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PREVALENCE AND FACTORS ASSOCIATED WITH DEPRESSION AMONG STUDENTS IN THE AKWAPIM SOUTH DISTRICT

BY

ADWOA ANUONYAM ABBOTSI

(STUDENT ID- 10933724)

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DECLARATION

I, Adwoa Anuonyam Abbotsi, declare that this research work is my own work done under supervision. All resource persons have been duly acknowledged and referenced. This thesis in whole or part has not been submitted anywhere else for the award of a degree.

Adwoa Anuonyam Abbotsi (Student)

Date: 27th April, 2023

Signature: 

Prof. Emilia Udofia (Academic Supervisor)

Date: 27th April, 2023

Signature: 

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LIST OF ABBREVIATIONS

CRC	-	Convention of the Rights of the Child
PHQ-9	-	Patient Health Questionnaire
SCL	-	Symptoms Check Lisy
UN	-	United Nations
UNICEF	-	United Nations International Children's Emergency Fund
WHO	-	World Health Organization

ABSTRACT

Background: Cases of depression and its resultant effect have been reported in different times at different levels. For instance, in early 2022, graphiconline.com reported a case of a depressed man who committed suicide for fear of the future which is unknown. Similar cases of depression and its consequences have been reported from different parts of the Eastern Region with a few in Akwapim South. Unfortunately, detail assessment of the prevailing situation in the region and specifically in Akwapim South has not been done to estimate the prevalence of depression among in-school adolescents.

Aim: The main objective of the study is to determine the factors that are associated with depression among in-school adolescents in Akwapim South district.

Method: The study employed a cross-sectional in-school survey as the main study design. Adolescents who were aged 10-24 years and were in Junior and Senior High Schools comprised the study participants. Simple random sampling method was employed to select adolescents at different levels. Regression analysis to determine association between factors and depression was conducted using STATA version 17.0. The results were obtained at 95% confidence level.

Results: The mean age of the in-school adolescents was 16.4 years (± 2.0 SD). Of the study participants, 57.3% had minimal depression, 30.9% had mild depression, 6.3% moderately depressed, 4.0% had moderately severe depression while 1.5% had severe depression. The prevalence of depression among the adolescents was therefore computed to be 11.8%. After controlling for all significant variables, age (AOR = 7.13, 95% CI: 1.58, 32.23), sex (AOR = 3.65, 95% CI: 1.38, 9.63), smoking (AOR = 4.44, 95% CI: 1.30, 15.15), access to learning materials (AOR = 2.7, 95% CI: 1.27, 5.87), family history of depression (AOR = 2.45, 95% CI: 1.08, 5.58) and marital abuse (AOR = 2.05, 95% CI: 1.03, 4.08) were factors that influenced the rate of depression among the adolescents.

Conclusion: The study observed relatively lower rate of depression among in-school adolescents. There were however some of the adolescents who had either severe or moderately

severe depressive condition. Factors such as socio-demographic, environmental and behavioural conditions contributed to the outcome of the adolescent depressive conditions. Strengthening counselling units at the various schools by the District Directorate of Education of Akwapim South is critical in addressing challenges of depression among in-school adolescents**.** The school and the home environment play significant influence in the life of an adolescent. Adolescents at their early formative stage needs a conducive environment to grow and develop.

CHAPTER ONE

INTRODUCTION

1.0 Background

Depression has been identified as a common mental disorder in recent times. According to American Psychological Association, (2021), depression, which is also called major depressive disorder, is a major illness that affects the way a person feels, acts or thinks negatively. In most cases, depression causes someone to lose interest in activities or things that they previously enjoyed. Similarly, depression is noted to likely cause someone to continuously feel sad even in an environment where there is much happiness. The World Health Organization, (2017) further reiterates that depression most often leads to different forms of physical and emotional problems which may reduce one's ability to perform an assigned task effectively. Evans-Lacko et al., (2018) in their study noted that sometimes people confuse depression with mood fluctuations and short-lived emotional reaction to problems and challenges. Evans-Lacko et al., (2018) explained that depression goes beyond these daily fluctuations, however, when it is not well managed, it may result into severe health conditions when the the level of intensity increases. Kendler, (2020) explains that depression is an old age problem which has been with man over centuries. However, it was until 1880s that appropriate diagnosis formulation of melancholia was developed to give way for further development and research.

Despite the available treatment options and management processes globally, it is estimated that more than 75% of all people who get depressive disorders do not receive effective and appropriate treatment (WHO, 2021). Different factors have been linked to reasons why depressive disorder patients do not get the appropriate care. Lack of resources has been identified as a major barrier to

the provision of effective treatment for depressive disorders. Resource constraints have affected the procurement of appropriate logistics and the establishment of rehabilitation centres for dealing with excessive depression especially among the aged and the youth (WHO, 2021). Evans-Lacko et al., (2018) also noted that inadequate trained health-care providers coupled with high levels of stigma within the society has increasingly denied people with depressive disorder to receive appropriate treatment. Chekroud et al., (2018) in a discussion on treatment barriers noted that the cost of treatment, distance to treatment centres coupled with cost of transportation were the main reasons why depression patients do not receive appropriate treatment. Bryant et al., (2013) also indicated that barriers to treatment of depression have two forms: internal and external factors. Internally, patient's personal business, mind-set, denial and put on a front have been affecting their ability to seek treatment. External factors were described to include spiritual beliefs, lack of medical resources, lack of education/awareness on depression and stigma.

It is estimated that, globally, at least 5% of all people are depressed while 5.7% of people aged 60 years and above are also depressed. It is further estimated that nearly 280 million people worldwide have depression (WHO, 2021). The inability of patients with depression to seek care and support have resulted in several problems globally. May et al., (2012) in a 10-year longitudinal study among high school adolescents observed that more than half of people who are depressed either contemplate on committing suicide, try to commit suicide or end up in committing suicide. It is further estimated that more than 700 000 people commit suicide every year as a result of the inability to treat depression cases (WHO, 2021). Ahmed et al., (2017) in a global estimate of depression and suicide in WHO South-East Asia Region noted that the region accounts for about 39% of cases. However, in sub-Saharan Africa, it is estimated that about 34 000 people who are in depressed condition commit suicide every year, culminating into a 3.2 deaths per 100 000

population (Gbadamosi et al., 2022). Additionally, suicide has been established to be three times higher among men compared to women. Gbadamosi et al., (2022) explains that the proportion of men with depression is significnatly higher than depression in women and this has contributed to the higher suicidal cases among men.

Among adolescents, cases of depression has been increasing over the years. It has been established that adolescents most often are prone to depression when they are physically and emotionally abuse and are exposed to poverty or violence within their environment (WHO, 2021). The 2021 WHO fact and figures report shows that depression is one of the leading causes of adolescent illness and disability in recent times resulting in frequent suicide cases among adolescents. Suicide among adolescents is the fourth leading causes of death especially among 15-19 years old. The consequences of the failure of stakeholders to address depression among adolescents has resulted in protracted physical and mental health problems into adulthood. These adolescents are expected to take over leadership mantles in future or serve as source of labour force in the near future. It is therefore important that in-dept assessment is done to ascertain the prevailing conditions to help curtail the emerging trend.

1.1 Problem Statement

The United Nations in 2011 estimated that children and adolescents who are between the ages of 5-17 years constitutes about a quarter of the world population (United Nations, 2011). However, in 2015, a different global assessment on world population further reiterated that children and adolescent between the ages of 5-17 years form about 30% of the global population and approximately 37% of African's population are expected to be within this age by 2050 (UNICEF, 2014). It has been predicted that nearly half of the population in Africa would be those below 18

years by the end of the 21st century. The increasing trends in children and adolescent population has consequent effect on the demand for specific adolescent healthcare services. Unfortunately, there are challenges with access to appropriate healthcare services to adolescents especially between the ages of 10-19 years. One of such health challenge is the provision of mental health needs of adolescents (Erskine et al., 2017). Even though higher records of depression have reported among middle aged and older population, recent updates and studies have shown increasing cases of depression among the adolescent in developing countries including Ghana (Thapa & Hauff, 2012; Thapa et al., 2015; World Health Organization, 2021). Elsabe, (2021) in an article on "High Mental Health Burden for African Youth" described young people in Africa as people who are at a higher risk of having severe mental disorders due to increasing cases that are reported everyday in health facilities.

Despite the increasing reported cases of depression among adolescent, data on the prevalence of mental disorder especially among in-school adolescents have been limited. Elsabe, (2021) have reiterated that global focus on depression have centred on adult population and the systems that can provide adequate treatment to the adult. With the increasing population of the adolescent in Africa, it would have been appropriate to ascertain adequate data on the prevalence of depression and its related mental disorder to inform decision making on the allocation of resources for health service provision. Jorns-Presentati et al., (2021) postulated that research works that have been done on adolescent mental health have largely been done in high-income countries. Interventions that have been carried out to prevent and address challenges on depression continue to be in high-income countries. Erskine et al., (2015) in the discussion on the impact of depression mentioned that lack of empirical evidence has affected health providers on mental health by reducing the level

of visibility of mental disorder among adolescents thereby denying them with appropriate treatment.

Moukaddam et al., (2019) maintained that adolescent stage is critical period for the development of the brain and therefore any slight problem with it affects the general cognitive development of the adolescent. Moukaddam et al., (2019) indicated that depression among adolescent has been increasing steadily but with limited response to addressing the issue. Consequently, the impact on the adolescent is becoming dire and causing many deaths and other chronic diseases including suicide. Nonetheless, the risk factors associated with the steadily increasing cases of depression among in-school adolescents are not widely known especially in sub-Saharan Africa.

A recent WHO report on mental health status in Ghana shows that about a tenth of Ghanaians are living with mental health problems, with the youth as the affected majority (WHO, 2022). The World Health Organization (WHO) estimates that, out of 32 million Ghanaians, around 2.3 million people live with a mental health condition requiring mental health care. Depression constitutes more than a fourth of all mental health problems in the country (WHO, 2022). In Ghana, the burden of depression until recently was mostly linked to the aged with the neglect of the adolescent and the youth who are in-school. The general perception had been that only the aged were linked to severe depression. However, recent reports suggests otherwise (WHO, 2021, Nakua et al., 2023). Despite the increasing rise in depressive conditions among in-school adolescents and the youth, it has not received commensurate attention.

Cases of depression in the Eastern Region and its resultant effects have been reported in different times especially through the media space. For instance, in early 2022, graphiconline.com reported a case of a depressed man who committed suicide for fear of the future which is unknown. Similar cases of depression and its consequences have been reported from different parts of the region with a few in Akwapim South. Unfortunately, a detailed assessment has not been done to estimate the prevalence of depression among in-school adolescents in Akwapim South District. In the study district, reported cases of mental health issues among the youth is increasing over time. In 2021, more than half of all mental issues that were reported in the health facilities were attributed to the adolescents who were largely in the schools. Increasingly, adolescents in Junior High Schools are reporting cases of mental distress and depression, resulting in hospitalisation of these adolescents in the district hospital (Ghana Health Service, Akuapem South District, 2022).

The fundamental factors that contribute to the increasing cases in the district and the region has equally not been established. It is therefore important to assess the prevailing mental health conditions in the form of depression among in-school adolescents. This study therefore proposes to determine the associated factors of depression among in-school adolescents in the region.

1.2 Research Objective

1.2.1 General Objective

The main objective of the study is to estimate the prevalence and the factors associated with depression among in-school adolescents in Akwapim South district.

1.2.2 Specific Objectives

The specific objectives of the study are to:

a. To estimate the prevalence of depression among in-school adolescents in Akwapim South district.

b. To identify the most common symptoms that adolescents exhibit during depression.

c. To determine socio-demographic factors that are associated with adolescent depression among in-school adolescents

d. To determine any other-related factors that are associated with depression among in-school adolescent in Akwapim South district

1.3 Research Questions

To achieve the objectives of this study, the following research questions will be investigated:

a. What is the prevalence of depression among in-school adolescents in Akwapim South district?

b. What are the common symptoms that in-school adolescents exhibit during depression?

c. What are the socio-demographic factors that are associated with depression among in-school adolescents?

d. What are the other-related factors that are associated with depression among in-school adolescent in Akwapim South district?

1.4 Justification of the Study

Despite the global response to the fight against depression, there has been steady increase in cases of depression among adolescents in Ghana and across the sub-Saharan African region. Adu et al., (2021) has confirmed the challenges with the emerging depression trend in Ghana among adolescents. This study would therefore determine the level of depression among in-school adolescents which would help policy makers to determine the extent of the condition and how best to develop interventions that can best address the challenges.

This study will identify key factors that contribute to the prevalence of depression among in-school adolescents. The results will also provide some evidence to guide in the development of relevant interventions. The study also seeks to identify the common symptoms that are associated with depression among adolescents. Knowledge about these symptoms is critical and provides the first step to addressing the challenges. The outcome of the study would enhance the capacity of the District Health Directorate to understand the prevailing situation and integrate mental healthcare services to offer effective healthcare within a primary health care approach. This study will thus form the basis for further studies on mental health in the district.

1.5 Chapter summary and dissertation outline

The chapter has outlined the key problem that has necessitated this study. The research objectives and questions have also been outlined in the chapter. The rest of the dissertation will be organised as follows. Chapter two reviews various literatures that are related to the study objectives. The methods of the study would be presented in chapter three while the results of the study would be

presented in chapter four. Chapter five will discuss the findings of the study, while chapter six concludes with relevant recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter discusses the various concepts and models that better explains depression among adolescents within global, regional and national context. The concept of depression is discussed as length to unearth the underpinning factors that contributes to its prevalence among adolescents. The chapter thus therefore been categorised into four main sections; concept and definition of depression, prevalence of depression, common depressive symptoms and factors that influence the prevalence of depressive symptoms or conditions among adolescents. The discourse on adolescents is much concentrated on in-school adolescents largely at high school. The chapter is however concluded by presenting a model that predicts depressive condition among adolescent and it's conceptual framework. Various studies on adolescent depression were reviewed through an analysis of key findings of each study/article and its relevant to this research topic. In most cases, articles of different studies were retrieved from sources such as Google Scholar, PubMed, Wiley, etc. References were also made from other reports of corporate organizations as well as conference papers that have been published in books. For each review, details assessment was done to ascertain key areas that supports the argument for this study while analysing the methods that were adopted in the various studies to understand their significance and possible application in this study.

2.1 Depression in Adolescent: Concept and definition

According to the World Health Organization, (2012), depression is classified as a common mental disorder that is mostly experienced in different forms by different people at different times. It is

explained that depression which is noted as mental health condition is most often linked directly to sadness, the act of feeling guilty or low self-esteem and sometimes loss of appetite. In some conditions, depression may be classified and explained a distressed sleep condition while others feeling tired as often as possible. (WHO, 2012). The American Psychological Association, (2021) defined depression a mental disorder which negatively affects someone's ability to reason or think, to act and how to feel. The ability to think is borne from the fact that depression is directly linked to the brain and is described as retarding the functionality of the brain/mind at the point of the defect. It further explained that depression can lead to variety of emotional as well as physical problems and this consequently affects the affected person's capacity to perform any activity.

Globally, it is estimated that over 350 million people have been affected by depression and this further increased by 4.1% in 2020 (World Health Organization, 2021). Depression constitutes about 11% of the global burden of mental illness. However, when the condition recurs in an individual, the effect is noted to be severe and may have dire consequences to the social capabilities of the person affected (World Health Organization, 2012). In recent times, the rate of depression among the youth is increasing. Wartberg et al., (2018) explains that, among adolescents, unipolar depressive disorder remains the major mental health disorders which is more apparent during the later stages in adolescence. Mokdad et al., (2016) further reiterated that the widespread of depression among adolescent has consequently affected their well-being and this has increased the risk of suicidal cases in recent times. The risk of suicide among those who are depressed has been established to be significantly higher in the youth compared to those in adult population (Mehler-Wex & Kölch, 2008). Biological, psychological and social factors have consistently influenced or

determined depressive symptoms or conditions among adolescents, however, psychosocial factors have dominated in most of the identified cases (Naab et al., 2015).

While discussing the concept of depression among adolescents, it is important to understand the context within which adolescents are described. Adolescence is a period of transition from childhood to adulthood. The World Health Organization defines adolescence as the phase of life of transition from childhood to adulthood, which falls between the ages of 10 to 19 years (WHO, 2017). Situating the World Health Organization's definition within context of childhood definition connotes that majority of the adolescents are within the childhood bracket of less than 18 years as clearly defined in the Convention of the Rights of a Child (CRC) (United Nations, 1989). Sawyer et al., (2012) in discussing the concept of adolescence expanded the scope to capture both the WHO and the UN definitions to integrate it into young people between the ages of 10 – 24 years. At age 18 years, although a girl or boy at 18 is considered as an adolescent, the CRC describes such a person as an adult and therefore may be treated differently within different context.

Children between the ages of 10-14 years have been categorised as those within early adolescents stage while middle adolescents describes children who are between the ages of 15-17 years. The later adolescent stage has been identified as young adults who are largely between the ages of 18-19 years, and expanded to 24 years in the context of young people. Young adults or later adolescents have passed the age of childhood and are characterised with diverse behaviours and practices. For each developmental stage, there are unique characteristics that are equally linked to the health needs of the adolescent. The adolescent within the three phases go through both physical/biological, cognitive, and psychosocial development. The development for each stage,

whether biological, cognitive, or physical differ from each other. However, it must be emphasised that not all adolescents may get through the same process at different stages as per the age criteria.

Laski, (2015) in discussing adolescent health described adolescent stage as a critical stage of human development which is characterised by rapid biological, emotional and social development. It is also mentioned that it is the stage where specific health and other developmental needs and rights of every human being is required (WHO, 2014). In essence, the time in every human beings life to develop knowledge and skills and to learn how to manage emotions is significantly high during the adolescent stage. However, the failure of some adolescents to manage their emotions and other psychosocial challenges during that period has greatly influenced the condition of depression within that stage. Sawyer et al., (2012) has maintained that when the cognitive growth of an adolescent is affected, there are severe consequences that may require urgent medical attention. Adolescent stage has also been described as a healthy stage, however, other negative issues including death and injury have been associated with the stage. While some of these negative tendencies are preventable, there are some that have lacked the support to help them move out of their condition.

2.2 Prevalence of depression

The discussion on depressive symptom prevalence has been situated within global and national context. Assessment of the conditions at different levels helped to appreciate the context within which this study can be linked to.

2.2.1 Prevalence of Depression among Adolescents within Global Context

Globally, it is estimated that one in seven people (approximately 14.3%) of adolescents who are aged 10-19 years experienced depression in the form of mental disorder, constituting about 13% of all global burden of disease among adolescents (World Health Organization, 2021). It is further estimated that at least 1.1% of adolescents aged 10-14 years are likely to experience some form of depression. Racine et al., (2021) conducted a meta-analysis of various studies that had been conducted globally from different WHO regions. The study was to estimate the prevalence of depression among children and adolescents during COVID-19 period. The results of the meta-analysis which had about 80,879 participants observed a pooled prevalence of 25.2% for depression while prevalence of anxiety symptoms was 20.5%. The prevalence in this study was comparatively higher than the global prevalence as reported by WHO (WHO, 2021). Erskine et al., (2017) also estimated the global prevalence of mental disorders in children and adolescents. The global analysis of the mental disorder used data from 63 countries which had reliable data. The estimate showed a prevalence of 6.2% among children 5-17 years.

Studies from other countries from different WHO regions have also been reviewed to ascertain the disparities that exist in these countries with reference to adolescent depression. In Asia, different studies have provided some perspectives of depression symptoms among adolescents. Singh et al., (2017) in an earlier study in Chandigarh, India among school-going adolescents in both private and public schools. The study adopted the Indian Patient Health Questionnaire-9 (PHQ-9) tool for assessing the levels of depression among the in-school adolescents of ages between 13-18 years old. The study, which was a cross-sectional design, recruited 542 participants. Adolescent depression was observed among 40% of the study participants. There were however some

disparities in measuring the severity of depression. It was noted that 7.6% of the adolescents had major depressive disorders while 32.5% had other forms depressive disorder. The rate of severity was further assessed. The result showed that 29.7% of the adolescents had mild depression while 3.7% had moderately severe depression. About 1% of the participants had severe depression.

Bharati et al., (2022) also in a later study in Patna in Eastern India determined the prevalence of adolescent depression. The study was conducted among 838 adolescents who were aged between 11-19 years in 15 selected urban schools. Similar to the earlier study by Singh et al., (2017), this study also adopted the Patient Health Questionnaire-9 (PHQ-9) tool. The results of the study showed that 51.2% of the adolescents had some level of depression at the time of study. The study noted that 32.2% of the adolescents had mild depression while 14.3%, 3.9% and 0.6% had moderate condition, moderately severe and severe depression conditions respectively. Vashisht et al., (2014) had earlier conducted a similar study in Haryana city, India to determine the prevalence of depression among school going adolescents. The study which adopted a cross-sectional design recruited 1,632 adolescents between the ages of 13-19years in both rural and urban communities. Unlike the studies by Singh et al., (2017) and Bharati et al., (2022) which adopted the PHQ-9 tool, Vashisht et al., (2014) in their study adopted the depression subscale of Symptom Check List 80 (SCL-80) to estimate the prevalence of depression among adolescents. The study observed a prevalence of 29.9%. further analysis showed that 22.9% of the adolescents were experiencing mild depression while the remaining 7% had moderate category of depression.

In Bangladesh, Anjum & Hossain, (2019) in a cross-sectional pilot study investigated the prevalence of depressive symptoms among adolescents in semi-urban schools. A total of 311

adolescents in graces 8-10 participated in the study. The prevalence of depressive symptoms among the adolescents was 36.6%, however, disaggregation of the prevalence according to sex showed that adolescent girls had higher prevalence of 42.9% compared to adolescent boys (25.7%). Moeini et al., (2019) also conducted a study to determine the prevalence of depression among female adolescents in some selected secondary schools in Iran. The study which adopted a cross-sectional design recruited 670 adolescent females between the ages of 15-18 years. For this study, the Persian version of Centre for Epidemiologic Studies Depression Scale (CES-D) was adopted to determine the prevalence of depression. Significantly, the study observed a higher depression rate of 52.6% among the females. The concentration of the study in only secondary schools as well as limiting the participants to only females might have influenced the outcome.

In the United States, an analysis of trend of the prevalence of depression among adolescents showed a steady increase from 8.1% in 2009 to 15.8% in 2019 (Daly, 2022). However, among girls, the rate of depression increased from 6.4% to 14.8% within the same period. It was evident that the trend of depression had being increasing over time.

2.2.2 Prevalence of Depression among Adolescents within Africa

The situation in Africa has been relatively lower, though there are cases of higher reported prevalence. Jorns-Presentati et al., (2021) conducted a systematic review of various studies that had been conducted in Sub-Saharan Africa on depression and other mental health problems. A pooled prevalence of 26.9% was observed among 9 different studies. However, when high-risk population studies were pooled together, depression prevalence rate of 29.0% was observed. In Nigeria, Fatiregun & Kumapayi, (2014) conducted a study on the prevalence of depressive symptoms among in-school adolescents in some rural communities. The study which also adopted

the PHQ-9 tool recruited 1,713 adolescents to ascertain the real prevalence within communities and observed a prevalence of 21.2%. More than 5% of the adolescents had moderately severe to severe depression.

Two different studies (Nalugya-Sserunjogi et al., 2016 & Nabunya et al., 2020) which were conducted in Uganda showed relatively higher prevalence of depression among adolescents. The study by Nalugya-Sserunjogi et al., (2016) focused on in-school adolescents in Central Uganda among 519 adolescents. The study noted that about 21% of the adolescents had significant depressive symptoms while severe depression disorders was estimated at 2.9%. Nabunya et al., (2020) however observed depression prevalence 45.9%, a result that is noted to be extremely high especially within the African context. The study however concentrated on only adolescent girls who were between the ages of 14-17 years and were in secondary schools. As the age of the adolescent increased, the prevalence for depression also increased. Girma et al., (2021) also did a study in Southeast Ethiopia to determine prevalence of depression among adolescents in Jimma southeast Ethiopia. With the help of the PHQ-9 tool, 546 adolescents were assessed, and the result showed that 28% of the adolescent had some form of depression. However, further assessment showed that 18.5% and 8.2% of the adolescents had moderate and/or moderate to severe depression.

2.2.3 Prevalence of Depression among Adolescents in Ghana

Depression in Ghana has equally gain much attention as other public health issues because of its resultant effect on the individual. Reports and other studies as have been reviewed in this section outlines clearly the prevailing condition in the country. The studies in Ghana have not been limited

to the depression but considers the broader spectrum of mental health problems. Nonvignon, (2020) in a report by National Development Planning Commission on benefit-cost analysis of mental health noted that about 13% of the population in Ghana have problems with mental health. Nonetheless, other specific studies have looked at adolescent depression in different context. A total 1342 in-school adolescents who were aged 12-18 years and were in Secondary Schools formed the study participants. The study consequently noted that anxiety-induced sleep disturbance was significantly linked to depression. Oppong et al., (2017) in a study on mental health also analysed the prevalence of suicidal behaviour among in-school adolescents aged 11-18 years who were in Secondary School. The study was carried out among some selected second cycle schools across the country (Ghana). The prevalence of suicidal behaviour among in-school adolescents was observed to be 22.5%.

Beyond the national level studies, there are other studies that have been limited to specific geographical locations. In Kumasi, Kusi-Mensah et al., (2019) determined the prevalence and patterns of mental disorder among on-school adolescents between the ages of 11-15 who were in primary schools. Using a pilot cross-sectional design approach, the study recruited 303 pupils who were in grade 3. The assessment of child and adolescent mental disorder among the in-school adolescents was conducted using the Child Behaviour Checklist (CBCL) as well as the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS-PL). The study observed adolescent mental disorder prevalence of 7.25% comprising of 1.3% depressive disorder, 1% of anxiety disorder, 1.6% of attention deficit hyperactivity disorder, 2.0% of conduct disorder, and 1% of intellectual disability. Another study in Kumasi (Anokye et al., 2020) examined the prevalence of attention-deficit/hyperactivity disorder among 1540 primary school

children/adolescents. The study observed a prevalence of 27% with 5% displaying higher symptoms of attention disorder. Asante & Andoh-Arthur, (2015) conducted a study among adolescents in some selected universities to determine the prevalence of depressive symptoms. The study recruited 270 students with a mean age of 22 years. The observed overall prevalence of depression among the students was 39.2% which was categorised into severe depression (8.1%) and mild to moderate depression (31.1%).

2.3 Common Depressive Symptoms among Adolescents

The World Health Organization (2017) estimates that, among teenagers between ages 15-19 years, depression remains the largest single cause of death among the world's global burden of disease. Depression is measured through basic symptoms, and some are directly linked to the behaviour exhibited by adolescents. Sadness is one of the major symptoms of depression. It may take different form, from sense emptiness to a perception of hopelessness. If not resolved, this condition may persist for a long time and have dire consequences on the health of the person. Anum et al., (2019) also discussed depressive symptomatology in adolescents in Ghana. The study which adopted a cross-sectional study design discussed the key symptoms that have been identified among adolescents in Ghana with a focus on PHQ-9 model as has been used in depression assessment in many studies. The analysis of depression symptoms using PHQ-9 showed that there was a positive corelation of PHQ-9 and measures of anxiety as well as mental wellbeing. The assessment revealed that suicidal behaviours were common symptoms and practices that were linked with depression in adolescents. In the analysis, it was noted that suicidal attempts have resulted from conditions of sadness and prolong sense of rejection and hopelessness.

Rose & Magidson, (2020) discussed major depressive disorder in the book Functional Analysis in Clinical Treatment. In the discussion, Rose & Magidson, citing from the American Psychiatric Association, (2013) explained that major depresive disorder (MDD) has been categorisesd into two main symptoms; i.e., a) loss of interest or pleasure in activities (anhedonia); and b) depreesed mood. Rose et al., (2020) further explain that these two conditions are mostly predominant within two weeks prior to any assessment. By inference, any major depressive disorder can be determined when the condition had been observed for a period of 14 days. Beyond the first two conditions that were explained, the report also showed that there are other secondary symptoms of depression and some of these may include significant loss of weight, consistent decrease in appetite, insomnia or hypersomnia, retardation which may take the form of psychomotor agitation and feeling of hopelessness or worthlessness. Other secondary symptoms may include feeling of guilt which may be excessive for some time, lack of concentration, thoughts of death and/or suicide and fatigue or loss of energy.

Wahid et al., (2022) discussed the perspectives of adolescents on depression in relation to the symptoms adolescents commonly experience. The qualitative study which was conducted in Nepal with adolescents with different backgrounds; adolescents with no traits of depression, adolescents with depressive symptoms, parents of the adolescents and teachers, social workers and healthcare providers who manage these adolescents. The study noted that loneliness was the major depressive symptom among adolescents. The study further observed some other symptoms which clustered into 5 groups: 1) low mood and anhedonia; 2) disturbance in sleep and appetite; 3) irritability and anger; 4) negative self-appraisals including hopelessness and self-doubt; and 5) suicidality. These observations made by Wahid et al., (2022) confirms the observed result in the earlier study by

Rose et al., (2020). In similar studies (Rice et al., 2019; Vos & Westerhof, 2021) have concluded that depressive symptoms in adolescents can best fit into the five major categories that have been described by Wahid et al., (2022). It is therefore important to situate any discussions on common depressive symptoms among adolescents within this context.

2.4 Factors Associated with Depression Symptoms among Adolescents

Depressive symptoms in adolescents may have diverse root causes and related factors. The prevalence as discussed above from global context to national level have shown some different prevalence. The determining factors play a major role in the overall outcome of depression conditions among adolescents. The factors have been discussed in accordance with the observed factors in various studies.

Sex of adolescents

The sex of an adolescent has been identified as a major determinant of depression in most countries. Surabhi et al., (2014) in a study in Nepal noted that female adolescent were more prone to depression compared to males. In general, the study observed depression prevalence of 38% among adolescents. However, when analysis of depression was further done in relation to sex, it was observed that the prevalence of depression among females was relatively higher (41.8%) compared to males (35%). Nalugya-Sserunjogi et al., (2016) in their study also observed that females were about 1.7times more susceptible to depression compared to male adolescents. Nyundo et al., (2020) also observed that depressive symptoms were common among female adolescents compared to male adolescents. Wartberg et al., (2018) in a study observed depression prevalence of 5.6%, however, when the analysis was only limited to girls, the study observed a higher prevalence of 5.9% compared to boys with a prevalence of 4.5%. Other studies like Bharati

et al., (2022), Girma et al., (2021) have established a strong relationship between depressive symptoms and sex of adolescent (females).

Age of adolescents

Wartberg et al., (2018) in a cross-sectional study noted that adolescents who are aged above 16 years had higher probability of experiencing depressive symptoms compared to adolescents who were relatively younger. Nyundo et al., (2020) in a study across a number of countries in sub-Saharan Africa observed that depression conditions were associated with age of the adolescents. Older adolescents had higher probability of experiencing depressive symptoms compared to adolescents who were younger. Ho et al., (2018) in a trend analysis have identified age as a constant factor that influences or determines the level of depression among adolescents. Bharati et al., (2022) also noted that older adolescents have higher risk of experiencing depressive symptoms compared to younger adolescents. Nabunya et al., (2020) also noted that the severity of depression is prominent among adolescents who were aged 16 years and above. Vashisht et al., (2014) in an assessment of depression conditions noted that the severity of depression increases with increasing age of the adolescent.

Residence

Girma et al., (2021) noted that residence of adolescents had significant influence on whether the adolescent would experience any symptom of depression. Adolescents who resides in rural communities had significant association with depressive symptoms. Singh et al., (2017) also observed that adolescents who live in rural communities had higher risk of experiencing depressive conditions compared to adolescents who were residing in urban areas. Vashisht et al., (2014) however in their study observed a result that directly opposite of the results observed in other

studies. Vashisht et al., (2014) observed that students or adolescents who resides in urban cities were at a higher risk of experiencing depressive symptoms than those in rural communities.

School conditions

Anjum et al., (2019) identified the grade of adolescent as a factor to depression. In their study, Anjum et al., (2019) observed that adolescents who were in Grade 9 (largely in secondary school) were significantly prove to depression than those in lower grades. Nalugya-Sserunjogi et al., (2016) also observed that the rate of depression is significantly high among adolescents who are in girls' schools only compared to boys' school only. There were no significance association between those who were in mixed boarding school or mixed day schools. Bharati et al., (2022) also noted that adolescents who are in Grades 9-11 were more likely to experience depressive symptoms than those who are in lower grades. The study further noted that poor academic results have the tendency to trigger depressive symptoms among adolescents. Girma et al., (2021) also observed results as others where higher-grade adolescents were more susceptible to depressive symptoms.

Singh et al., (2017) in their study also noted that adolescents who were in grade 10-12 had more cases of depressive symptoms compared adolescents who were in lower grades. Additionally, Singh et al., (2017) noted that adolescents who were in public schools had higher risk of experiencing depression compared to adolescents who were in private schools. Again, lack of supportive environment in schools, either from teachers or infrastructure and learning materials, had a strong association with depressive symptoms.

Alcohol consumption and other substance abuse

Nyundo et al., (2020) further analysed why the risk of depression was relatively higher among adolescents across some selected countries in sub-Saharan Africa. The study observed that substance use in different forms have significantly increased among especially among in-school adolescents and this has consequently increased the risk of depression and suicidal ideation among adolescents in Africa. Singh et al., (2017) also observed that depressive symptoms were common among adolescents who were engaged in alcohol consumption.

Health conditions of the adolescent

Nalugya-Sserunjogi et al., (2016) noted that adolescents with physical illness or deformity have higher probability of becoming depressed compared to the adolescents who do not have any form of deformity. Most often, these children tend to live in low self-esteem and with little mockery from colleagues or peers, the level of depression or its associated risk is exacerbated. Wartberg et al., (2018) have also established a strong relationship between depressive symptoms and negative body image. The negative body image was explained in some defect in the physical body of adolescents.

Parental / family or domestic environment factors

Nalugya-Sserunjogi et al., (2016) have explained that adolescents whose family is centred on single parent system (either living with mother alone or father alone) were about 1.94 times more likely to experience depressive symptoms compared to those who live with a monogamous marriage with both father and mother. The study further observed that children who are orphans have higher risk of depression compared to children whose parents are alive. Wartberg et al., (2018) also noted that adolescents who have good family relations have low tendency to

experience depression compared to adolescents who live in abusive family environment. Bharati et al., (2022) also observed that domestic harassment on any of the adolescents or related to any member of the family is a strong trigger to depressive symptoms. Similarly, parental discord had strong association with depressive disorder. Girma et al., (2021) also noted that low social support had significant effect on depressive symptoms. Similarly, depressive symptoms were common among adolescents who had adverse childhood experience.

The rate of depression among adolescents was significantly higher among those who had experienced some level of abuse by any of the family members, either at a tender age or during the adolescent stage (Singh et al., 2017). The study further noted that depressive symptoms were also common with adolescents whose parents were into smoking. The observed results was common with adolescent girls. Nabunya et al., (2020) argued that depression among adolescents is predominantly influenced by family relations and the type of social support that is received by the adolescent at all stages of childhood growth. When family relations are poor, adolescents tend to suffer the consequences thereof.

Obesity

Surabhi et al., (2014) in their study noted that adolescents who are obese are more likely to experience depressive symptoms compared to those who are not obese. While the general depression prevalence stood at 38%, the prevalence of depression among obese adolescents 48.7%. The difference in the prevalence was significantly high when difference in the two variables was further computed in the study.

Other factors

Food insecurity has been identified as another significant factor that influences the prevalence of depression among adolescents (Nyundo et al., 2020). Wartberg et al., (2018) also noted that the frequent use of social media has negatively influenced adolescents' attitude towards depressive and suicidal behaviour. Bharati et al., (2022) in their study also established strong relationship between depressive symptoms and factors such as consumption of soft drinks and fast foods. The risk of depression was significantly higher among adolescents who were having boy/girlfriends (Singh et al., 2017). The risk of depression increased when the adolescent is deserted by his/her supposed friend. The study also observed that depressive symptoms was relatively high among adolescents who did not participate in any cultural event or activity.

2.5 Conceptual Framework

The concept of depression as discussed in the chapter transcends beyond just the definition but further to the indicators that constitutes depressive conditions. While it is difficult to use only one indicator to describe depressive conditions, Naab et al., (2015) has argued that a number of factors such as biological, psychological and social factors have consistently influenced or determined depressive symptoms or conditions among adolescents. The construct of a conceptual framework for this study therefore is not limited to only condition or factor but a number of factors that have been deduced from the various studies/articles reviewed in this chapter.

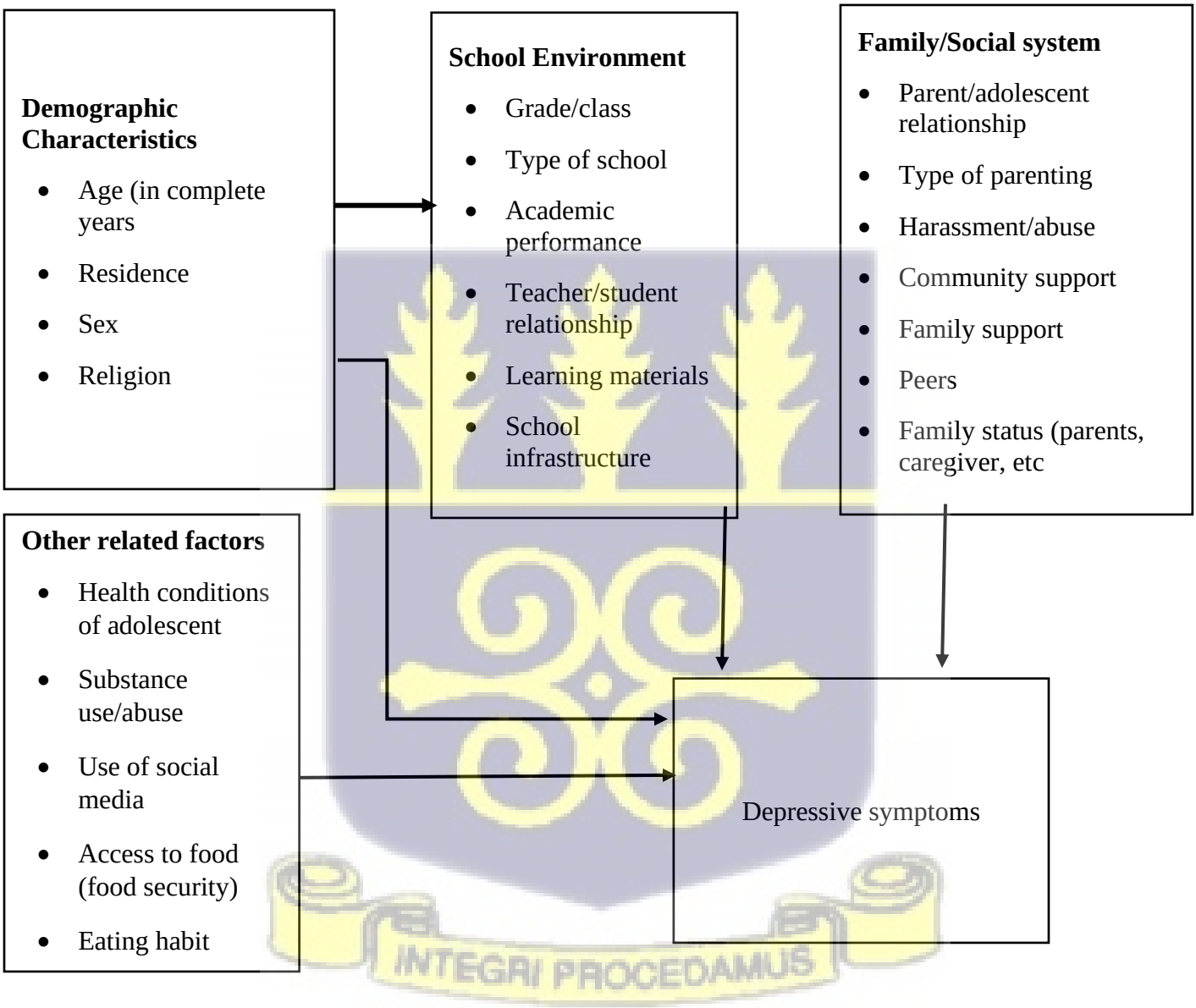

Figure 2.1: Conceptual framework showing the relationship between factors that influence the prevalence of depressive symptoms among adolescents.

Source: Researcher's construct adapted from previous studies (Bharati et al., 2022; Singh et al., 2017)

Narrative of the conceptual framework

The conceptual framework predicts that the prevalence of depressive symptoms is likely to be influenced by four key factors, demographic, school environmental factors, family and social system and other related factors. For demographic factors, the framework identifies factors such as age the adolescent, place of residence (rural or urban), type of religion and sex of the adolescent (boy/girl). Factors explains the school environment conditions may include the academic performance of the adolescent, his/her grade in school, the type of school he/she is attending (this may either boys or girls' school; public or private), the relationship that exist between the teachers and the adolescent. Other factors include the availability of learning materials the type of infrastructure the adolescent is using for studies. Other related factors such as health conditions of the adolescent, whether or not the adolescent is into alcohol drinking or use of any other substance, use of social media, access to food and eating habit.

Studies from different literature as demonstrated in earlier discussions have shown a strong relationship between the factors outlined in the conceptual framework and its resultant effect of depressive symptoms. It is expected that the outcome variable which is explained in depressive symptoms would be influenced by these factors that have been presented in the framework. The framework further establishes a direct linkage between demographic factors and school environment factors. The age of the child/adolescent is more likely to correspond with the grade/class of the child. Similarly, the location of the child may determine the type of school to attend especially for those in Primary and Junior High schools. In the same vein, the sex of the adolescent will determine the type of school to attend (boys or girls school only).

2.6 The Patient Health Questionnaire (PHQ-9)

The Patient Health Questionnaire (PHQ-9) is a nine-item version or questions that is used to assess depression conditions of any individual within the previous two weeks preceding the assessment. It is a multiple-choice self-reporting inventory which is mostly used in clinical and other research settings to ascertain whether an individual is in severe or low depressive conditions. It was developed from the initial Primary Care Evaluation of Mental Disorder (PRIME-MD) which was originally developed by Pfizer Inc. in 1990 (Spitzer et al., 1999). The original had several questions that was further revised to be limited to 11 questions that provides more details of depressive conditions within any given period. However, the final validated PHQ-9 which was validated by experts reduced the questions into nine (Kroenke et al., 2010).

The PHQ-9 helps to categorise adolescent's perceived depressive conditions into five depressive severity criteria. For each question, four assessment scale; "not at all = 0"; "several days = 1"; "more than half the days = 2" and "nearly every day = 3". The result of each question is therefore computed into overall scores of 27. However, to determine the severity of the depressive condition, the scale below is used:

Table 2.1: PHQ-9 Model for measurement of Depression

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

Source: Kroenke et al., (2010).

2.7 **Chapter summary and outstanding knowledge gaps**

The general review of literature from different geographical perspectives have shown that different studies have been done in relation to the prevalence of depression among adolescents within the global context. Similarly, there are evidence of some new ideas within the African context on depression prevalence. Largely, studies conducted in Ghana on depressive symptoms have focused significantly on adult population. Among adolescents, available studies on adolescents have gone a step further to assess factors that influence suicide rather than focusing on depressive factors that may influence suicidal ideation. The factors that determine depression in adolescent have been established to come from different situations. Some of these factors may not be relevant within the context of Ghana. There is therefore the need to first establish whether in-school adolescents in Ghana experience some level of depressive symptoms and the underlying factors that influences or determines these established conditions.

CHAPTER THREE

METHODS

3.0 Introduction

This chapter discusses the methods that were employed to collect and analyse data to satisfy the objectives of this study. The chapter discusses the study design, study area, study population, sample size and sampling, data collection methods and tools, and data analysis. Ethical issues were also discussed.

3.1 Study Design

The study employed a cross-sectional in-school survey as the main study design. In-school survey for the adolescents who are in both high school was conducted. A quantitative method of research approach was used for this study. The quantitative method was employed to help estimate the prevalence of depression among in-school adolescent in the district. Additionally, the quantitative method was used to determine significant factors that were associated with the prevalence of depression among the in-school adolescent. To further help explain and identify the key symptoms of depression among in-school adolescents, quantitative methods were further employed to determine the various symptoms among the adolescents.

3.2 Study Area

The study was carried out in Akwapim South District of Eastern Region, Ghana. The Akwapim South District was carved out of the original Akwapim South Municipality in 2012 which originally had Nsawam as the municipal capital. The current Akwapim South District has Aburi as the district capital with a population of 76,922 as per the 2021 Population and Housing Census

(Ghana Statistical Service, 2022). The district is predominantly rural with more than 70% of the people residing in rural communities. Females constitute about 51.7% of the total population while adolescent form nearly 27% of the entire population. The main economic activity of the people in the district is agriculture with crops such as maize, cassava, yam and vegetables as the main crops produced. Farmers within the district are small holder farmers who work on subsistence basis. The district is known for its tourism centres with the famous Aburi botanical gardens which attract different category of tourist. The garden receives averagely about 15,000 tourist every year and this has become the main source of income for the district.

On education, the district has committed to the infrastructural development of its education through the expansion of educational facilities. The district has over 50 public and 35 private Pre-Schools, 42 public and 38 private Primary Schools as well as 32 public and 18 private Junior High Schools. Additionally, the district privilege with 4 public and 1 private Senior High Schools including the popular Aburi Girls Senior High School. The district equally has 1 College of Education for the training of teachers.

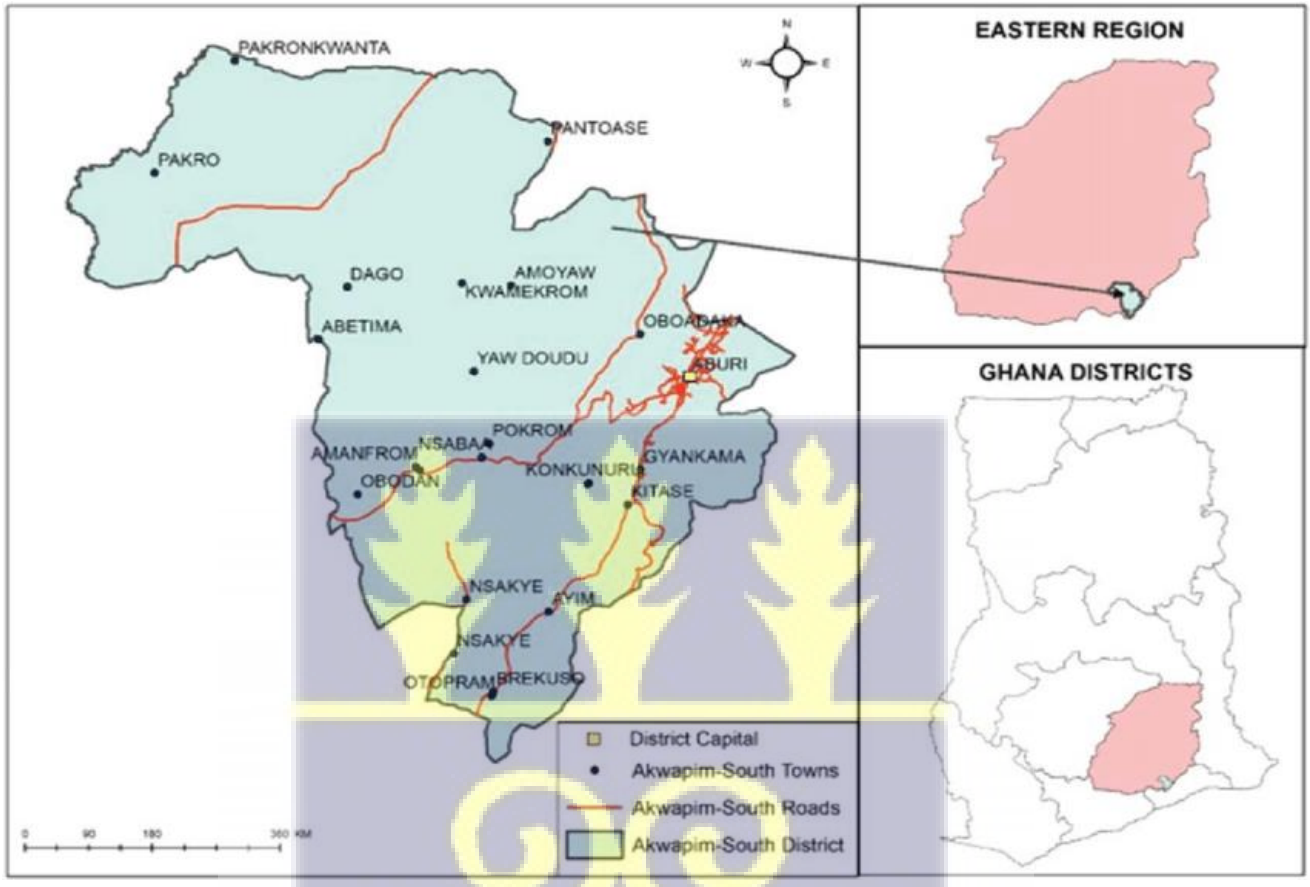

Figure 3.1: District map of Akwapim South District in Eastern Region of Ghana

3.3 Study Population

The main study participants were adolescents in both Junior and Senior High Schools in the district. Specifically, adolescents who were aged between 10 – 24 years and were attending high school within the district formed the study participants.

3.3.1 Inclusion Criteria

For the purpose of this study, adolescents who qualified to participate in the study included:

1. Adolescents and young persons who were aged between 10-24 years
2. Adolescents who were attending either Junior or Senior High School within the district

3.3.1 Exclusion Criteria

1. Adolescents and young persons who met the above criteria but were indisposed.

3.4 Sample size estimation

The sample of the study was calculated using the Cochran formula:

$$N = \frac{Z^2pq}{e^2} * d$$

Where:
Z = z score for 95% confidence interval,

p = estimated prevalence. For this study, the prevalence of depression of 22.5% (Oppong et al., 2017) was used.

q = 1 – p

d = design effect = 1.65

e = precision (fixed at 5%).

Therefore,

Z = 1.96, p = 0.252, q = 1 – 0.225 and d = 0.05,

then

N = 425

Allowing for 15% non-respondents of the sample size, the sample size then becomes:

0.15(425) + 425 = 488.7

The sample size for the study was therefore estimated at 489.

3.5 Sampling methods

Multiple sampling methods were employed in this study. First, a list of all high schools in the district was taken from the District Directorate of Ghana Education Service, Akwapim South. The list of the schools was grouped according to the five sub-districts. In each sub-district, the high schools were grouped according to Junior High and Senior High. For the purpose of equal representation, one sub-district with only Junior High School was sampled while another sub-district with both Senior and Junior High Schools was selected. In each of the sampled sub-districts, names of the schools were written on sheets of papers and folded. A staff of the Ghana Education Service was asked to randomly select two Junior High schools each in the two-sampled sub-districts. In addition, one Senior School was sampled/selected from the sub-district with the Senior High School.

In each school sampled, convenient sampling method was used to select students/adolescents to participate in the study. Any student that was met on campus during the data collection period was approached for interview. Students were interviewed using a structured questionnaire as they exit from their classrooms or school. Proportionate sampling method was used to determine the number of students to be interviewed per school. The population of each school was determined and proportionate to size estimation was done to determine the exact number of students/adolescents to be interviewed.

3.6 Data Collection Method

Data collection was done through face-to-face interaction with full adherence to COVID-19 protocols (details of COVID-19 protocols as outlined in the section on Ethical considerations). For

each sampled participant, data collection was done using a structured questionnaire. Data collection was led by the principal investigator with support from four (4) research assistants. Each of the research assistant selected to support in data collection possessed a minimum of diploma qualification and had previously been engaged in similar data collection exercise. The principal investigator trained the data collectors on the general study focus, the main questionnaire and data collection ethics. The training of the research assistants lasted for a maximum of two days. During the training of the research assistants, the principal investigator ensured that all the questions in the data collection instruments/tools are translated in Twi and/or English depending on the language of convenience of the study participant.

3.7 Data Collection Instrument

The interviews with the students were done through face-to-face using structured questionnaire. The questionnaire was organised in three sections. The first section outlined all the demographic factors described in the conceptual framework. The second section of the questionnaire focused on depression conditions and symptoms in adolescents. The prevalence of depression was determined from the second section. The third and final section of the questionnaire focused on all other relevant factors that might influence the occurrence of depression. All the questions were close-ended questions.

3.8 Quality Assurance Measures

The designed data collection tool was tested/piloted in two other schools in Akuapem North District. The principal investigator ensured that the two schools selected for the pilot had the same characteristics as those selected for the main study. Feedback from the data collection tool piloting

was used to shape and finalise the data collection tool. Each data collection tool was coded to ensure that proper follow ups are done when data gaps are identified.

3.9 Data Processing and Management

Data collected from the field was done using structured questionnaire. A defined MS Excel template based on the questionnaire was designed and used to capture all data. Data validation and verification was done to ensure all data entered into the MS Excel file are complete. The final validated data was stored on hard drive of a computer and the hard copy of the questionnaire kept in a safe until the next two years after the study. Data files on computers and external hard drives have been protected with security codes (password) to prevent easy access by another person.

3.10 Variables

For the purpose of this study, the two main variables for consideration were the prevalence of depression among in-school adolescents (dependent variable) and the factors that influence or determine the prevalence of depression (independent variables). For each of main variables, details on specific indicators to be measured have been described in Table 1.

3.10.1 Dependent Variables

Dependent variable for this study was the prevalence of depression among in-school adolescent.

3.10.2 Independent Variables

Independent variables for this study included demographic factors, behavioural factors and environmental factors (school and home environment).

Table 3:1: Dependent and Independent Variables for the Study

Variable	Operational Definition	Source	Measurement
Dependent Variable			
Depression among in-school adolescents	The proportion of in-school adolescent and young persons who had exhibited had moderate depression, moderately severe depression or severe depression	Respondent	Numerical
Independent Variables			
Age	Age in absolute years	Respondent	Numerical
Gender	Sex of the adolescent; male or female	Respondent	Categorical
Current level of education	Current level as either in JHS or SHS	Respondent	Categorical
Type of school	Private or public	Respondent	Numerical
Residence	The place of stay of the adolescent; rural or urban	Respondent	Categorical
Occupation of parents	Type of work by the parents the adolescent stay with; either employed, unemployed; If employed, type of employed	Respondent	Categorical
Who adolescents live with	The person who the adolescent live with	Respondent	Categorical
Religion	Type of religion: Christianity, Islam, Traditional, others	Respondent	Categorical
Symptoms of depression	Different types of symptoms that adolescents go through	Respondent	Categorical
Home factors / parental conditions	Parents factors including that contribute to depression	Respondent	Categorical
School environment factors		Respondent	Numerical
Lifestyle of adolescent	Lifestyle in terms of medication, social life	Respondent	Numerical
Family and medical history	History of the adolescent in terms of medication and family; existing records	Respondent	Categorical

3.11 Data Analysis

The final data set was imported/uploaded into STATA version 17.0 for analysis. The results of the analysed data were presented in tables and graphs. Descriptive statistics were presented using frequencies and percentages. Bivariate and multiple regression analysis were conducted to ascertain the relationship that exist between dependent variable and independent variables. At bivariate level, results of the regression analysis were reported in chi square and p-values with frequencies and percentages (at row level) for each variable. For multiple regression analysis, results of the analysis were reported in odds ratio at 95% confidence interval and its corresponding p-values. The prevalence of depression among in-school adolescents and young persons was measured with the presence at least, one of the following: with moderate depression, moderately severe depression or severe depression.

3.12 Ethical Consideration

Ethical clearance for the study was obtained from Ghana Health Service Ethics Review Committee as requirement for the conduct of this study.

Study Approval: A letter of introduction from the School of Public Health (SPH) was obtained and sent to District Directorate of Education, Ghana Education Service in Akwapim South District to seek for approval for the conduct of this study in the sampled schools in the district. In each school, a similar letter and with an authorization note from the District Director of Education was sent to the schools to inform them about the study and seek for their approval and support.

CHAPTER FOUR

RESULTS

4.1. Introduction

The chapter presents the results of the findings of the study. The findings of the study have been grouped according to the study objectives. The output of the descriptive analysis is presented first and followed by the output of inferential statistical analysis on association between the independent variables and the outcome variable.

4.2 Socio-demographic characteristics of respondents

Socio-demographic characteristics of respondents is summarized in Table 4.1. A total of 475 adolescents participated in the study given a response rate of 97.1%. The mean age of the in-school adolescents was 16.4 years ± 2.0 SD with observed minimum and maximum ages as 10 and 25 years respectively. The majority (77.9%) of the in-school adolescents were between the ages of 15-19 years. Most (73.4%) of the adolescents were females and Christians (94.1%) Christians. About half (50.3%) of the adolescents were living with both parents with about 15% (n = 73) living with other family members. A little over a third (35.4%) of the adolescents lived in rural communities. More than half (55.4%) of the adolescents indicated that their parents lived together. Less than a fifth (18.3%) of the adolescents indicated that their fathers had completed tertiary education while less than a tenth (9.3%) mentioned that their mothers had completed tertiary education. On employment status of the parents, majority (66.9%) and (84.4%) of the adolescents indicated that their fathers and mothers were self-employed respectively.

Majority (78.9%) of the adolescents indicated that they had more than two siblings. For NHIA registration, 16% were not registered under any health insurance package. Nearly two-thirds (64.8%) of the adolescents owned a mobile phone while 61.5% used mobile phones for social media activities.

Table 4.1: Socio-demographic characteristics of the adolescents

Variables	Frequency (n = 475)	Percent (%)
Age in years (M ± SD)	16.4 ± 2.0	
10-14	81	17.1
15-19	370	77.9
20+	24	5.0
Sex		
Male	126	26.5
Female	349	73.5
Religion		
Christianity	447	94.1
Islamic	25	5.3
Others	3	0.6
Living with		
Both parents	239	50.3
Father only	58	12.2
Mother only	105	22.1
Other family members	73	15.4
Residence		
Rural	168	35.4
Semi-urban	19	4.0
Urban	288	60.6
Marital status of parents		
Live together	263	55.4
Separated/divorced	174	36.6
Loss both parents	12	2.5
Loss father or mother	21	5.5
Father education status		
No formal education	35	7.4
Basic	148	31.2
Senior High/Secondary	178	37.5
Tertiary	87	18.3
I don't know	27	5.7
Mother education status		
No formal education	57	12.0
Basic	192	40.4
Senior High/Secondary	175	36.8
Tertiary	44	9.3
I don't know	7	1.5
Father/Guardian employment status		
Unemployed	11	2.3
Employed (salary worker)	122	25.7
Self employed	318	66.9
I don't know	24	5.1
Mother/Guardian employment status		
Unemployed	13	2.8
Employed (salary worker)	51	10.7
Self employed	401	84.4
I don't know	10	2.1
Number of siblings		

No sibling	15	3.2
One	28	5.9
Two	57	12.0
More than 2	375	78.9
NHIA registrants		
Registrants	399	84.0
Non-registrants	76	16.0
Ownership of mobile phone		
Owns mobile phone	308	64.8
Does not own a mobile phone	167	35.2
Mobile phone usage on social media		
Uses mobile phone	292	61.5
Does not use mobile phone	183	38.5
Total	**475**	**100.0**

4.3 Common depressive symptoms

The results of the analysis of common depression symptoms among the in-school adolescent is presented in Table 4.3. The result is based on the 9-model questions of the PHQ-9 model. About 5% (n = 24) of the adolescents indicated that nearly every day, they have little interest or pleasure in doing things while 4.0% (n = 19) mentioned that they nearly every day feel down, depressed or hopeless. About 31% (n = 148) of the adolescents mentioned that on several days they have troubles falling or staying asleep or sleeping too much while 8% (n = 38) also indicated that for more than half the days, they always feel tired or having little energy. More than half (n = 60.8%) of the adolescents indicated that they never have poor appetite or overeat while 66.7% (n = 317) of mentioned that they never feel bad about themselves or that they are a failure or have let themselves or their families down. About 2% (n = 11) of the adolescents indicated that they nearly every day have trouble concentrating on things such as reading the newspapers or watching television.

About 25% (n = 118) of the adolescents mentioned that, on several days, they either move or speak slowly such that other people could have noticed or sometimes the opposite being so fidgety or restless that they have been moving around a lot more than usual. About 5% (n = 25) of the adolescents indicated that nearly every day, they have had thoughts that they would be better off dead or of hurting themselves.

Table 4.2: Depression status and common symptoms

Depression variables	Not at all n (%)	Several days n (%)	More than half the days n (%)	Nearly every day n (%)
Little interest or pleasure in doing things	179 (37.7)	220 (46.3)	52 (10.9)	24 (5.1)
Feeling down, depressed, or hopeless	261 (54.9)	148 (31.2)	47 (9.9)	19 (4.0)
Trouble falling or staying asleep, or sleeping too much	279 (58.7)	148 (31.2)	36 (7.6)	12 (2.5)
Feeling tired or having little energy	289 (60.8)	139 (29.3)	38 (8.0)	9 (1.9)
Poor appetite or overeating	295 (62.1)	139 (29.3)	24 (5.0)	17 (3.6)
Feeling bad about yourself or that you are a failure or have let yourself or your family down	317 (66.7)	119 (25.1)	26 (5.5)	13 (2.7)
Trouble concentrating on things, such as reading the newspaper or watching television	302 (63.6)	128 (26.9)	34 (7.2)	11 (2.3)
Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	305 (64.2)	118 (24.8)	34 (7.2)	18 (3.8)
Thoughts that you would be better off dead, or of hurting yourself	358 (75.4)	64 (13.5)	28 (5.9)	25 (5.3)

4.4 The prevalence of depression

Categorising the common symptoms into the various levels of depression using the PHQ-9 model, two levels were done. All adolescents who had minimal or mild depression were categorised as "no depression" while adolescents who had moderate, moderately severe and severe depression were categorised as those with depression. Based on this categorization, the results showed that 6.3% (n = 30), 4.0% (n = 19) and 1.5% (n = 7) of the adolescents were experiencing moderate depression, moderately severe depression and severe depression respectively (Figure 4.1). The prevalence of depression among the adolescents was therefore computed to be 11.8%.

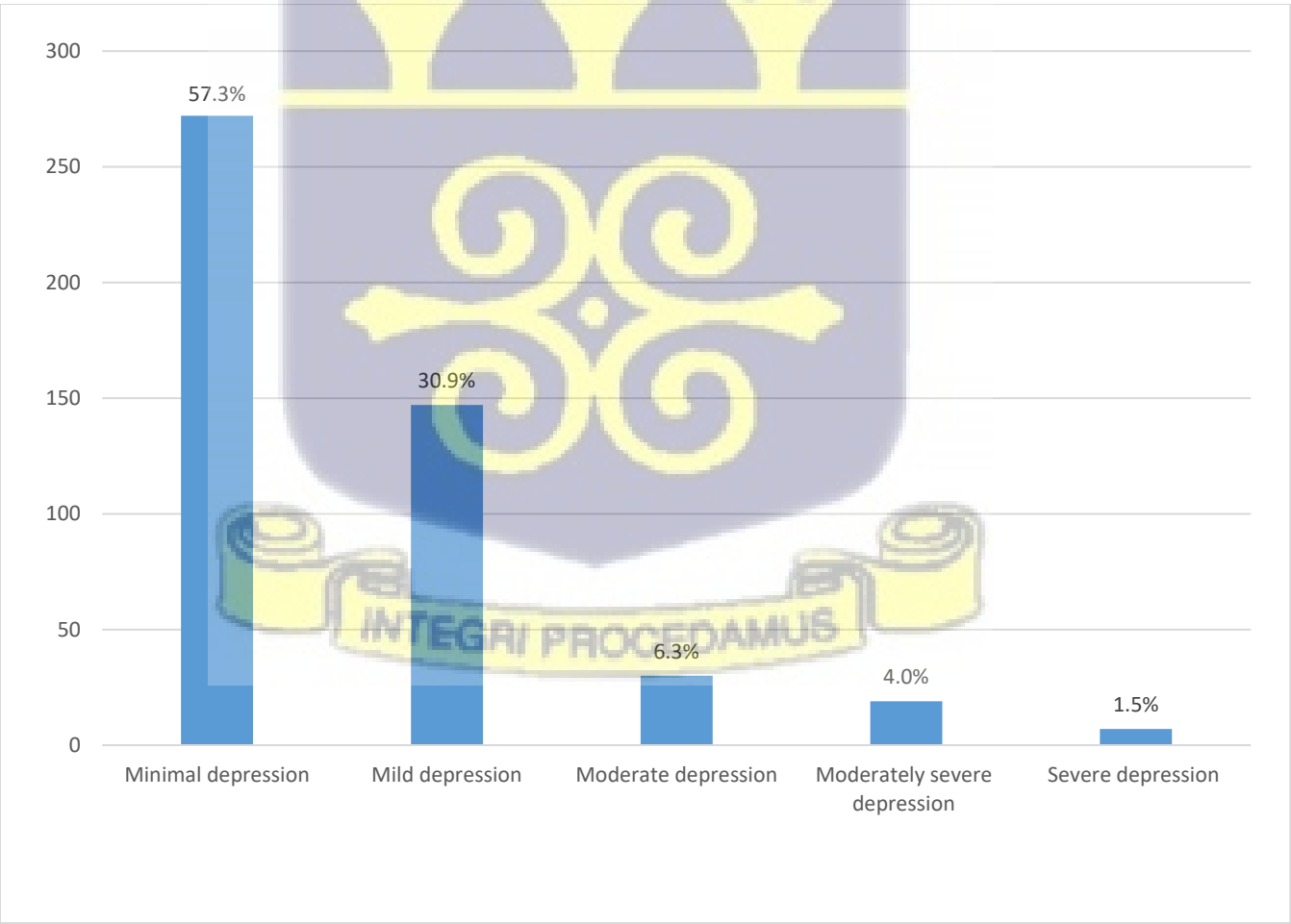

Figure 4.1: Levels of depression among the adolescents

4.5 Behavioural factors of the adolescents

The results of the analysis of behavioural factors are presented in Table 4.3. A little over a tenth (12.0%) of the adolescents indicated that they drink alcohol while 5.7% indicated that they smoke. Less than a third (30.3%) of the adolescents indicated that they were in a relationship with the opposite sex. The majority (51.4%) of the adolescents mentioned that they do some exercise. Almost half (49.6%) of those who exercise indicated that they do their exercise on weekly basis. More than half (58.5%) of the adolescents indicated that they participate in outdoor activities. Less than a fifth (19.8%) of the adolescents had chronic illness while 14.9% of the adolescents were on some medication.

Table 4 3: Behavioural factors of the adolescents

Variables	Frequency (n)	Percent (%)
Drink alcohol		
No alcohol	418	88.0
Drinks alcohol	57	12.0
Smoking		
Does not smoke	448	94.3
Smokes	27	5.7
In a relationship with opposite sex		
No relationship	331	69.7
In a relationship	144	30.3
Do you exercise		
No exercise	231	48.6
Yes, exercise is done	244	51.4
How often the exercise is done		
Weekly	121	25.5%
Once every two weeks	20	4.2%
Once a month	25	5.3%
Not frequent	78	16.4%
Do not exercise	231	48.6%
Participate in outdoor activities		
No	197	41.5
Yes	278	58.5
Presence of any chronic illness		
No	381	80.2
Yes	94	19.8
On any medication		
No medication	404	85.1
Yes, on medication	71	14.9
Total	475	100.0

4.6 Environmental factors (school and home)

The results of the analysis of the environmental factors consisting of the school and home environment is presented in Table 4.4. The majority (62.9%) of the adolescents were in Senior High School. For those in Senior School, more than half (54.2%) were in mixed boarding schools. On academic performance, only 4.8% of the adolescents rated themselves as excellent students with 4.4% having poor academic performance. About half (49.5%) of the adolescents indicated that they have good relationship with their teachers. Similarly, more than half (55.8%) of the adolescents had good relationship with their classmates. About 14% of the adolescents indicated that they did not have adequate learning materials while 39.4% mentioned that their classroom environment was not conducive for their learning.

About two-thirds (66.3%) of the adolescents mentioned that their fathers were the heads of the households. More than a quarter (28%) of the adolescents indicated that they are aware of past records of depression in the family. A little over a fifth (21.3%) of the adolescents indicated that their mothers have ever been abused by their fathers while about a fifth (20.6%) mentioned that their mothers have also abused their fathers either verbally or physically. On the part of the adolescents, less than a quarter (23.6%) mentioned that they have ever been abused by their parents while 18.5% mentioned that they had ever been abused by other persons other than their parents. About 18% of the adolescents indicated that one of their parents is into smoking. Almost a quarter (24.2%) of the adolescents indicated that they are unable to discuss their issues with anyone but to keep it to themselves. For those who can discuss their issues, 74.4% discuss their issues with their mothers. About 67% indicated that they were able to spend some time with their parents on vacation.

Table 4 4: Environmental factors (school and home)

Variables	Frequency (n)	Percent (%)
Level of school		
Junior High School	176	37.1
Senior High School	299	62.9
Type of school (SHS only)		
Girls only (boarding)	137	45.8
Boarding mixed	162	54.2
Academic performance		
Poor	21	4.4
Average	214	45.1
Good	217	45.7
Excellent	23	4.8
Relationship with class teacher(s)		
Poor	21	4.4
Normal	219	46.1
Good	235	49.5
Relationship with classmates		
Poor	20	4.2
Normal	190	40.0
Good	265	55.8
Availability of learning materials to the adolescent		
Inadequate learning material	67	14.1
Adequate learning materials	408	85.9
Classroom environment conducive for learning		
No	187	39.4
Yes	288	60.6
Head of household		
Father	315	66.3
Mother	124	26.1
Others*	36	7.6
Family history of depression		
No depression case in the family	171	36.0
Past cases of depression	133	28.0
Don't know	171	36.0
Mother ever been abused by father		
No	364	76.6
Yes	101	21.3
I don't know	10	2.1
Father ever been abused by mother		
No	375	78.9
Yes	98	20.6
I don't know	2	0.4
Ever experienced any abuse from parents/guardian		
No	363	76.4
Yes	112	23.6

Ever experienced any abuse from someone other than parents		
No	387	81.5
Yes	88	18.5
Parents are into smoking		
No	388	81.7
Yes	87	18.3
Ability to discuss any issue with anyone		
No	115	24.2
Yes	360	75.8
Who do you feel comfortable to discuss the issue with		
Father	62	17.2
Mother	268	74.4
Siblings	14	3.9
Others**	16	4.5
Having sometime with parents on vacation or weekends		
No	155	32.6
Yes	320	67.4

* represents grandmother, siblings, uncle/aunt, family member, friends.

** teachers, friends, other family members

4.7 Socio-demographic factors associated with depression among in-school adolescents.

The results of the analysis of socio-demographic factors associated with depression among in-school adolescents is presented in Table 4.5. Two socio-demographic factors had significant association with depression among the in-school adolescents. The factors were age of the adolescents ($\chi 2 = 17.78$; p-value < 0.001) and sex ($\chi 2 = 6.41$; p-value < 0.02). On the age of the adolescents, the rate of depression was relatively higher (37.5%) among those aged 20+ compared to those who were 10-14 years. Similarly, the proportion of adolescents who were depressed was relatively higher in females (14.0%) than in males (5.6%).

Table 4 5: Bivariate analysis of socio-demographic factors associated with adolescent depression.

Variable	Depressive conditions among adolescents			
	n (%) Adolescent without depression	n (%) Adolescents with depression	Chi-square	p-value
Age in years			**17.78**	**0.000**
10-14	76 (93.8)	5 (6.2)		
15-19	328 (88.6)	42 (11.4)		
20+	15 (65.5)	9 (37.5)		
Sex			**6.41**	**0.011**
Male	119 (94.4)	7 (5.6)		
Female	300 (86.0)	49 (14.0)		
Religion			0.84	0.658
Christianity	395 (88.4)	52 (11.6)		
Islamic	21 (84.0)	4 (16.0)		
Others	3 (100.0)	-		
Living with			2.24	0.523
Both parents	215 (90.0)	24 (10.0)		
Father only	49 (84.5)	9 (15.5)		
Mother only	93 (88.6)	12 (11.4)		
Other family members	62 (84.9)	11 (15.1)		
Residence			0.95	0.620
Rural	149 (88.7)	19 (11.3)		
Semi-urban	18 (94.7)	1 (5.3)		
Urban	252 (87.5)	38 (12.5)		
Marital status of parents			2.26	0.687
Live together	236 (89.7)	27 (10.3)		
Separated/divorced	149 (85.6)	25 (14.4)		
Loss both parents	11 (91.7)	1 (8.3)		
Loss father or mother	23 (88.5)	3 (11.5)		
Father education status			3.70	0.448
No formal education	30 (85.7)	5 (14.3)		
Basic	132 (89.2)	16 (10.8)		
Senior High/Secondary	161 (90.5)	17 (9.5)		
Tertiary	72 (82.8)	15 (17.2)		
I don't know	24 (88.9)	3 (11.1)		
Mother education status			5.32	0.256
No formal education	48 (84.2)	9 (15.8)		
Basic	174 (90.6)	18 (9.4)		
Senior High/Secondary	156 (89.1)	19 (10.9)		
Tertiary	35 (79.5)	9 (20.5)		
I don't know	6 (85.7)	1 (14.3)		
Father/Guardian employment status			0.13	0.989
Unemployed	10 (90.9)	1 (9.1)		
Employed (salary worker)	107 (87.7)	15 (12.3)		
Self employed	281 (88.4)	37 (11.6)		
I don't know	21 (87.5)	3 (12.5)		
Mother/Guardian employment status			0.84	0.838
Unemployed	11 (84.6)	2 (15.4)		

Employed (salary worker)	45 (88.2)	6 (11.8)		
Self employed	355 (88.5)	46 (11.5)		
I don't know	8 (80.0)	2 (20.0)		
Number of siblings			1.52	0.68
No sibling	12 (80.0)	3 (20.0)		
One	25 (89.3)	3 (10.7)		
Two	52 (91.2)	5 (8.8)		
More than 2	330 (88.0)	45 (12.0)		
NHIA registrants			0.00	0.988
Registrants	352 (88.2)	47 (11.8)		
Non-registrants	67 (88.2)	9 (11.8)		
Ownership of mobile phone			0.47	0.491
Owns mobile phone	274 (89.0)	34 (11.0)		
Does not own a mobile phone	145 (86.8)	22 (13.2)		
Mobile phone usage on social media			1.00	0.317
Uses mobile phone	261 (89.4)	31 (10.6)		
Does not use mobile phone	158 (86.3)	25 (13.7)		

4.8 Behavioural factors associated with depression among in-school adolescents

The results of the analysis of behavioural factors associated with depression among in-school adolescents is presented in Table 4.6. Three behavioural factors had association with depression among the in-school adolescents. The factors included drinking of alcohol by the adolescents ($\chi 2 = 5.34$; p-value < 0.05), smoking either cigarette or marijuana ($\chi 2 = 17.55$; p-value < 0.001) and the presence of chronic illness ($\chi 2 = 4.47$; p-value < 0.05). The rate of depression was relatively higher among adolescents who drink alcohol (21.1%) than those who do not drink alcohol (10.5%) Similarly, the rate of depression was relatively higher among adolescents who smoke (37.0%) than those who do not smoke (10.3%). Also, the rate of depression was relatively higher among adolescents who had chronic illness (18.1%) than those who did not have any chronic illness (10.2%)

Table 4.6: Bivariate analysis of behavioural factors associated with depression among in-school adolescents

Variable	Depressive conditions among adolescents			
	n (%) without depression	n (%) with depression	Chi-square	p-value
Drink alcohol			**5.34**	**0.021**
No alcohol	375 (89.5)	44 (10.5)		
Drinks alcohol	45 (78.9)	12 (21.1)		
Smoking			**17.55**	**0.000**
Does not smoke	402 (89.7)	46 (10.3)		
Smokes	17 (63.0)	10 (37.0)		
In a relationship with opposite sex			1.55	0.213
No relationship	296 (89.4)	35 (10.6)		
In a relationship	123 (85.4)	21 (14.6)		
Do you exercise			2.69	0.101
No exercise	198 (85.7)	33 (14.3)		
Yes, exercise is done	221 (90.6)	23 (9.4)		
How often the exercise is done			2.54	0.468
Weekly	107 (88.4)	14 (11.6)		
Once every two weeks	18 (90.0)	2 (10.0)		
Once a month	22 (88.0)	3 (12.0)		
Not frequent	74 (94.9)	4 (5.1)		
Participate in outdoor activities			0.01	0.948
No	174 (88.3)	23 (11.7)		
Yes	245 (88.1)	33 (11.9)		
Presence of any chronic illness			**4.47**	**0.035**
No	342 (89.8)	39 (10.2)		
Yes	77 (81.9)	17 (18.1)		
On any medication			1.10	0.294
No medication	359 (88.9)	45 (11.1)		
Yes, on medication	60 (84.5)	11 (15.5)		

4.9 School and home environment factors associated with depression among in-school adolescents

The results of the analysis of school and home environmental factors associated with depression among in-school adolescents is presented in Table 4.7. Depression among in-school adolescents had significant association with five of the environmental factors and these included level of school ($\chi 2 = 5.21$; p-value < 0.05), relationship with classmates ($\chi 2 = 11.0$; p-value < 0.005), availability of learning materials to the adolescent for learning ($\chi 2 = 8.42$; p-value < 0.005), family history of depression ($\chi 2 = 6.76$; p-value < 0.05) and abuse of the mother by the father ($\chi 2 = 7.09$; p-value < 0.05). The rate of depression was relatively higher among adolescents who drink alcohol (21.1%) than those who do not drink alcohol (10.5%) Similarly, the rate of depression was relatively higher among adolescents who smoke (37.0%) than those who do not smoke (10.3%). The rate of depression was relatively higher among adolescents who did not have adequate learning materials (22.4%) compared to those who had adequate learning materials (10.1%). Also, the rate of depression was relatively higher among adolescents who had chronic illness (18.1%) than those who did not have any chronic illness (10.2%)

Table 4.7: Bivariate analysis of environmental factors associated with adolescent depression.21

Variable	Depressive conditions among adolescents			
	n (%) without depression	n (%) with depression	Chi-square	p-value
Level of school			**5.21**	**0.022**
Junior High School	163 (92.6)	13 (7.4)		
Senior High School	256 (85.6)	43 (14.4)		
Academic performance			3.48	0.323
Poor	17 (80.9)	4 (19.1)		
Average	186 (86.9)	28 (13.1)		
Good	197 (90.8)	20 (9.2)		
Excellent	19 (82.6)	4 (17.4)		
Relationship with class teacher(s)			2.41	0.299
Poor	17 (80.9)	4 (19.1)		
Normal	190 (86.8)	29 (13.2)		
Good	212 (90.2)	23 (9.8)		
Relationship with classmates			**11.00**	**0.004**
Poor	13 (65.0)	7 (35.0)		
Normal	171 (90.0)	19 (10.0)		
Good	235 (88.7)	30 (11.3)		
Availability of learning materials to the adolescent			**8.42**	**0.004**
Adequate learning material	367 (89.9)	41 (10.1)		
Inadequate learning materials	52 (77.6)	15 (22.4)		
Classroom environment conducive for learning			2.08	0.149
No	259 (89.9)	29 (10.1)		
Yes	160 (85.6)	27 (14.4)		
Head of household			2.34	0.310
Father	281 (89.2)	34 (10.8)		
Mother	109 (87.9)	15 (12.1)		
Others	29 (80.6)	7 (19.4)		
Family history of depression			**6.76**	**0.034**
No depression case in the family	110 (82.7)	23 (17.3)		
Past cases of depression	158 (92.4)	13 (7.6)		
Don't know	151 (88.3)	20 (11.7)		
Mother ever been abused by father			**7.09**	**0.029**
No	82 (81.2)	19 (18.8)		
Yes	329 (90.4)	35 (9.6)		
I don't know	8 (80.0)	2 (20.0)		
Father ever been abused by mother			0.98	0.613
No	84 (85.7)	14 (14.3)		
Yes	333 (88.8)	42 (11.2)		
I don't know	2 (100.0)	-		
Ever experienced any abuse from parents/guardian			1.15	0.283
No	102 (91.1)	10 (8.9)		
Yes	317 (87.3)	46 (12.7)		
Ever experienced any abuse from someone other than parents			0.25	0.615
No	79 (89.8)	9 (10.2)		
Yes	340 (87.9)	47 (12.1)		

Parents are into smoking			0.07	0.785
No	76 (87.4)	11 (12.6)		
Yes	343 (88.3)	45 (11.6)		
Ability to discuss any issue with anyone			3.26	0.071
No	323 (89.7)	37 (10.3)		
Yes	96 (83.5)	19 (16.5)		
Having sometime with parents on vacation or weekends			0.27	0.600
No	284 (88.7)	36 (11.3)		
Yes	135 (87.1)	20 (12.9)		

4.10 Factors associated with depression among in-school adolescents and young persons

Further analysis using logistic regression was conducted to test for the strength of the relationship between depression among in-school adolescents and all other factors that had an association with depression at bivariate level. The result of the analysis is presented in Table 4.8. After controlling for potential confounders, six (6) out of the ten (10) variables remained significantly associated with depression among in-school adolescent. In-school adolescents and young persons who were aged 20 years or more were about seven times more likely to be depressed than those who were aged 10-14 years (AOR = 7.13, 95% CI: 1.58, 32.23). In-school adolescents and young persons who were females were about four times more likely to be in depressive condition compared to those who were males (AOR = 3.65, 95% CI: 1.38, 9.63). The odds of an in-school adolescents developing a depressive condition was about four times higher among those who smoke either cigarette or marijuana than those who were not into smoking (AOR = 4.44, 95% CI: 1.30, 15.15).

Additionally, in-school adolescents and young persons who did not have adequate learning materials to aid their learning in school were about three times more likely to be depressed compared to those who had adequate learning materials (AOR = 2.7, 95% CI: 1.27, 5.87). In-school adolescents and young persons who had family history of depression were about twice as

likely to be depressed compared to adolescents who had no family history of depression (AOR = 2.45, 95% CI: 1.08, 5.58). Finally, in-school adolescents and young persons who had ever witnessed an abuse of the mother by the father were about twice more likely to be depressed compared to those who had never seen or witnessed any form of abuse of the mother by the father (AOR = 2.05, 95% CI: 1.03, 4.08).

Table 4.8: Factors associated with depression among in-school adolescents and young persons

Variables	**Adjusted Odds Ratio**	**Confidence Interval (95%)**	**p-value**
Age in completed years			
10-14	ref		
15-19	1.03	0.30 - 3.51	0.964
20+	7.13	**1.58 - 32.23**	**0.011**
Sex			
Male	ref		
Female	3.65	**1.38 - 9.63**	**0.009**
Drink alcohol			
No alcohol	ref		
Drinks alcohol	1.07	0.38 - 2.99	0.892
Smoking			
Does not smoke	ref		
Smokes	4.44	**1.30 - 15.15**	**0.017**
Presence of any chronic illness			
No	ref		
Yes	1.33	0.65 - 2.72	0.431
Level of school			
Junior High School	ref		
Senior High School	1.24	0.49 - 3.10	0.646
Relationship with classmates			
Poor	3.27	0.99 - 10.82	0.052
Normal	0.83	0.42 - 1.63	0.581
Good	ref		
Availability of learning materials to the adolescent			
No learning material	2.73	**1.27 - 5.87**	**0.010**
Yes, learning materials available	ref		
Family history of depression			
No depression case in the family	ref		
Past cases of depression	2.45	**1.08 - 5.58**	**0.032**
Don't know	1.99	0.87, 4.55	0.099
Mother ever been abused by father			
No	ref		
Yes	2.05	**1.03 - 4.08**	**0.041**
I don't know	3.47	0.66, 18.29	0.142

4.11 Chapter Summary

The chapter presented the major findings of the study in relation to the study objectives. The results showed that all the three major factors, i.e., socio-demographic (age and sex), behavioural (smoking) and environmental (availability of learning materials, family history of depression and abuse of mother by father) factors had significant association with depression conditions among the in-school adolescents. The next section discusses these results.

CHAPTER FIVE

DISCUSSIONS

5.1 Introduction

The chapter presents the discussions of the study. It provides some explanations to some of the findings while linking the findings with other relevant studies to either confirm or contrast the result. The relevance of the finding is determined through the discussions. The discussions are done in relation to the study objectives.

5.2 Prevalence of depression among in-school adolescents

According to American Psychological Association, (2021), depression, is a major illness that affects the way a person feels, acts or thinks negatively. Depression has been identified as a common mental disorder in recent times. Kendler, (2020) explains that depression is an old age problem which has been with man over centuries. Cases of depression among adolescents has been increasing over the years (WHO, 2021). This is true as observed in this study at Akuapem North where depression among in-school adolescent was observed to be 11.8%. Comparative assessment with general global depression rate of 5% (WHO, 2021) puts this obseved result of 11.8% in this study to be high. However, when the result in this study is compared to the global depression rate among adolescents (14.3%), the prevalence is relatively lower (WHO, 2021). However, it is important to establish that the global adolescent depression rate included both in-school and out-of school adolescents. Unfortuantely, the report did not provide details about the difference between in-school and out-of-school adolescents.

Erskine et al., (2017) in a global estimate of depression prevalence of mental disorders in children and adolescents observed a rate of 6.2% which is relatively lower than the observed rate in this study. The study by Erskine et al., (2017) may be lower than the observed result in this study largely because the study targeted only adolescents who were aged 15-17 years with the exclusion of older adolescents who are mostly at higher risk of depression. Racine et al., (2021) in their global assessment in the era of COVID-19 observed significantly higher depression rate of 25.2%. It was unclear whether the presence of COVID-19 triggered/increased depressive symptoms among adolescents who may not have had any opportunity of socialising with friends.

Studies from other countries within Asia has also observed different results (Vashisht et al., 2014; Singh et al., 2017; Anjum & Hossain, 2019; Moeini et al., 2019; Bharati et al., 2022). As in this study, these studies in Asia adopted the PHQ-9 model in assessing the prevalence of depression among adolescents. With the exception of Singh et al., (2017) which observed relatively lower rate of 7.6% compared to this study in the Akuapem North, the other remaining studies observed significantly higher depression rates among adolescents. Bharati et al., (2022) which focused on only in-school adolescents observed a prevalence of 18.2%. Vashisht et al., (2014), Anjum & Hossain, (2019) and Moeini et al., (2019) had equally observed significantly higher rates of 29.9%, 36.6% and 52.6% respectively. Comparatively these rates are far higher than what was observed in this study. The concentration of these studies in only secondary schools may have contributed significantly to the high rates. For Moeini et al., (2019), the study did not only focus on senior high school adolescents but limited it to only girls who have significantly higher risk of depression than boys. It is not surprising that the observed rate was about five times higher than the observed rate in this study.

Comparative analysis with studies in Africa including Fatiregun & Kumapayi, (2014) and Jorns-Presentati et al., (2021) showed that the observed result in this study at Akuapem North is relatively low. Jorns-Presentati et al., (2021 in a meta analysis observed a pooled prevalence of 26.9% while Fatiregun & Kumapayi, (2014) observed a prevalence of 21.2%. Nalugya-Sserunjogi et al., (2016) and Nabunya et al., (2020) also observed comparatively higher rates of 21% and 45.9% respectively. Girma et al., (2021) in their also observed significantly higher prevalence of depression with a rate of 28%. Most of these rates exceeds 20%, far higher than the global perspective of less than 10%.

It is evident from all the reference studies that depression is increasingly high in both Africa and Asia. In Ghana, Oppong et al., (2017) and Ahinkorah et al., (2021) in different studies have also observed higher depression rates exceeding 20% among adolescents. Kusi-Mensah et al., (2019) however, in a study in Kumasi, observed lower rate of 8.56% compared to what is observed in this study. Even though the rate of depression in this study is relatively low compared to most of the studies reviewed, there are significant symptoms that requires the attention of all stakeholders. The next session discusses depression symptoms observed in the study.

5.3 Most common symptoms that adolescents exhibit during depression

The analysis of depressive conditions and symptoms revealed three common symptoms among the in-school adolescents. The first common symptom that was observed among the adolescent was the loss of or having little interest or pleasure in doing things that they are expected to do. In essence, they do not feel happy to participate in their normal academic studies, household chores

and other religious activities that hitherto were activities of their interest. Even when they do them, the level pleasure for doing it is limited. Loss of or little interest in doing things is a major avenue for adolescents to make mistakes especially when they are been forced or coerced to do what they do not have the pleasure to do. In cases like these, adolescents are tagged as failures or problematic for making several mistakes (Andre, 2023).

Within the African culture, making mistakes is not highly recognized by all as a right of any child as enshrined in the Childrens Act, Act 560, 1998. Parents or guardians may not really appreciate the reason their adolescent boy or girl has lost interest or pleasure in doing things. Continuous insistence of the adolescent to partake in activities that s/he is not comfortable doing is an avenue for severe depression to occur. This observation is confirmed by Rose & Magidson, (2020) who discussed major depressive disorder symptoms in the book Functional Analysis in Clinical Treatment. In the discussion, Rose & Magidson, citing from the American Psychiatric Association, (2013) explained that major depresive disorder (MDD) has been categorisesd into two main symptoms with loss of interest or pleasure in activities (anhedonia) as the major one.

Rose & Magidson, (2020) again noted that the feeling of hopelessness is a major symptom of depression. In this study, it was observed that the feeling of depressed, hopelessness and down was the second most common depression symptom among the adolescents. The feeling of hopelessness and down has been largely linked to suicidal actions by some people in recent times (Rice et al., 2019). When adolescents do not get what they desire to get, they get agitated and most often feels depressed or down. It is as though their world has come to an end. The symptom of down and hopelessness is becoming more rampant largely due to emerging trends in social media and how people compare themselves with others they see on social media. Wahid et al., (2022) has also

concluded that the feeling of hopelessness and down by adolescents is increasing becoming a disturbing issue. In most cases, if this condition is not addressed, it can easily result into severe depression. Addressing issues of hopelessness and feeling down is a major challenge since the experts in psychosocial counselling are limited in the country. Nonetheless, the involvement of parents and teachers as well as social workers may suffice as attempts are made to address the problem.

Another significant observation in this study about depression symptoms was the thoughts of some of the adolescents that they would be better off dead or hurting themselves than living. This is major worry for all stakeholders including parents, religious leaders, security agencies, etc. Vos & Westerhof, (2021) argued that there has steadily increase in suicide cases among adolescents in both the developed and developong countries, even though the cases in the former is significantly higher than the later. One of the major cause of the thought of suicide is the absence of getting support when one is in distress situation. Globally, it is estimated that more than 75% of all people who get depressive disorders do not receive effective and appropriate treatment (WHO, 2021). In the life of adolescents, when they begin to realise there is no hope for them in their situation, they feel neglected and may prefer to end their life than live in a society where there is no care and support for each other. The situation becomes worse when the victim of depressive symptom is not able to share his/her plight with others. In sub-Saharan Africa, it is estimated that about 34 000 people who are in depressed condition commit suicide every year, culminating into a 3.2 deaths per 100 000 population (Gbadamosi et al., 2022). This staggering evidence should some caution to all stakeholders that the mere thought of feeling better dead than living is a recipe for disaster.

5.4 Socio-demographic factors associated with depression among adolescents

In this study, two socio-demographic factors, age and sex were the factors that influenced the prevalence of depression among the in-school adolescents. The study observed that adolescents who were relatively older (20+ years) had higher risk of becoming depressed than in-school adolescents who were relatively younger (10-14 years). The observed result in this study corroborates the findings of different studies on adolescent depression. Wartberg et al., (2018) in a cross-sectional study noted that adolescents who were relatively older had higher probability of experiencing depressive symptoms compared to adolescents who were relatively younger. Nyundo et al., (2020) in a study across a number of countries in sub-Saharan Africa observed that depression conditions were associated older adolescents than adolescents who were younger. Ho et al., (2018) in a trend analysis also identified age as a constant factor that influences or determines the level of depression among adolescents. Bharati et al., (2022) also noted that older adolescents have higher risk of experiencing depressive symptoms compared to younger adolescents. Nabunya et al., (2020) also noted that the severity of depression is prominent among adolescents who were aged 16 years and above. Vashisht et al., (2014) in an assessment of depression conditions noted that the severity of depression increases with increasing age of the adolescent. All this evidence provides significant confirmation on the positive relationship between age and adolescent depression.

In the present study, females were more prone to depression compared to males. This observation has been corroborated by different studies including WHO report on depression among adolescents. Surabhi et al., (2014) in a study in Nepal noted that female adolescent were more prone to depression compared to males. Nalugya-Sserunjogi et al., (2016) in their study also

observed that females were about 1.7times more susceptible to depression compared to male adolescents. Nyundo et al., (2020) also observed that depressive symptoms were common among female adolescents compared to male adolescents. Wartberg et al., (2018) also noted that adolescent depression is significantly high among girls than boys. Other studies like Bharati et al., (2022), Girma et al., (2021) have established a strong relationship between depressive symptoms and sex of adolescent (females). Several reasons may be attributed to the high depression rate among females than males. For instance, females are often survivors of sexual abuse and other forms of physical abuse. Some of these females who are abused in their tender age live with the pain and stigma for the rest of their life (Radell et al., 2021). They become depressed with their condition for a long time. Additionally, females are more vulnerable to relationship crisis and breakouts (Radell et al., 2021).

5.5 Other related factors associated with depression among adolescents

Behavioural and environmental factors constitute the other related factors in this study. Smoking was the only behavioural factor that contributed to the prevalence of depression among the in-school adolescents in this study. Availability of learning materials, family history of depression and abuse of mother by father were the environmental factors that contributed to the prevalence of depression among the in-school adolescents.

Smoking has become one of the major health concerns especially among the youth in recent times (WHO, 2015). It is increasingly becoming one of the major causes of morbidity and mortality among adolescents. Tezera & Endalamaw (2019) in a study in Eastern Africa observed that about 10% of in-school adolescents are into smoking, either cigarette or marijuana. The steady increase

in the smoking habit by adolescents is very disturbing and has caused many non-communicable diseases including depression as depicted in the 2021 World Tobacco Report (WHO, 2022). It is not surprising that this study observed a positive relation between smoking and depression among the in-school adolescents. Others may get into smoking as a means of wading off their problems but get into a situation of depression when their problems continue to escalate. The observed result in this study corroborates the results in a number of studies.

Nyundo et al., (2020) in their analysis on the risk of depression in sub-Saharan Africa observed that substance use through smoking have significantly increased among especially among in-school adolescents and this has consequently increased the risk of depression and suicidal ideation among adolescents in Africa. Singh et al., (2017) also observed that depressive symptoms were common among adolescents who were engaged in smoking and alcohol consumption.

The availability of learning materials for adolescents has consistently improved the performance of students and contributes to their growth in social life (Okongo et al., 2015). However, the absence or inadequacy of these materials affects the academic performance of the students. In this study, it was evident that some of the adolescents did not have adequate materials for learning and this increased the risk of depression among such adolescents. In almost all the studies reviewed, there was no established association between depression and inadequate learning materials. However, all the studies showed that academic performance rather influenced the rate of depression. The availability of learning materials directly influences academic performance of any student (Okongo et al., 2015), however, this study did not probe further to determine whether there was any relationship between learning materials and academic performance.

Again, there was a significant association between depression and adolescents who had family history of depression in their families. The risk of depression was significantly higher among those who had family history of depression compared to those without any family history of depression. Family history of depression is a major risk factor for the onset of new depression within adolescents especially among children and adolescents (Gorham et al., 2022). van Loo et al., (2018) also established that children who are born to depressed parents have about three times the likelihood of experiencing depression than children whose parents have never been depressed. Medical history of family members especially the aged is essential for young ones who want to guard against any condition that may be disturbing from the medical history. Family history of most non-communicable diseases have its relation within a given lineage and must help identify measures to curb the situation. For those who are aware of the condition, it is important that they begin to understand some of the causes of the existing depression conditions in the family.

The sixth significant variable in this study was the home environment factor. The prevalence of depression in this study was also linked to an abusive home where husbands abuse their wives. Unfortunately, since these adolescents live with their parents, persistent acts of abuse on any of them have permanent imprint in their lives. For females, the fear getting abused in their future marriages sometimes deters them from getting into relationships and eventual marriages. Images of abuse that may have occurred in their presence keeps ringing in their minds and may sometime control their thoughts and actions. Abuse environment always has a negative impact in the life of an adolescent. It is therefore not surprising that this study established the linkage between abusive home (mother as victim) and depression among adolescents.

As explained by Girma et al., (2021), low social support in our community set-ups had significant effect on depressive symptoms. Adolescents who come abusive families or environment do not get the needed psychosocial support that may have shaped the development and growth of the adolescent. The findings of Lopizzo et al., (2015) study also corroborate the findings in this study. Lopizzo et al., (2015) observed that the onset, progression and prognosis of depression is influenced largely by the environment of the person and that, people who consistently witness abuse cases or themselves are abuse easily get depressed.

In concluding on the discussions, it is important to situate the results within related policies and practice. The Ghana Mental Health Policy 2019-2030 outlines strategies that seeks to improve the mental conditions of all including adolescents and young persons. The observed results in this study have clearly shown that adolescents within the basic and second cycle institutions are much more prone to mental health issues and therefore require urgent attention. At the school level, there are no conscious efforts to tackle head-on issues that may arise from the students. The Mental Health Strategic plan identifies as priorities the provision of quality care and sustainable livelihood for the poor and vulnerable (including children and the youth). The Ghana Mental Health Policy however acknowledges the role of non-governmental organizations and other relevant stakeholders who could come together to provide the needed support in addressing challenges around adolescent depression.

5.6 Strengths and Limitation of the Study

The study adopted quantitative approach to estimate prevalence of depression using the PQH-9 model within the district, using a representative sample. The quantitative approach adopted by the

study enhanced the identification of factors that were more likely to influence the rate of depression.

However, one of the key limitations of the study is that it did not involve parents and teachers who may play significant role in the life of the adolescent. The perspective of parents and teachers would have given some further clarity and meaning to some of the findings of the study. This was not done because it was beyond the scope of this study. It is however, been recommended for future studies. Despite these limitations in the study, the result of this quantitative study is valid and can be generalised to represent a true reflection of the sample studied.

5.5 Summary of the Chapter

The chapter has discussed the observed result according to their respective objectives. The prevalence of depression among in-school adolescents and young persons have been discussed to provide meaning to the results and has also been linked to other studies from different context. The chapter has also outlined the main depression symptoms that were prominent in the study area. Finally, the discussions on factors influencing depression among in-school adolescents have also outlined some of the studies that supports the findings in this study.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6. 1 Summary of major findings

The study aimed at estimating the prevalence of depression as well as depressive symptoms among in-school adolescents and young persons in Akuapem North Municipality. Using quantitative approach, the study sampled adolescents who a were attending school in various Junior and Senior High Schools in the district. The rate of depression among the in-school adolescents and young persons in the district was 11.8%. Comparatively, the observed depression rate was noted to be relatively low among other studies in both Ghana and other countries. Some of the key depressive symptoms identified included little interest or pleasure in doing things, the feeling of hopelessness and down and the thoughts that you would be better off dead or hurting yourself. Factors that influenced the rate of depression among the in-school adolescents included age, sex, smoking, abuse of mother, inadequate learning materials and family history of depression.

6.2 Conclusion

Though the rate of depression among the in-school adolescents and young persons was relatively low, identified depressive symptoms raise concern. Some adolescents who felt that they are better dead than alive is a disturbing situation. The results of the study further suggest that both the school and the home environment plays significant influence in the life of an adolescent.

6.3 Recommendations

The following recommendations are made into the outcome of the study:

1. Addressing issues of hopelessness and feeling down is a major challenge since the experts in psychosocial counselling are limited in the country. Nonetheless, the involvement of parents and teachers as well as social counsellors is key. The District Directorate of Education of Akwapim South in collaboration with the heads of the various schools should ensure that the counselling units at various schools be strengthened to identity such situations and conditions among the adolescents. Periodic trainings should be given to the counselling teams by the District Directorate of Education of Akwapim South District to each of the schools to help identify depression symptoms at ease among the students and help to address them as quickly as possible.
2. The District Directorate of Education of Akwapim South should ensure that all teachers in the various classrooms are given the necessary training to identify depressive signs and symptoms in their respective classrooms and help refer such cases to the counselling teams in the various schools. However, if there are no counselling units in any of the schools, it is recommended that the Ghana Education Service in the district facilitates the process of ensuring that all schools get such counselling units.
3. Referral systems between the schools and the health facilities or psychologist that provide mental health services should be established to help facilitate the process of getting the needed support for any adolescent who is identified in moderately severe or severe case of depression. About 5.5% of the adolescents had moderately severe and severe depression which meant that such adolescents are given the needed support.

4. The Ghana Education Service in partnership with other teams' stakeholders should develop strategies of conducting periodic awareness sessions and education on the need for adolescents to seek support where necessary. The essence of life and the prospects for the future should be an integral part of all awareness.

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APPENDIX I: PARTICIPANT INFORMATION SHEET

Title of project: Depression symptoms and associated factors among in-school adolescents in Akwapim South District.

Principal Investigator (P.I.): My Name is Mrs. Adwoa Anuonyam Abbotsi, a Master's students of School of Public Health, University of Ghana. You can contact me using the email address and telephone number below:

Email: Anuonyamabbotsi20@gmail.com

Tel: 0551616744

Study background and objective: In the Eastern Region, cases of depression and its associated disorders have been reported at different times, especially through the media. Unfortunately, detailed assessment of the prevailing situation in the region and the underlying factors have not been established. This study therefore proposes to determine the factors associated with depression among in-school adolescents in Akwapim South district of Eastern Region.

Objectives: The purpose of the study is to identify factors associated with depression among in-school adolescents in Akwapim South district, Ghana.

Participation: You will be required to give us an information with regards to issues relating to depression. The questions basically are on depression among adolescents (10-19 years). If you meet the age requirement and agree to participate the questionnaire will be administered to you.

Safety Protocols (COVID-19): Following the emergence of COVID-19 pandemic and the need for adherence to infection prevention protocol, data collectors will be provided with adequate Personal Protective Equipment (PPE). Each data collector recruited to participate in the data collection will be given face masks, hand gloves, hand sanitizers, and liquid soap to be used in areas where water is easily accessible. All data collectors will be required to observe social

distancing protocols. For interviewees (study participants), a face mask will be provided to each interviewee at the onset of data collection to be used for all interviews. Additionally, each participant will be required to wash hand with soap and where appropriate, use hand sanitizers before beginning any interview.

Potential Risk and Benefits

Risks: No more than minimal risk, if any, is anticipated to occur to participant. The time of participant may be the only resource that may be taken.

Benefits: There may not be direct benefit to participants however, your responses together with responses from other participants will contribute to preventing depression among adolescents.

Confidentiality: For confidentiality, participant's names will not be taken in this study. Participants will be given privacy to go through the questionnaire. All information provided by participant will be kept confidentially from access by an external individual except for the researcher and his supervisor.

Compensation: No form of compensation will be awarded to a participant for participating in the study.

Voluntary participation/withdrawal: Participation in the study is solely voluntary. The participant has the right to participate and withdraw from the study at any time without fear of penalty in any form.

Outcome and Feedback: The information you provide will add to knowledge and propose some future interventions.

Feedback to participants: Findings would be available at the School of Public Health and University of Ghana website.

Funding information: The principal investigator (Ms Adwoa Anuonyam Abbotsi) is funding the study.

How to get information about the study?

For further information, /clarification, contact:

1. Name of Principal Investigator: Mrs. Adwoa Anuonyam Abbotsi
   Tel: 0551616744
   Email: Anuonyamabbotsi20@gmail.com
2. Name of Academic Supervisor: Prof. Emilia A. Udofia
   Tel: 0243259018
   Email: eudofia@ug.edu.gh
3. Name of Administrator of the Ghana Health Service Review Ethics Committee:
   Nana Abena Apatu (contact her for only ethical issues using the telephone contact below)
   Tel: 0503539896

APPENDIX II: CONSENT FORM FOR ADOLESCENT (18-19) YEARS

STUDY TITLE**:** Depression symptoms and associated factors among in-school adolescents in Akwapim South District

VOLUNTEER AGREEMENT

I acknowledge that I have read or have had the purpose and consent of the participant's information sheet read and that all questions have been satisfactorily explained to me in a language I understand (English). I fully understand the content and agree to

I voluntarily agree to be part of this research.

Name of the Participants……..

Participant signature……OR Thumb Prints……

Date……

INVESTIGATOR'S STATEMENT AND SIGNATURE

I certify that the participants has been given ample time to read and learn about the study. All questions and clarifications raised by the participants have been addressed.

Researchers name……..

Signature……..

Date…….

APPENDIX III: ASSENT FORM FOR ADOLESCENT (10-17) YEARS

STUDY TITLE: Depression symptoms and associated factors among in-school adolescents in Akwapim South District.

VOLUNTEER AGREEMENT

I acknowledge that I have read or have had the purpose and procedures in the participant's information sheet read to me. All questions have been satisfactorily explained to me in a language I understand (English). I fully understand the contents and my rights to withdraw even if I have signed this form.

I voluntarily agree to be part of this research.

Name of the Participant……..

Participant's signature/thumbprint……

Date……

INVESTIGATOR'S STATEMENT AND SIGNATURE

I certify that the participants has been given ample time to read and learn about the study. All questions and clarifications raised by the participants have been addressed.

Researchers name……..

Signature……..

Date…….

APPENDIX IV: PTA CONSENT FORM

I acknowledge that I have read or have had the purpose and consent of the participant's information sheet read and that all questions have been satisfactorily explained to me in a language I understand (Twi). I fully understand the contents and my child's rights to leave the study, even if I have signed

this form on behalf of my child. I understand that my child has the right to withdraw from the study anytime he or she wishes. I have had the opportunity to ask questions about the study and any question that I have asked has been answered to my satisfaction. I voluntarily agree that my child can take part in the study.

Consent

I _____ (parent/guardian) declare that the purpose, procedure, benefits and risk involved in participating in this study has been explained fully to my satisfaction in my own language (Twi, if parent/guardian cannot read). I therefore agreed willingly to have my child participate in the study.

Signature/Thumbprint of parent

Name of Principal Investigator _____

Signature _____

If participant cannot read and or understand the form themselves, a witness must sign here:

_____

I was present while the benefits, risk and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

I certify that I have explained the information (the nature, potential benefits and possible risk) on the sheet to the parent_____ and that he/she understood what I said and has agreed that the child should take part in the study.

Name of the person who obtained the consent: _____

Signature of person who obtained consent: _____

Date : _____

APPENDIX IV: DATA COLLECTION TOOL

STUDY TITLE: DEPRESSIVE SYMPTOMS AND ASSOCIATED FACTORS AMONG IN-SCHOOL ADOLESCENTS IN AKWAPIM SOUTH DISTRICT, GHANA

Questionnaire Code: …… Date ……

	Section 1: Socio-demographic characteristics of participants: Client-related factors		
	Question	**Response**	**Code**
1.	Age at last birthday (in completed years)?		
2.	Sex?	1. Male 2. Female	
3.	Religion?	1. Christian 2. Muslim 3. Traditional 4. Other, Specify	
4.	Living with?	1. Parents (both) 2. Mother or Father 3. Other family members 4. Friends 5. Alone	
5.	Place of residence?	1. Rural 2. Semi-urban 3. Urban	
6.	Marital status of parents?	1. Live together 2. Separated/divorced 3. Loss parents	
7.	Father's level of education?	1. No formal education 2. Basic 3. Senior High/Secondary 4. Tertiary	
8.	Father's employment status?	1. Unemployed 2. Employed (salary worker) 3. Self employed	
9.	Mother's level of education?	1. No formal education 2. Basic 3. Senior High/Secondary 4. Tertiary	
10.	Mother's employment status?	1. Unemployed 2. Employed (salary worker) 3. Self employed	
11.	Number of siblings?	1. No sibling 2. One 3. Two 4. More than 2	
12.	NHIA registrant?	1. Yes 2. No	

13.	Ownership of a mobile phone?	1. Yes 2. No	
14.	Do you use your mobile phone to access any social media platforms like WhatsApp and Facebook?	1. Yes 2. No	

Section 2: Assessment of Depression Status and common symptoms:

Over the last 2 weeks, how often have you been bothered by any of the following problems?

S/N	Depression variables	Not at all	Several days	More than half the days	Nearly every day
15.	Little interest or pleasure in doing things?				
16.	Feeling down, depressed, or hopeless?				
17.	Trouble falling or staying asleep, or sleeping too much?				
18.	Feeling tired or having little energy?				
19.	Poor appetite or overeating?				
20.	Feeling bad about yourself or that you are a failure or have let yourself or your family down?				
21.	Trouble concentrating on things, such as reading the newspaper or watching television?				
22.	Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual?				
23.	Thoughts that you would be better off dead, or of hurting yourself?				

Depression assessment tool adapted from PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Session 3: Behavioural factors of adolescents:

24.	Do you drink alcohol?	1. Yes 2. No	
25.	Do you smoke?	1. Yes 2. No	
26.	Are you in a relationship with the opposite sex?	1. Yes 2. No	
27.	Do you do exercise frequently?	1. Yes 2. No	
28.	If yes, how often do you do the exercise?	1. Weekly 2. Once every two weeks 3. Once a month 4. Not frequent	
29.	Do you partake in any outdoor activities?	1. Yes 2. No	
30.	Do you have any chronic illness?	1. Yes 2. No	
31.	Are you on any medication?	1. Yes 2. No	

Session 4: Environmental factors (school and family environment):

32.	Type of school?	1. Private 2. Government	
33.	Level of school?	1. Junior High 2. Senior High	
34.	For those in Senior High School, type of school?	1. Boys only (boarding) 2. Girls only (boarding) 3. Boarding mixed 4. Day mixed	
35.	Academic performance of the child?	1. Poor 2. Average 3. Good 4. Excellent	
36.	What is the relationship between the child and the teacher?	1. Poor 2. Normal 3. Good	
37.	Is the child having learning materials for his/her academics?	1. Yes 2. No	
38.	Is the classroom environment conducive for learning?	1. Yes 2. No	
39.	What is the relationship of the child and classmates?	1. Poor 2. Normal 3. Good	
40.	Nature of family?	1. Single parent 2. Monogamous 3. Polygamous	
41.	Head of household?	1. Father 2. Mother 3. Child 4. Other, specify	
42.	Family history of depression?	1. Yes 2. No 3. I don't know	
43.	Has your mother ever been abused by your father?	1. Yes 2. No	
44.	Has your father ever been abused by your mother? Verbally or physically	1. Yes 2. No	
45.	Have you ever experienced any form of abuse from any of your parents?	1. Yes 2. No	
46.	Have you ever experienced any abuse from any other person rather than your parents?	1. Yes 2. No	
47.	Is any of your parents into smoking or drinking of alcohol?	1. Yes 2. No	
48.	Are you able to have any form of discussion with any of your parents?	1. Yes 2. No	
49.	If yes to Q31, who do you feel comfortable to discuss your issues with?	1. Father 2. Mother 3. Siblings	

		4. Other, specify	
50.	Do you have some time with parents especially during weekends or vacation?	1. Yes 2. No	

THANK YOU FOR TAKING PART IN THIS STUDY