2021)* which confirmed that students belonging to science stream showed more depression overall compared to their non-science counterparts.

The relationship between daily social media usage and depression showed a curved pattern, where moderate-high usage (3-4 hours daily) was associated with significantly greater odds of depression (AOR = 3.45, 95% CI: 1.20-9.92, p = 0.022) compared to moderate usage (1-2 hours). Parallel findings by *Twenge et al. (2018)* reveal that adolescents who spent more time on social media were more likely to report mental health issues, and adolescents who spent more time on non-screen activities were less likely.

Importantly, the use of individual social media platforms showed no significant associations with depression in the multivariate analysis. This suggests that platform choice may be less important than overall usage patterns and intensity. However, while no single social media platform is proven to cause depression, research by *Ahmed et al. (2024)* shows a correlation between heavy and problematic social media use across various platforms and increased rates of depression.

The most significant finding in relation to anxiety in this study was the protective effect associated with TikTok usage. This relationship maintained its significance in the crude analysis (COR =

0.43, 95% CI: 0.21-0.89, p = 0.022) and approached significance in the adjusted model (AOR = 0.24, 95% CI: 0.05-1.02, p = 0.053). The protective effect of TikTok use challenges common assumptions about social media's uniformly negative impact on mental health. This particular finding contradicts a paper by *Fatuma (2024)* which revealed mechanisms such as social comparison, fear of missing out (FOMO), cyberbullying, and sleep disturbances as a link social media to anxiety.

The analysis of stress outcomes showed an intriguing dynamic. While social media non-use was strongly associated with elevated stress, the adjusted model indicated that spending 3–4 hours daily on social media and using Snapchat were linked to higher stress levels, although these did not reach conventional significance. This is similar to patterns reported in *Meena and Paliwal (2021)* where adolescents who use social media for more than three hours received a higher mean score on stress as compared to the adolescents who use social media for less than three hours. *Mougharbel et al. (2023)* also confirmed from their study in Canada that heavy social media use was associated with psychological distress (OR: 1.44; 95% CI: 1.12–1.85).

Moreover, the analysis of self-esteem outcomes showed significant associations with social media use that provide important insights into the mechanisms linking digital engagement with psychological well-being. From the multivariate analysis, two platforms showed particularly strong associations with low self-esteem. WhatsApp users had significantly higher odds of low self-esteem (AOR = 4.49, 95% CI: 1.43-14.06, p = 0.010), as did TikTok users (AOR = 6.43, 95% CI: 1.81-22.82, p = 0.004). This aligns with reports by *Woods and Scott (2016)* that social media use in adolescence is associated with low self-esteem. These findings are particularly noteworthy given that TikTok showed protective effects against anxiety, it simultaneously increased the

likelihood of low self-esteem. This contrast illustrates the complex and potentially contradictory effects that individual platforms may have on different aspects of mental health.

Interestingly, the analysis also showed a strong protective effect associated with using multiple platforms. Adolescents who used three or more platforms had significantly lower odds of low self-esteem (AOR = 0.05, 95% CI: 0.01-0.35, p = 0.002) compared to those using one or two platforms. *Taylor-Jackson and Moustafa (2020)* explained that by using multiple social media platforms, individuals can present themselves differently in each one, and in this way, they are able to experiment with different identities.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study examined the relationship between social media usage and mental health outcomes among adolescents in selected schools within the Adenta Municipality of the Greater Accra Region. The study provides valuable insights into how adolescents use social media, the extent of their psychological distress, and the ways in which usage patterns affect depression, anxiety, stress, and self-esteem. The findings revealed an exceptionally high prevalence of social media use, with 93.8% of respondents actively engaging on at least one platform.

More than one-third of respondents, nearly a four in ten (39.5%) spent three or more hours daily on social media, and over 80% reported that their use was concentrated in the evening (47.9%) and late night (35.3%), reflecting possible displacement of sleep and academic time. Motivations for use were diverse, with education (65.7%) and entertainment (62.9%) cited as the most common reasons.

In terms of mental health, the study revealed substantial levels of psychological distress. Almost seven in ten adolescents (68%) reported depressive symptoms ranging from mild to extremely severe, with 17.4% classified in the extremely severe category. Anxiety levels were even higher, with 66.3% of participants reporting severe to extremely severe anxiety, and 33.7% falling within the extremely severe range. Stress levels were comparatively lower, with 51.1% within the normal range, although nearly half (49%) still experienced mild to extremely severe symptoms.

Furthermore, nearly half of the respondents (44.9%) were identified as having low self-esteem, a finding that is consistent with the global literature linking digital engagement and self-image

concerns. The analysis of associations between social media use and mental health outcomes showed mixed results. Adolescents who reported three to four hours of daily social media use had significantly higher odds of depression compared to those who used it for only one to two hours.

Additionally, Snapchat use and extended daily use were associated with elevated stress, while TikTok use appeared to reduce the likelihood of anxiety, though this relationship was only marginally significant after adjustment. In relation to self-esteem, the use of WhatsApp and TikTok was linked with significantly greater odds of low self-esteem, whereas using three or more platforms was associated with lower odds of low self-esteem compared to using only one or two.

Ultimately, the study demonstrates that while social media serves as an important avenue for education, entertainment, and communication, it also carries significant risks for adolescent mental health. Social media usage therefore requires a balanced approach from educators, parents, health practitioners, and policymakers. Taken together, these findings highlight the urgent need for targeted interventions that promote balanced and responsible use of social media while simultaneously addressing the growing mental health challenges faced by adolescents in Ghana.

6.2 Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. **Promote digital literacy and balanced screen-time use:** Educational campaigns led by schools, parent-teacher associations, and community leaders should raise awareness about the benefits and risks of social media. These campaigns should emphasize time management, critical evaluation of online content, and the importance of offline social interaction.

2. **Integrate school-based mental health programs:** Ghana Education Service (GES) together with school authorities should establish counseling services and workshops targeted at addressing depression, anxiety, stress management, and self-esteem building, while also incorporating modules on healthy digital habits.
3. **Health sector initiatives:** Mental health screening should be incorporated into routine adolescent health services within the schools and community health facilities. School health nurses should be trained to identify early signs of depression, anxiety, stress and low self-esteem, particularly those linked to excessive social media use.
4. **Further research:** Further research should be encouraged to build upon the findings of this study as well as provide a deeper understanding of the relationship between social media use and adolescent mental health in Ghana.

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APPENDICES

APPENDIX I: INFORMED CONSENT

CONSENT FORM (for students aged 18 and above or parents/guardians of minors):

Title of Study: The Relationship Between Social Media Usage and Adolescent Mental Health: A Cross-Sectional Study in the Adenta Municipality, Greater Accra Region, Ghana

Introduction:

Hello,

My name is Margaret Dansowaa Asare, and I am a student at Ensign Global University, currently conducting research as part of the requirements for my Master of Public Health degree. I am inviting you to take part in my research study. This study seeks to explore how the use of social media may be related to mental health outcomes such as depression, anxiety, stress, and self-esteem among adolescents. The results will be used solely for academic purposes and to inform possible improvements in youth mental health support. Before you decide whether or not to take part, please read the following information carefully. If you are under 18, your parent or guardian will also need to give permission for your participation. Thank you for considering taking part in this important study.

Purpose of the Study:

The purpose of this study is to examine how social media usage relates to mental health outcomes specifically depression, anxiety, stress, and self-esteem among adolescents in selected senior high schools within the Adenta Municipality.

Procedures:

If you agree to participate in this study, you will be asked to fill out a questionnaire that includes questions on your use of social media, as well as standardized questions to assess your mental health. The questionnaire will take approximately 20–30 minutes to complete.

Voluntary Participation:

Your participation in this study is completely voluntary. You may choose to withdraw at any point or decline to answer any specific question without any penalty or loss of benefit to you.

Risks and Discomforts:

There are minimal risks associated with this study. Some of the questions may make you feel uncomfortable or emotional. If you experience distress during or after the survey, you are encouraged to speak to your school counselor or contact a mental health professional.

Benefits:

While you may not directly benefit from this study, your participation may help improve understanding of the impact of social media on adolescent mental health and contribute to better support systems in schools and communities.

Confidentiality:

All information collected in this study will be kept confidential. Your responses will be anonymous and will only be used for academic purposes. Data will be securely stored and only accessible to the researcher and academic supervisors.

Questions and Contacts:

If you have any questions about this research or your rights as a participant, you may contact:

Principal Researcher:

Margaret Dansowaa Asare

Ensign Global University, Kpong
Eastern Region, Ghana
margaret.asare@st.ensign.edu.gh
0200781899

This research has been reviewed and approved by the Institutional Review Board (IRB) of Ensign Global University, Kpong. For inquiries about your rights as a participant, you may contact the IRB office at 0245762229 or registrar@ensign.edu.gh during working hours (8:00 am–5:00 pm).

Statement of Consent:

By signing below, you acknowledge that:

- You have read or had this form read to you,
- You understand the purpose, procedures, risks, and benefits of the study,
- All your questions have been answered to your satisfaction,
- You voluntarily agree to participate in this research.

Participant's Consent

Name of Participant (in block letters): _____

Signature/Thumbprint: _____ Date: _____

Parent/Guardian Consent (for participants under 18 years)

Name of Parent/Guardian: _____

Relationship to Participant: _____

Signature: _____ Date: _____

Researcher's Declaration

I have explained the purpose, procedures, and possible risks and benefits of the study to the participant. I believe the participant has understood and freely agreed to participate.

Researcher's Name: _____

Signature: _____ Date: _____

APPENDIX II: ASSENT FORM

(for participants under 18 years old)

Title of Study: *Exploring the Relationship Between Social Media Use and Mental Health Outcomes Among Adolescents in Selected Senior High Schools in the Adenta Municipality*

Introduction:

Hello,

My name is Margaret Dansowaa Asare, and I am a student at Ensign Global University. I am doing a research project to understand how using social media might affect how young people feel in terms of depression, anxiety, stress, and self-esteem. You are being asked to take part in this study because you are a student in one of the selected schools.

Before you decide, it is important that you understand what the study is about. This form will help explain it, and you can ask any questions if you don't understand something.

What Will Happen if You Join the Study:

If you agree to be in this study, you will be asked to answer a questionnaire about how you use social media and how you've been feeling. It will take about 20 to 30 minutes. There are no right or wrong answers—just your honest thoughts and experiences.

Do You Have to Be in the Study?

No, you don't have to join. It's your choice. Even if you start the study and change your mind later, you can stop at any time. No one will be upset with you.

Will the Questions Be Difficult or Upsetting?

Most questions are simple, but some might make you think about your feelings, which could be uncomfortable. If anything upsets you, you can skip the question, stop the questionnaire, or talk to your school counselor.

Will Anyone Know What You Say?

Everything you share will be kept private. Your name will not be on the questionnaire. No one—not your parents, teachers, or friends—will know your answers. Only the researcher will look at them, and only for this study.

What Are the Good Things About Being in the Study?

You may not get anything directly from being in the study, but your answers will help adults understand how to better support students like you with mental health and social media.

Questions?

If you have any questions, you can ask the researcher or your teacher. You can also talk to your parent or guardian.

Assent Statement (to be completed by participant)

I understand what the study is about and what I will be asked to do. I know that I can choose not to take part or stop at any time. I have had a chance to ask questions and my questions have been answered.

I agree to take part in this study.

Name of Participant (in block letters): _____

Signature/Thumbprint: _____ Date: _____

APPENDIX III: SURVEY QUESTIONNAIRE

Questionnaire ID: _____ Interview Date: _____

Study Title: The Relationship Between Social Media Usage and Adolescent Mental Health: A Cross-Sectional Study in the Adenta Municipality, Greater Accra Region, Ghana

Instructions:

This questionnaire has three sections. Please answer all questions honestly. Your responses are confidential and will be used for academic purposes only. Do not write your name anywhere on this form.

Section A: Demographic Information

1. Age: _____

2. Gender:

- [ ] Male
- [ ] Female

3. Academic Level:

- [ ] SHS 1
- [ ] SHS 2
- [ ] SHS 3

4. Course of Study:

- [ ] General Science
- [ ] General Arts
- [ ] Business
- [ ] Home Economics
- [ ] Visual Arts
- [ ] Agriculture

5. Religion:

- [ ] Christianity

- [ ] Islam

- [ ] African Traditional Religion

6. Ethnic Group:

- [ ] Ewe

- [ ] Akan

- [ ] Ga-Dangme

- [ ] Mole-Dagbon

- [ ] Guan

- [ ] Other

Kindly specify other ethnic groups you belong to: _____

7. Do you use social media?

- [ ] Yes

- [ ] No

(If no, please stop here. Thank you for your time.)

Section B: Social Media Usage Patterns

8. Which social media platforms do you use regularly? (Tick all that apply)

- [ ] WhatsApp

- [ ] Facebook

- [ ] Instagram

- [ ] TikTok

- [ ] Snapchat

- [ ] Twitter/X

- [ ] Others: _____

Kindly specify other social media platforms you use regularly: _____

9. On average, how many hours do you spend on social media per day?

- [ ] Less than 1 hour

- [ ] 1–2 hours

- [ ] 3–4 hours

- [ ] 5 or more hours

10. What time of day do you mostly use social media?

- [ ] Morning

- [ ] Afternoon

- [ ] Evening

- [ ] Late Night

11. Why do you use social media? (Tick all that apply)

- [ ] Entertainment

- [ ] Communication with friends/family

- [ ] Educational purposes

- [ ] News/Information

- [ ] To relieve stress or boredom

- [ ] Others: _____

Kindly specify other reasons for social media usage: _____

Section C: Mental Health Assessment

C1. Depression, Anxiety, and Stress Scale – 21 (DASS-21)

Please read each statement and circle a number (0–3) that indicates how much the statement applied to you over the past week.

1. I found it hard to wind down [0] [1] [2] [3]

2. I was aware of dryness of my mouth [0] [1] [2] [3]

3. I couldn't seem to experience any positive feeling at all [0] [1] [2] [3]

4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion) [0] [1] [2] [3]

5. I found it difficult to work up the initiative to do things [0] [1] [2] [3]

6. I tended to over-react to situations [0] [1] [2] [3]

7. I experienced trembling (e.g., in the hands) [0] [1] [2] [3]

8. I felt that I was using a lot of nervous energy [0] [1] [2] [3]

9. I was worried about situations in which I might panic and make a fool of myself [0] [1] [2] [3]

10. I felt that I had nothing to look forward to [0] [1] [2] [3]

11. I found myself getting agitated [0] [1] [2] [3]

12. I found it difficult to relax [0] [1] [2] [3]

13. I felt down-hearted and blue [0] [1] [2] [3]

14. I was intolerant of anything that kept me from getting on with what I was doing [0] [1] [2] [3]

15. I felt I was close to panic [0] [1] [2] [3]

16. I was unable to become enthusiastic about anything [0] [1] [2] [3]

17. I felt I wasn't worth much as a person [0] [1] [2] [3]

18. I felt that I was rather touchy [0] [1] [2] [3]

19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat) [0] [1] [2] [3]

20. I felt scared without any good reason [0] [1] [2] [3]

21. I felt that life was meaningless [0] [1] [2] [3]

C2. Rosenberg Self-Esteem Scale (RSES)

Below are statements about how you feel about yourself. Indicate your agreement using the following scale:

Strongly Agree = 4 Agree = 3 Disagree = 2 Strongly Disagree = 1

1. On the whole, I am satisfied with myself. [4] [3] [2] [1]

2. At times I think I am no good at all. [4] [3] [2] [1]

3. I feel that I have a number of good qualities. [4] [3] [2] [1]

4. I am able to do things as well as most other people. [4] [3] [2] [1]

5. I feel I do not have much to be proud of. [4] [3] [2] [1]

6. I take a positive attitude toward myself. [4] [3] [2] [1]

7. On the whole, I feel useless. [4] [3] [2] [1]

8. I wish I could have more respect for myself. [4] [3] [2] [1]

9. All in all, I am inclined to feel that I am a failure. [4] [3] [2] [1]

10. I feel that I am a person of worth, at least on an equal plane with others. [4] [3] [2] [1]

Thank you for completing this survey! Your responses are greatly appreciated and will contribute to important research.

APPENDIX IV: ETHICAL CLEARANCE FROM ENSIGN GLOBAL UNIVERSITY

ENSIGN GLOBAL
UNIVERSITY

OUR REF: ENSIGN/IRB/EL/SN-302/03
YOUR REF:

August 4, 2025

INSTITUTIONAL REVIEW BOARD SECRETARIAT

Margaret Dansowaa Asare
Ensign Global University
Kpong.

Dear Margaret,

ETHICAL CLEARANCE TO UNDERTAKE POSTGRADUATE RESEARCH

At the General Research Proposals Review Meeting of the *INSTITUTIONAL REVIEW BOARD (IRB)* of Ensign Global University held on Friday, August 1, 2025, your research proposal entitled **"The Relationship Between Social Media Usage and Adolescent Mental Health: A Cross-Sectional Study in the Adentan Municipality, Greater Accra Region, Ghana"** was considered.

You have been granted Ethical Clearance to collect data for the said research under academic supervision within the IRB's specified frameworks and guidelines.

We wish you all the best.

Sincerely,

Dr. (Mrs.) Rebecca Acquaah-Arhin
IRB Chairperson

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