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FACTORS INFLUENCING ADOLESCENT MENTAL HEALTH: A CASE OF SENIOR HIGH STUDENTS IN ADENTA MUNICIPALITY.

BY

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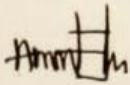
DECLARATION

I, Doris Etornam Amemorbu, do declare that apart from references to other people's works which have been duly acknowledged, this proposal has been written independently by me and has not been submitted for the award of any degree in any institution.



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DEDICATION

I dedicate this work to my lovely family especially my dear husband Frank and my three kids Janice, Jessica and Jason for their undying love and patience.

ACKNOWLEDGEMENT

I want to thank God Almighty first for making it possible for me to come this far in this project.

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LIST OF ABBREVIATIONS

APA	-	American Psychiatric Association
DASS-42	-	Depression Anxiety Stress Scale
GSS	-	Ghana Statistical Service
ICD	-	International Classification of Diseases
IPPA	-	Inventory of Peer Parent Attachment
LMIC	-	Low and Middle Income Countries
SHS	-	Senior High School
SLSI	-	Students Life Stress Inventory
UNICEF	-	United Nations Children's Emergency Fund
WHO	-	World Health Organization
WASHS	-	West African Senior High School
WHR	-	World Health Report

DEFINITION OF TERMS

Adolescence	Boys and girls between 10 to 19years of age are adolescents according to WHO.
Mental Health	A state of well-being in which the person knows his or her own ability, can cope with the usual stresses of life, can work productively and fruitfully, and is able to make contribution to his or her society. (WHO, 2015).
Mental disorders/ problems	They involve a wide variety of disorders with different symptoms and are usually characterized by a mixture of irregular thoughts, emotions, behavior and relationships with others. (WHO, 2017).

TABLE OF CONTENTS

DECLARATION i
DEDICATION ii
ACKNOWLEDGEMENT iii
LIST OF ABBREVIATIONS iv
DEFINITION OF TERMS v
TABLE OF CONTENTS vi
LIST OF FIGURES ix
LIST OF TABLES x
ABSTRACT xi
CHAPTER ONE 1
INTRODUCTION 1
1.1 Background 1
1.2 Problem Statement 3
1.3 Justification of Study 4
1.4 Research Questions 5
1.5 General Objective 5
1.7 Conceptual Framework 6
1.6.1 Sex and Mental Health 7
1.6.2 Academic –Related Stress 8
1.6.3 Parent Attachment Relationship (PAR) 9
1.6.4 Peer- Attachment Relationship 10
CHAPTER TWO 11
LITERATURE REVIEW 11
2.1 Introduction 11
2.2. Adolescent Mental Health 11
2.3 Prevalence Studies on Adolescent Mental Health. 12
2.4 Common Adolescent Mental Disorders. 13
2.4.1 Anxiety Disorders 15
2.4.2 Mood Disorders and Depression. 15
2.5 Academic Related Stress and Anxiety and Depression. 17
2.6.1 The Impact of Gender and Adolescents' Anxiety and Depression. 19
2.6.2 Peer Attachment Relationship and Mental Health. 20
2.6.3 Reviews on Parent -Child Attachment Relationship and Mental Health 21
2.7 Theoretical Framework for the study 21

CHAPTER THREE 23
METHODOLOGY 23
3.1 Introduction 23
3.2 Study Design 23
3.3 Study Location 23
3.4 Study Population 23
3.5 Sample size Determination 24
3.6 Sampling Method 24
3.7 Study variables and Tools of measurement 25
3.7.1 Dependent Variable 25
3.7.2 Demographic variables; 25
3.7.3 Depression and Anxiety 25
3.7.4 Academic stress 26
3.7.5 Attachment Relationship; Peer attachment relationship and Parent attachment relationship 26
3.8 Quality control 27
3.9 Expected Outcome 27
3.10 Ethical consideration 27
3.11 Privacy and confidentiality 28
3.12 Compensation 28
3.13 Voluntary withdrawal 28
3.14 Benefits and Risks 29
3.15 Data storage and usage 29
3.16 Declaration of conflict of interest 29
3.17 Funding of the study 29
CHAPTER FOUR RESULTS 30
4.0 Introduction 30
4.1 Socio-Demographic Characteristics 30
4.3 Incidence of Depression and Anxiety 32
4.4 Association between depression and other variables 33
4.5 Associations between anxiety and other domains 36
CHAPTER FIVE 46
DISCUSSIONS 46
5.1 Incidence of anxiety and depression? 46
5.2 Academic Stress, Anxiety and Depression. 52

5.3 Peer Attachment and Adolescent Mental Health 53
5.4 Parent Attachment and Adolescent Mental Health. 54
5.5 Strengths and Limitations of the Study. 54
6.1 Introduction 56
Overview of the study **56**
6.2. Key Findings With Regards To Research Questions 58
6.3 Conclusions 60
6.4 Recommendations 61
6.4.1 Recommendations relating to the study **61**
6.4.2 Recommendations for further studies **62**
References 63
APPENDIX A : Questionnaires 70
APPENDIX B: PARTICIPANTS INFORMATION SHEETS 79
APPENDIX C: PARENT/ GUARDIAN INFORMATION SHEETS 82
APPENDIX D: STUDENT ASSENT FORM 85
APPENDIX C: PARENT CONSENT FORM 86

LIST OF FIGURES

Figure 1: Conceptual Framework 6

Figure 2: Prevalence of depression and anxiety 33

LIST OF TABLES

Table 1: Socio-demographic characteristics of respondents 31

Table 2: Association between depression and demographic characteristics 35

Table 3: Associations between Anxiety and other domains 39

Table 4: 40

Table 5: 41

Table 6: 41

Table 7: 42

Table 8: 43

Table 9: 43

Table 10: 43

Table 11: 44

Table 12: 44

Table 13: 45

ABSTRACT

Background: Adolescents in developing countries including Ghana, are vulnerable to STIs, HIV/AIDS, substance abuse, suicide and self-harm due to the high prevalence of mental health problems in their age bracket.

Objective: This study examined the prevalence of common mental health outcomes such as anxiety and depression in SHS adolescents.

Method: The study recruited 259 adolescent males and females aged 10-21 years old, attending West African Senior High School form one to form three in the Adenta Municipality, using the simple random sampling technique. Three Standardized questionnaires were used to collect data; the Student –Life Stress Scale Inventory (SLSI), Depression Anxiety Stress Scale (DASS- 42), the Inventory of Parent and Peer Attachment (IPPA) and a self- designed socio-demographic questionnaire was used to gather a cross-sectional quantitative data from the selected participants.

For statistical analysis, Stata version 15 was used to process data. Three significant tests were used in this study to answer the research questions; fisher's exact test, was used to test for association between depression, anxiety and demographic variables, simple and multiple linear regression was calculated to test for association between academic stress, peer and parent attachment relationship to anxiety and depression.

Results: The results indicated that anxiety and depression was common in the student population with females reporting slightly higher forms than males. Academic stress was seen only as a strong predictor of depression levels among the students but not anxiety. Lastly, parent and peer attachments relationships did not influence anxiety and depression significantly and rather served as protective factors against anxiety and depression, even though students with male parents reported severe anxiety and depressive symptoms as well

as students whose mothers had some form of education also reported severe forms of anxiety. Finally, it was found that, as adolescent age, their level of anxiety reduces.

Conclusion: The study concludes that since mental health problems are prevalent in the population of SHS adolescents, it is critically imperative to implement and provide therapeutic care with structured mental health support programs to adolescents experiencing anxiety and depression as this could be beneficial in improving their mental state.

CHAPTER ONE

INTRODUCTION

1.1 Background

Adolescence is not a simple transition from childhood to adulthood, but a stage of great developmental and maturational change for the female and male child (Bostanci & Tan, 2014). It is characterized by change in behavior, emotions and cognition which causes a significant effect on the adolescent mental health. The young child experience massive alterations in his or her physical appearance (enlargement of the breast or penis, widen of the hips and broaden of the shoulders among others), confusion about the 'self' or identity, need for acceptance and belongingness, balancing school and pressure from home, a quest for independence and ultimately reaching their individual goals (Lõk et al., 2017). Developmental theorists have opined that the bio psychosocial changes adolescents have to deal with are increasingly becoming difficult for them (Lõk et al., 2017).

About 1.2 billion people in the world today, make up 16 percent of the world's population of adolescents, aged 10-19 years (WHO, 2017; UNICEF, 2018.) It is projected that about 20% of the general population worldwide experience one psychiatric disorder such as depression, anxiety or stress in their lifetime (Boutelle et al., 2009). The incidence of psychiatric disorders is reported to be higher in people aged 16-24 years than the general population (Forman-hoffman et al., 2015). Usually, people have their first episode of mental illnesses during adolescence. Taking for example the ages 4 to 17 are reported to be the period at which most people experience psychotic disorders like mania and schizophrenia (Lõk et al., 2017), the reason being that psychological problems are linked to other areas of their development affecting 10% and 20% of adolescent worldwide (Moore et al., 2011). Whiles there are several factors that have direct effect on adolescence, issues of their mental health have been neglected to the background in the global developmental policies (UNICEF, 2018;

WHO, 2017). Adolescents are also challenged with numerous life stressors from school and home (Lök et al., 2017). Stress for instance contribute to depression, anxiety, and results in other emotional and behavioral problems (Formnan-hoffman et al., 2015), resulting in some adolescents engagement in risky behaviors like substance use, self- injurious behaviors, unprotected sex making them susceptible to physical and mental problems (Patel, Flisher, Hetrick, Mcgorry, et al., 2007). Consequently, affecting parent and child relationship, child and peer relationship and thus poor academic performance.

Owing to these challenges, adolescent mental health has become a key global agenda, and researchers are exploring predicting factors that disturb adolescent mental health (Maughan & Collishaw, 2008), (UNICEF, 2018). Taking Sub-Saharan Africa for instance 23% of the population is between the ages 10 and 19 (WHO, 2014) and significant percentage of adolescent is suggested to fall within the active population. In Ghana, adolescents constitute 38.3% of the population (GSS, 2017), however, much is not known of their mental health. A study conducted in Ghana reported a rise in suicide in adolescents' cases of suicide. Again, the report also has it that certain factors such as psychological, conflict relationships, losing a significant other, low academic performance, socio economic factors all influence adolescent mental health (Osafo and Akotia, 2015).

In view of this, the study aims to carry out an explanatory analysis of adolescent mental health in Ghana through a quantitative approach. It is hoped that the outcome to the findings will serve a much broader socio demographic enquiry into the phenomenon aimed at uncovering how diversity in Parent child attachment relationship, gender differences, stress and peer attachment relationship impact their mental health.

1.2 Problem Statement

Adolescence appears to be a risky period in terms of psychological problems (Bostanci & Tan, 2014). Globally, these problems in adolescence is a major burden to nations (WHO, 2017). There is evidence to show that 1 out 5 adolescents will experience a mental illness in a given year, in which depression and self-harm will be the leading cause of death among adolescence. However, their mental health problems are under reviewed due to inadequate resources and practitioners to treat adolescent mental health issues (WHO, 2017; UNICEF, 2018) Similarly, it has been shown that incidence of psychiatric disorders increase in the adolescent period, of which most are not able to receive the needed care and attention (Bostanci & Tan, 2014).

In spite of the universal recognition of the relevance of adolescence mental health, official statistics in Ghana is lacking (WHO, 2017). Data on adolescent mental health is urgently needed as the estimated burden of mental health problems in this group may more severe than projected (WHO & partners, 2017; UNICEF, 2018). Enhancing of mental health, strengthening protective factors, reducing and preventing as well as identifying risk factors, in order to provide appropriate and effective services should be of central concern on the agenda of governments. In recent times, studies have shown that adolescent mental health needs have evolved from behavior problems to psychological problems such as stress, depression, self-injurious behaviors, suicide and anxiety (Björkenstam et al., 2015). These problems affect their mental well-being (Rohde, 2013). In Ghana, the true prevalence of adolescent mental health problems is ranked 12th for outpatient consultations, yet, these problems still remain low in priority and services (Doku et al., 2011), as current knowledge on adolescent mental health is skewed towards weaknesses in the systems and stigma leading to the neglect of provision of services is also reflected in the scarce number of mental health professional as well as low government funding which limits attention to adolescent mental

health services (Sharon Kleintjes & Lund, 2010). Another study conducted in Ghana revealed that stigma leaves sufferers of mental illness in a state of grief, thus preventing them from seeking help, this reduced help seeking also leads to reduced investment in services as well as reduced government funding (Tawiah et al., 2015). Relatedly, a survey on mental health systems in Ghana revealed that 1-10% of adolescents received care in mental health facilities in 2013 and only 15 beds were allocated for these adolescents suffering from mental health problems (Mental Health Report, 2013). Worth mentioning is (Doku et al., 2011) who identified major challenges in the Ghanaian mental health system. These challenges included inadequacies in policies, human resources, financial resources, widespread stigma, institutionalized care and non-existing human rights protection for persons with mental problems. They recommended that these services in Ghana must be tailored to provide the unmet needs. The above evidence suggests that research on adolescent mental health is lacking, making it imperative to delve into the mental health of adolescents in Ghana in order to provide an all-encompassing help to their ever-increasing needs.

1.3 Justification of Study

The stage of adolescence requires special needs which cannot be overlooked, thus, investments in the future of adolescent is key for every country. Recent studies indicates that this period of adolescence is characterized by higher mental health problems than in other periods, because, these problems translates to other health and developmental problems such as low academic achievements, substance abuse, violence and reproductive and sexual health problems in adulthood (*WHO*, 2014). The (*National Institute of Mental Health*) has established psychological and behavioral problems as obstacles for knowledge acquisition. It further estimates that 5-9% of children are not studying and achieving excellence in schools due to these obstacles (Kumari, 2012). Additionally, World Mental Health Day celebrated recently in October 2019 was dubbed "Suicide Prevention". This theme was chosen to draw

the attention of policymakers to ensure that the issue of suicide is given priority in most public health agendas. Recently in Ghana, there has been an increase in suicide reported cases especially among the school going adolescent (Quarshie et al., 2015) thus making this theme of suicide prevention a timely one.

Therefore, by identifying the influence of these factors will aid in helping adolescents build mental resilience at an early age, it will also aid in designing preventive public health programs and focus on psychological interventions to improve their psychological health and well-being at the SHS level ensuring they are able to cope with stress and realize their full potential.

1.4 Research Questions

1. What is the prevalence of anxiety and depression among SHS Adolescents in Adenta?
2. How does academic stress influence the incidence of anxiety and depression?
3. How does parent and child relationship influence adolescent anxiety and depression?
4. How does peer relationship influence adolescents' anxiety and depression?

1.5 General Objective

To examine influencing factors on mental health outcomes in the West African SHS students in Adenta Municipality.

1. To assess the prevalence of depression and anxiety in adolescents.
2. To examine how academic stress influence the incidence of depression and anxiety.
3. To examine how an association exist between parental attachment and adolescents' anxiety and depression.

4. To examine how an association exist between peer attachment and adolescent's anxiety and depression.

1.7 Conceptual Framework

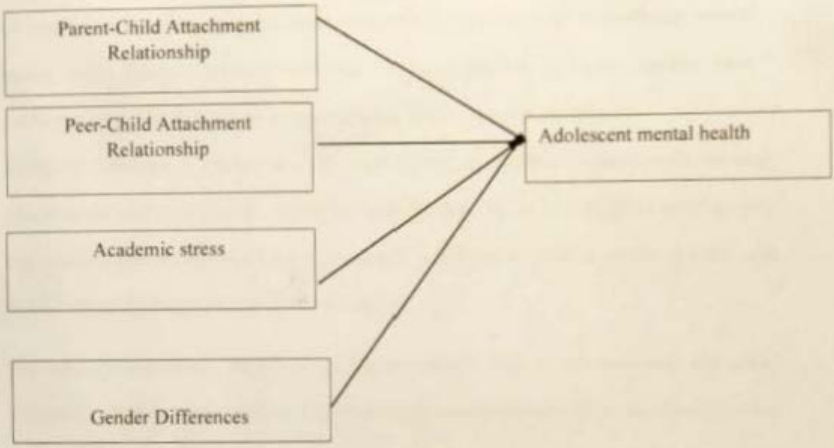

Figure 1: Conceptual Framework

Source; Authors Own Construction

The conceptual framework above illustrates the influence of gender, parent and peer attachment relationship, and academic stress to establish adolescent mental health outcomes (anxiety and depression), as exposure variables which may positively or negatively influence the mental health of adolescents which is the outcome variable under study. The attachment theory gives insight into understanding how peer relationships form from puberty to later stages and this relationship could be influenced by gender and contextual factors such as the community/societal factors and health system interventions as illustrated by the framework.

1.6.1 Sex and Mental Health

Gender, determines mental health and illness (WHO, 2002). Disease conditions related to mental ill-health well known compared to specific determinants of and systems that outlines the protection of mental wellbeing and build resilience to stress and adversity. It also determines socioeconomic factors that affect the mental health, social role and status of males and females as well as their susceptibility and exposure to particular mental health risks. These differences translates to psychological problems. Studies have investigated specific risk factors as determinants of mental health problems;

Firstly, (C.Kapungu, S. Petroni, N. Allen et al., 2017), established violence; child marriage; sexual abuse and exploitation; restrictive reproduction, denial of education, employments opportunities and decision making; and unequal workloads as well as gender specific risk factors affects the mental health of the adolescent.

Secondly, (WHO, 2002), described conflicting gender roles as psychological and social difficulties which is a consequence of individual internalizing traits other than those ascribed to their sex. These individuals have contradictory impulses that increase the risk for suicide. For instance, females become more vulnerable to specific traumas particularly sexual violence than males due to their lack of social power.

Moving on, it is worthy of noting that, gender based abuse is associated with increased levels of mental health problems (Shahrokh, 2015), concluded that when sexual assault occurs in woman's life irrespective of the age, it can result in the victim being depressed and attempting suicide due to the unpleasant experience. These researches have accounted for disparities in gender differences in depression and anxiety thereby suggesting the need to study this variable further.

1.6.2 Academic –Related Stress

Adolescents in secondary educational setting encounter a range of normative stressors accompanying academic work, relationships which negatively impact their mental health. Stress as defined by the Australian Psychological Association is a normal emotional and bodily responses which are triggered by life (Australians et al., 2015). The body responds to stressors by releasing adrenalin and cortisol which are activated from the nervous system. These hormones make the body to control the perceived traumatic event efficiently by stimulating the sympathetic nervous system thus producing bodily symptoms; tachycardia, hypertension, profuse sweating headache, fatigue, difficulty sleeping, and behavioral symptoms; lack of appetite, restlessness, anhedonia, and difficulty concentrating.

Academic stress refers to difficulties encountered by students and their desire to resolve those obstacles (Abasimi et al., 2015). In Ghana, academic stress may be due to challenges associated with school placement and 'Double Track systems'. These stressors may include wrong placement, wrong selection of courses, network issues and no placements. This was affirmed by (Deho & Agangiba, 2019) who identified challenges of the free SHS to be lack of accommodation and other facilities to cater for the huge number of students. Relevant studies such as (Moneva, 2019), posited that, students in SHS have their level of stress attributed to school work, school environment as and from student sources Furthermore, (Leonard, 2015), also established that students in SHS also had exposure to stressful events since they had to perform well academically in order to qualify to be admitted to the universities of their choice. (Misra, 2016) also stated similarly that university students also feel stressed from the academic pressure and do not have adequate time for rest and other leisure activities to distress which puts them at risk of anxiety, depression and other emotional problems. The results of a study by the American Psychology Association (Sheu et al., 2014) on 1200 young individuals aging between 8 and 17 years also stated that forty-two

percentages of the young individuals could not manage their stress levels failed. Thirty-seven percentages of girls and twenty-three percentages of boys felt unhappy and depressive due to stress, thirty-five percentage experienced sleepless nights because they had to go to school the other day.

Researches have documented the negative effects of stress on physical health, substance use, sleep, academic performance, and mental health (Pascoe et al., 2019). This study builds on the above scholarly evidence to assess the influence of academic stress on mental health outcomes in adolescents attending SHS in Adenta, Accra.

1.6.3 Parent Attachment Relationship (PAR)

This is can be defined as "lasting psychological linkages between human beings" (Bowlby, 2009). It is formed primordially in childhood and transits into adolescence where the individual becomes less dependent upon his or her parent thus integrating multiple bonds into their attachment (Steinberg, 2001). And it is very crucial in a child's life, often lasting well into adulthood (Kapungu et al., 2017). It has been document that the way children perceive the connection with parents is important (Kumari, 2012). In adolescence, there is dramatic change in this relationship as adolescents' desire freedom from their parents to make their own decisions. (Boutelle et al., 2009). When there is freedom, there is increased likelihood of positive and negative behaviors, therefore, parental guidance is crucial to help them to overcome these difficulties. Other researchers outlined the relevance of parent-child connectivity to provide security for many young people against health pregnancy, HIV/STD, drug abuse, tobacco use and delinquency as parents give support and set limit, which promote healthy adolescent growth (Patel, Flisher, Hetrick, Mcgorry, et al., 2007).

1.6.4 Peer- Attachment Relationship

Peers represent significant participation in the social network of individual's during their lifetime (Laible et al., 2000). The salience of peer attachment correlates with shifts in early adolescence with the need for intimacy. Loyalty and commitment develops as adolescents begin to share secrets with friends and girls particularly become intimate with their close friends such that, they spend more of their time sharing their deepest thoughts and feelings, seeking approval and affirmation from each other. Those from disorganized families have the likelihood to be more influenced by peers than parents. Also, in families, where parents are extremely authoritative, these teenagers have the possibility of being peer oriented. However, in most cases, peer influence complements the influence of parent (Kumari, 2012).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The goal of the study is to assess the prevalence of depression and anxiety in adolescents attending SHS at Adenta in Accra and how academic stress influences these conditions. It also seeks to assess the influence of parent child attachment relationship and peer child attachment relationships on adolescent mental health. Again in this chapter, the researcher discusses the attachment theory by (Bowlby, 2009), and finally review, scholarly evidence on the above variables.

2.2. Adolescent Mental Health

This is characterized by the ability to attain and sustain higher social functioning and well-being, and also related specifically to the competence attained in the field of psychological and social functions (WHO, 2005). It is understood that adolescents have a range of developmental problems ahead of them and their well -being involves a sense of identity and self-worth, sound family and peer relationships; the capacity to acquire knowledge and be active, productive and use developmental difficulties and cultural resources to make the most of their development (Björkenstam et al., 2015).

Research has documented that a functioning psychological wellbeing in adolescence is the foundation for higher psychological growth, meaningful social connection, knowledge acquisition, self-care and effective economic participation as adults, has the potential to pave way for wellness and prevent mental illness such as anxiety and depression (Sharon Kleintjes & Lund, 2010).

Relatedly, WHO, (2012), has documented that, during the adolescent period, mental health outcomes are improved due to proper development and reduced likelihood of mental

problems, but, quite a number of them experience overt mental health problems which qualifies for diagnosis when pattern of signs and symptoms is consistent, and significantly impairs with their psychological and social functioning, and that meets requirements for a disorder under the agreed classification scheme such as the International Classification of Diseases (WHO,1992).

Policy interventions have been developed by (*WHO. 2005*) to improve adolescent mental health. These interventions are based on the fact that certain, psychiatric disorders occur mostly during adolescent growth, therefore screening services and treatments are targeted at the level at which they are more likely to appear. Secondly, there is the likelihood of these disorders to be consistent in adolescence and adulthood, therefore, early intervention could avoid the possibility of long term impairment. And finally, effective interventions to reduce the burden of mental health disorders on the individual and the family and reduce the cost to health system and communities.

Interventions within the health system targeted at promotion and preventive services for children and adolescent in low and middle income countries are extremely scarce and greatly limit access to appropriate care (Patel, Flisher, Hetrick, & McGorry, 2007). However, WHO mental health Gap Action Program established interventions to increase coverage of services in this population of adolescents.

The above evidence illustrates how critical mental health is in the adolescent period, however, there is relatively fewer studies exploring factors that influence the mental health outcomes especially anxiety and depression of SHS adolescents.

2.3 Prevalence Studies on Adolescent Mental Health.

The world's population is made of almost a third (2.2 billion) individuals who are teenagers and 90% of them live in developing countries, making 50% of the population (Patton et al.,

2014). Neuropsychiatric problems in young people are the increasing causes of health-related burden, accounting for 15-30% of the disability-adjusted life- years (DALYs) lost during the first three decades of life. Globally, the prevalence of mental health disorder is 15% (Patel, Flisher, Hetrick, Mcgorry, et al., 2007). Studies have outlined a high prevalence of adolescents seeking treatment at primary care services with increased psychological problems such as attention-deficit hyperactive disorder (ADHD), conduct disorder, generalized anxiety, depressive disorders, PTSD and Separation anxiety disorder (Furr et al., 2010). In a prevalence study, Cortina and colleagues 2012 included 10 Studies and 9713 adolescents from 16 countries using different methods of assessment found that 14.3% (95% CL, 13.6% - 15.0%) of adolescents had psychopathology. They concluded that considerable degrees of mental health problems are prevalent in adolescents as one out of 7 of adolescents have severe problems, 1 out of also 10 (95%) exhibit a specific psychological disorder. (Cortina et al., 2012).

The prevalence of mental illness and maladaptive behaviors among adolescents has risen to 20% as indicated by (S. Kleintjes et al., 2010), and WHO, (2017), as studies have documented this prevalence of behavioral and emotional problems in adolescents' to be from 16.5% (Al-biltagi & Sarhan, 2016), 40.8% and in Ghana, adolescents' constitute 38.3% of the population, (*GSS*, 2018), indicating a significant disease burden, therefore the need to examine the factors that significantly influence their wellness for the provision of interventions to meet the needs of these adolescents.

2.4 Common Adolescent Mental Disorders.

Depression and anxiety are prevalent in adolescence, and young adults can develop a condition (WHO, 2017). Mental illness in adolescence raises the likelihood of later adult illness (Mekonnen et al., 2018), and people who have mental disorder also had an earlier

onset in adolescence, which implies that, the stage is critical period for psychological health interventions that could prevent and alleviate present and long term impairment.

In spite of this, knowledge about prognosis of these conditions transitioning into adulthood is scant.

In the Lancet Global Health, only 21 studies referred to depression in Africa, 7 to anxiety, 6 to suicide, 4 to addiction, one to psychosis and none to schizophrenia. This illustrates the lack of studies on mental health research in Africa. Sheriff and co-authors also pointed to this when they found that in developing countries, only 3% of clinical trials were conducted in mental health (Sankoh et al., 2018). Because of this study deficiency, many Africans and their governments have neglected their mental health services.

Data from (Sankoh et al., 2018), on their mental health in Africa, shows that Africa has 1.4 mental health workers per 100,000 people compared with global average of 9.0 per 100,000. These health workers also perform relatively poor with respect to the number of psychiatrists. Again, the number of hospital beds for patients with mental illness and fewer out -patient facilities means that the proportion of Africans with mental health issues is extremely poor. Meanwhile, (*Mental Health*, 2014) by WHO, suggested that globally the annual rate of visits of mental health out- patient facilities is 1051 per 100,000 populations, that is Africa is 14 per 100,00. The care deficit for Sierra Leone for mental health services has been estimated at 98.8 % (Sankoh et al., 2018).

Anxiety, mood, attention and behavior problems have higher prevalence in adolescents with particular diagnostic criteria outlined in the DSM-IV (APH, 2013).

2.4.1 Anxiety Disorders

These are more common in adolescents have early onset It has been documented that one out of eight adolescents meets clinical criteria for diagnosis according to (Lök et al., 2017). These disorders have negatively impacted on significant of areas of functioning, including academic performance, relationship with family and peers (Sandal et al., 2017). Furthermore, these disorders often occur in conjunction with depressive disorders and associated with suicide as well as physical symptoms which include recurrent abdominal pain, dizziness, syncope, nausea, vomiting, and changes in sleep appetite and energy levels. These symptoms range from transient, mild to full blown anxiety disorder (Al-biltagi& Sarhan, 2016), identified risk factors for adolescent anxiety to be environmental factors, parenting styles, and insecure parental attachment. Anxiety disorders are classified as; generalized anxiety disorder, social anxiety disorder, separation anxiety disorder and panic disorder. (APA, DSM-2013).

It has been documented that females report higher prevalence rates of specific phobias, panic disorder and separation anxiety disorder than males (Al-biltagi& Sarhan, 2016).

2.4.2 Mood Disorders and Depression.

According to (Hankin, 2006), One in Twenty adolescents satisfies the criteria for a mood disorder, and one out of four adolescents will also exhibit a mood disorder in late adolescence. These disorders include; difficulty in adjusting to depressed mood, major depressive disorder, bipolar disorder and premenstrual dysphoric disorder. According to (Moeini, 2019), females adolescents experience increased levels of depression than male adolescents and they exhibit fewer symptoms; example, extreme tiredness and increased irritability than adults experiencing the same condition. These troubled teens also abuse alcohol and other medications as well as self-medicate for other substances that also increases their risk of suicidal behavior (Wilkinson, 2004). The diagnostic criteria according to (Marty

& Segal, 2015), mood disorders are classified as major depression, and bipolar disorder. Symptoms of depression in the adolescent include; low performance in school, isolation from peers, and hobbies, sadness and hopelessness, lack of enthusiasm, energy or motivation, anger or rage, overreaction to criticism, feelings of being unable to satisfy ideals, poor self-esteem, restlessness and agitation, indecision, lack of concentration or forgetfulness.

According to (APA, 2013), the symptoms may be diagnosed as depression if they last for more than two weeks. Several researches have documented the prevalence of depression among adolescents of various age groups using different methods and samples.

Firstly, depressive disorders have been described to be the main cause of disease burden and injury in adolescent. Other researches by (Al-biltagi & Sarhan, 2016), (Sandal et al., 2017), also noted that the medical expenditure on adolescents with depression is relevantly greater than those with other mental health conditions. Evidence by (Sawyer et al., 2001) revealed that adolescents experiencing depressive disorders are vulnerable to problems such as legal issues, exposure to negative life events, pregnancies leading to unsafe abortions. Similarly, (Forman-hoffman et al., 2015) also found that quite a number of teenagers with depressive symptoms had another mental disorder commonly substance -use anxiety disorder as well as other chronic illnesses.

Again, in adolescents, depression may lead to outcomes, as shown by a 25-year longitudinal study of New-Zealand children. It was revealed that depression in adolescents of ages 16-21 increases their dependency and unemployment rates, showing that, the impact of poor mental health in adolescent have lifetime consequences (Stikkelbroek et al., 2018).

Many factors are associated with depression and anxiety in adolescents, one that has largely been identified as a major risk factor for depression in adolescents is stress. One common

cause of stress which has been reviewed and proven in many literature as significant risk factor for depression in adolescents is academic stress.

Stress according to (Furr et al., 2010), refers to the inability to cope with threatening circumstances.

2.5 Academic Related Stress and Anxiety and Depression.

The definition of academic stress has long been explained by (Gupta and Klan, 1987) and reiterated by (Rohtak, 2015) as a condition that is stressful and can arise because of the educational demands from parents, teachers, peers, and the family members, pressure of parents for academic achievements, the existing educational and examination system, burden of homework etc. Similarly, (Duncan-Williams, 2015) also defined it as a mental distress with respect to some anticipated frustration associated with academic failure or even an awareness of possibility of such failure.

Scholarly work has provided evidence of stress correlating with anxieties. One of such is the organization for Economic Co-Operation and Development (OECD, 2017) which surveyed 72 Countries and 540000 student respondents between ages 15-16 years, and noticed that 665 of the respondents were worried about lower grades and 59% also perceive test taking to be difficult. Again, the survey indicated that 37% of the students indicated that they were tensed when studying. Girls reported greater anxiety than boys in terms of school work (Pascoe et al., 2019).

Similarly, (Ribeiro et al., 2017) also indicated that as individuals attain higher education, they report high levels of stress which affect their quality of life and mental wellbeing.

Again, prolong academic stress causes extreme anxiety and depression (Duncan-Williams, 2015), (Boutelle et al., 2009). Furthermore, (Sani, 2019; WHO, 2017) , have established a reciprocal relationship between stress and depression as well as anxiety.

This reality has also been established by (Hysenbegasi et al., 2005) in their research involving U.S graduate students who self-reported higher symptoms of anxiety and depressive symptoms in their subsequent achievements. Similarly, in a longitudinal study involving Hawaii High School Students, it was reported that symptoms of depression resulted in successive lower academic achievement (Eskanadrich et al., 2012). Worthy of note is Humensky et al. (2010), whose findings was consistent with the above conclusion that reported symptoms of depression was associated with attention and performance difficulties. His longitudinal study involved 83 adolescent students from the United States aged 14-21 and most were at risk of major depression. (Humensky et al., 2010)

Going further, (Johnson et al., 2010), also conducted a 15 year longitudinal study for Swedish adolescents (aged 13-17) the males especially with depression were not likely to pursue higher education.

The literature also illustrated the disparities that occur in the psychological health of adolescents due to academic stress as females with high levels of academic stress had worse mental health status than males (Sandal et al., 2017). In addition, (Prabu, 2015), also discussed this association between academic stress and its effects on the mental health of adolescents. His findings revealed that senior secondary school students experienced moderate levels of academic related stress, particularly, those in privately owned schools experienced higher levels of stress than those in government schools, and students in urban schools also have higher academic stress than those in the rural schools. In conclusion, academic stress has been shown to have a toll on the mental health of the school going adolescents. The above findings indicate a significant impact of academic stress on anxiety and depression, which makes it important to assess the influence of parent and child attachment, peer and child attachment, on the mental health of the adolescent.

2.6.1 The Impact of Gender and Adolescents' Anxiety and Depression.

Mental disorders commonly emerge during the adolescent years according to Kumari, (2012) and influenced by the emotional and cognitive processes associated with puberty and by social contents surrounding adolescents as they mature through the phase. Adolescent's developmental phase, gender norms and mental health has been suggested by existing literature.

Firstly, (Sandal et al., 2017), has documented that the early adolescence is characterized by rapid biological, psychological and social change can trigger psychological stress for both girls and boys. This development in puberty characterizes brain mutation and sensitivity to social cues which are all influenced by gender norms.

Again, (Patel, Flisher, Hetrick, Mcgorry, et al., 2007), has established that environmental and biological factors interact to influence the probability that environmental influences (such as genetic roles) may influence the specific expression of the phenotypes associated with these pathways", and these genetic and environmental factors make girls susceptible to depression in early childhood but after puberty, this risk decrease with a significant gender cap 1.5 in females and 2 times more in males. Similarly, (Goddings et al., 2012), further explained hormonal changes in puberty may also be important to understandings sex differences in the pattern of mental and behavioral problems that emerge in adolescence.

Moving on, (Adams et al., 2013), have also established that, gender norms which are rigid could affect both boys and girls negatively particularly girls and constrain their aspirations and ability to travel to certain places within or outside the community or even attend school as well as types of social interactions, meanwhile, boys have more liberties and opportunity over income generating activities.

A review of published research by (Kågesten et al., 2016), it was found that young adolescents who lived the in a variety settings experience gender norms that clearly indicate gender inequalities and these attitudes were shaped by parents and peers. It is also of interest to note that, the knowledge base in low-income countries is scant, but that from high income countries suggested that gender role conflict may become risk factor for suicidal behavior in adolescent (WHO, 2007). Data from diverse sources in many countries demonstrated that factors such as gender discrimination, physical and emotional abuse, social exclusion, educational disadvantage, harmful gender norms, psychological stress are all precipitants to adolescents' depression, (Landstedt, 2012).

2.6.2 Peer Attachment Relationship and Mental Health.

Peers are the key actors within an individual's social network. Studies have examined this importance on mental health outcomes. Even-though, research about friendship has supported the idea that close friendship with peers promote healthy adolescent adjustment, the evidence of this importance is inappreciable (Laible et al., 2000). Another study from (Allen & Miga, 2010) indicates that securely attached peers are also able to form close relationships with peers and maintain autonomy, as well as develop adaptive emotional regulations to handle stressful situations.

Again, evidence suggests that adolescents who are securely attached to their peers have positive psychological well-being as they grow into adulthood, (Cook et al., 2016). Similarly, insecure peer attachment in adolescence could lead to poorer psychosocial health among adolescents (Boutelle et al., 2009; Laible et al., 2000; Mcgee, 2006; Wilkinson, 2004; Yuksek & Solakoglu, 2016; Zimmerman, 2019).

2.6.3 Reviews on Parent -Child Attachment Relationship and Mental Health.

Attachment theorists Bowlby, 2009, described this as the foundation to enhance the development and regulation of emotion in children and enable them cope with stress (Bowlby, 2009). Studies have demonstrated the implications of positive adolescent attachment relationship on the psychological well-being of adolescents.

Firstly, (Oldfield et al., 2016) explained that when parental support and encouragement are given, adolescents would not rebel against their parent.

Moving on, (Bond et al., 2007), also documented that, positive parenting improve these relationship primordially established, and it lasts well into adulthood. Furthermore, (Wilkinson, 2004), also indicated that, quality parental attachment influences the individual's self-esteem rather than having a direct impact on mental health outcomes.

2.7 Theoretical Framework for the study

John Bowlby, a psychoanalyst, was the first to identify the attachment theory. He believed that infants exhibits certain actions when they perceive a separation from a parent or significant other. These actions translates into crying, screaming, and clinging which are natural instincts that ensures survival of the infant. These attachment patterns are instinctive reactions to the perceived danger of losing the survival value that followed the primary caregiver(s being cared for. Since the infants engaging in these behaviors were more likely to survive, the instincts were naturally chosen and reinforced over generations, (Bowlby, 2009).

A child's attachment style of the infant depends primarily on the care that child receives and applies to teenagers. The adolescents as a "safety management system" to promote physical and psychological well-being. This function is triggered by two (2) separate events activates

this mechanism, one of which is the occurrence of a possible hazard or tension, both internal and external, and the other is the fear of accessing or having a bonded figure present. Teenagers find comfort from food, exercise, and social media without the presence of the attachment figure. And as adolescent mature, they are able to interact well with their environment individually free from intimidation. At this stage, there is improvement in their cognition, behavior and emotions and they have the self-efficacy to deal with any stressor even in the absence of the attachment figure (Scharfe, 2017).

To conclude, teen attachment relationships vary from child parent attachment since transformation from observable and external interactions are internalized therefore, the need to study attachment and its impact on mental health outcomes.

2.8. Conclusion

The literature reviewed above indicate that adolescent mental health is a critical issue worldwide and in Ghana. The reviews reveal anxiety disorders and depression to be the commonest disorders with high prevalence in adolescents. Again, the analysis established the influence of academic stress, attachment relationships of parents and peers as well as gender as influencing factors on the mental wellbeing of adolescents.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter addresses the methodology of the study. It includes information on the population sample, sampling method, measures used in the study, the research analysis and procedure of the study.

3.2 Study Design

A Cross Sectional Quantitative Design study in which self-administered closed ended questionnaires was used.

3.3 Study Location

This analysis was carried out in the Municipal of Adenta, which is a small town and is the capital of the Municipal district of Adenta, a district in the Greater Accra Region of Ghana. The city is renowned for its West Africa High School, which is a secondary school. It is also known for the SSNIT (Social Security and National Trust Insurance) Housing. It's located on the Accra - Aburi Highway to Madina (Census, 2010).

3.4 Study Population

All adolescent boys and girls 10-19 years attending West African Senior School in Adenta Municipality. This population of school going adolescents were purposively selected instead of those out of school because of accessibility. This happened during the onset of Covid -19 in Ghana when most people were in panic of being infected. The school was also purposively selected for this study because being a government school running the tracking system, researcher believes has the right mix of students from diverse socioeconomic backgrounds suitable for the study.

3.5 Sample size Determination

To statistically determine the incidence of depression and anxiety among adolescents in the Adenta Senior High School (SHS), a modified Cochran formula for sample size determination as shown below was used.

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

Assuming a global prevalence (p) of 20% mental health disorders among adolescents with 5% precision (e) within 95% Confidence interval of 5%

The sample size is calculated as shown below

$n = (1.96)^2 * 0.2(1-0.2)/ (0.05^2) =$ 259

3.6 Sampling Method

Simple Random sampling was used for selection of participants from SHS 1-3. Researcher obtained the number of students from each class. SHS 1 had a total population of 742 (381 boys, 361 girls). SHS 2 total population 558 (189 boys, 369 girls). SHS 3 total population was 780 (432 boys, 348 girls).

Each class was then divided over the total student population of SHS 1-3 multiplied by the calculated sample size of 259.

SHS1: 742\2080*259 =92. SHS 2: 558/2080*259 =70. SHS3: 780/2080*259 = 97.

The lottery method of simple random sampling was used to recruit selected participants. Researcher wrote yes and no on small papers and asked all students in each class to pick. All those who picked yes was used for the study making a total sample size of 259.

3.7 Study variables and data collection tools

Data was collected by using a self- administered questionnaires. These tools are all standardized tools which were adopted for this study. Considering cultural context, the tools have been used in researches involving adolescents in similar settings. These are described in details.

3.7.1 Dependent Variable

The outcome or dependent variable under study is adolescent mental health Outcomes (Anxiety and Depression).

3.7.2 Demographic variables;

The demographic variables collected in this survey included background information (age, sex, class, socio economic status of the parents) and household characteristics (i.e. household head, household size, occupation of parents). Information on household possession was used to measure the economic status of the sampled adolescents. Attached in Appendix D.

3.7.3 Depression and Anxiety

The scale for measuring anxiety and depression was the DASS-42, which was a self- reported scale created by researchers in University of New South Wales, Australia to isolate and describe the severity of depression, anxiety and stress (Lovibond, 1995). The tool had three sub scales each composing of 14 items measuring stress, depression and anxiety. For this study only the anxiety and depression subscale was used. The depression subscale assessed dysphonic, desperation, depreciation, lack of motivation, and anhedonia. The subscale of anxiety measured autonomic arousal, anxieties that arise due to situations and how the individual responds to it. The questions on the subscales were graded on a four point Likert scale of 0-3, where 0 means, (not at all applicable), to 3 (very applicable to me), The ratings for depression and anxiety were all summarized by the ratings for the relevant items where

higher scores suggest rising levels of depression and anxiety and lower scores suggest the absence of depressive symptoms.

3.7.4 Academic stress

Academic stress of the selected students was assessed using the standardized Student-Life Stress Inventory (SSI) attached in Appendix D. The Student-Life stress inventory (SSI) is a self-report, 5-point Likert-type instrument developed by (*Gadzella,1994*). It's a questionnaire of fifty-one (51) items, consisting two parts. The first segment has twenty-three (23) items evaluating academic stressors which are divided further into sub scales of Frustration (7 – items) conflicts (3) items, Pressure (4),changes (3 item) and self-imposition (6) items. In responding to the first Twenty –three items of the SSL, participants will score each of the items on a 5-point Likert scale of 1 = never, 2 = seldom, 3= occasionally, 4 = often, and 5 = most of the time. Higher and lower scores indicate higher and lower forms of academic stress levels. Scores vary from twenty-three (23) to One hundred and fifteen (115).

3.7.5 Attachment Relationship; Peer attachment relationship and Parent attachment relationship

Peer attachment relationship and Parent attachment relationship of study participants was assessed using the standardized Inventory of Peer Parents Attachment Relation (IPPA) attached in appendix D

IPPA was designed to analyze the understanding of adolescents' perception of the positive and negative affective/ cognitive component of parents and peers relationships especially how well these figures serve as sources of psychological protection.

The theoretical structure is attachment structure developed by Bowlby and recently extended by others. Three broad dimensions have been evaluated; degree of mutual trust; quality of communication and extent of anger and alienation. The model population was 16 to 20 years of age but in some trials with adolescents as young as 12 years, the IPAA was successfully

used. The instrument is a self-report questionnaire with a five point Likert scale format. The original version consists of 28 parents and 25 items in each peer items yielding two attachment scores. The updated version (mother father peer version) is compiled of 25 items in each of the mother father and peer sections yielding three attachment scores. The IPPA is scored by reversed scoring the negatively worded items, then summing the response values in each section.

3.8 Quality control

The study utilized quality assurance processes and precautions to ensure the data are reliable and valid. Research assistants was trained on the entire study process before the commencement of data collection. The principal investigator participated fully in the data collection process to ensure research assistants are properly guided and participants provide the right information. Questionnaires were checked for errors and corrected before entry into the appropriate statistical software for analysis. Then the Inventory of Parent and Peer Attachment was used to examine the attachment relationships.

3.9 Expected Outcome

It was expected that at the end of the research, the prevalence of anxiety and depression among Senior High Students attending West African Senior High School in Adenta Municipality was known. In addition, the influence of academic stress, parent and peer attachment relationship on anxiety and depression was established.

3.10 Ethical consideration

Approval for this study was given by the Ghana Health Service Ethical review board and the approval number given was GHS-ERC 063/11/19. All data was handled confidentially by the investigators. Research information was used for academic purposes only.

Before this study commenced, Informed consent was sought from each participant. Parents had information sheets and consent forms immediately after sampling. Selected students who were below 18years after receipt of information and assent took it to their parents who read and gave their consent. For selected students 18 years to 19 years, they were given the information sheets and they read and gave their consent. The purpose of the study was explained to them and they understood that participation was not compulsory. In addition, each participant was made to sign a written consent form before questionnaire administration. Permission was sought from the management of West African Secondary School before commencement of data collection.

3.11 Privacy and confidentiality

Participants' was not be required when filling questionnaires. During data collection, participants were allowed to sit on individual chairs and tables as they respond to the questionnaires to ensure privacy. Researcher was available to offer clarity to those who needed it. Information gathered was used for academic purposes only. In dissemination of reports, names of participants was kept confidential.

3.12 Compensation

None given. They were however informed before they gave their consent that participation was entirely voluntary.

3.13 Voluntary withdrawal

Study participants were enrolled in study voluntarily and even though participants could leave when they want to do so, researcher anticipated full participation till the end. They could also choose not to answer all questions, but they answered all.

3.14 Benefits and Risks

Study participants self -reported their mental state and how they could identify sources of stress and be equipped to deal with it appropriately. Participants did not recollect any painful memories from their childhood that might cause fear and panic in them during the study. They also received information on mental health services especially one that is easily accessible at Pantang. Therefore, no need to withdraw them from the study, however, they were reassured. The findings of this research however will enable Ghana Health Service and Mental Health Authority to collaborate with Ghana Education Service to prioritize mental health needs of adolescents in Ghana.

3.15 Data storage and usage

Data collected was strictly for the purpose of academic research and all filled out questionnaires was stored safely in locked boxes and soft copies on electronic media also secured with password.

3.16 Declaration of conflict of interest

PI declares no conflict of interest.

3.17 Funding of the study

Study was funded solely by the principal investigator.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter entails the details of the findings that came from this study illustrated on tables, charts and text. The study participants at the end of the data collection were 259 students.

4.1 Socio-Demographic Characteristics

The students were made of 58.69% females, and the remaining 41.31% were males. The mean age of the students stood at 16 years whiles the modal age category of was from 16-20 years, making 87.26% of the students. However, the last group are those that were above 21 years, making only 0.77%. Mostly the fathers are those that provide the school fees of the students as 58.69% indicated that their fathers were paying their school fees. Also, 22.78% of them mentioned that the mothers rather were those that paid for their fees. The remaining respondents had their fees paid by other members of the family.

Most of the guardians were educated since as much as 37.45% of guardians/parents had attained tertiary education. About 33.98% also attained secondary education whiles about 20%% had attained basic (JHS and primary) education indicating that majority of them did not have formal education. In the case mothers however, only 7.72% did not have any form of formal education. Fathers were predominantly the household heads as 66.02% of the students had their fathers heading their households. In about 22.78% however, the mothers were their household heads. The remaining students had other family members serving as heads of their households.

Variable	N	Freq.	Percent
Table 1: Socio-demographic characteristics of respondents ***Sex of the study participant***	259		
Male		107	41.31
Female		152	58.69
Age distribution of respondents			
<=15		31	11.97
16-20		226	87.26
21+		2	0.77
Who is your guardian/ who provides your school fees	259		
father		152	58.69
mother		59	22.78
grand parents		5	1.93
siblings		11	4.25
aunt/uncle		18	6.95
other		14	5.41
Guardian's educational level	259		
no education		20	7.72
primary		10	3.86
Junior High school		44	16.99
Secondary		88	33.98
tertiary		97	37.45
Who is the head of your household	259		
father		171	66.02
mother		48	18.53
grand parents		11	4.25
siblings		8	3.09
aunt/uncle		16	6.18
step-parents		2	0.77
other		3	1.16
What is the educational level of your household head	259		
no education		18	6.95
primary		6	2.32
Junior High school		55	21.24
Secondary		72	27.80
tertiary		108	41.70
What is mother's educational	259		
no education		37	14.29
primary		20	7.72
Junior High school		68	26.25
Secondary		63	24.32
tertiary		44	16.99

Don't know		20	7.72
Mother not alive		7	2.70
What is father's education	259		
no education		16	6.18
primary		7	2.70
Junior High school		47	18.15
Secondary		69	26.64
tertiary		88	33.98
Don't know		21	8.11
Father not alive		11	4.25

4.3 Prevalence of Depression and Anxiety

Anxiety was common among the students as about 28.91%, and 12.89% of the students suffered from very severe and severe forms of anxiety, respectively. Also, about 17.97% of them suffered moderate form whiles; only 9.38% suffered mild forms of anxiety. The remaining 38.61% did not experience any form of anxiety.

The prevalence of depression relative to anxiety is a little bit lower as about 10.04%, and 16.99% of the students suffered from very severe and severe depression, respectively. Moderate depression was about 16.99% among the students' whiles mild depression was at 17.37%. The remaining respondents did not fall into any of the above category.

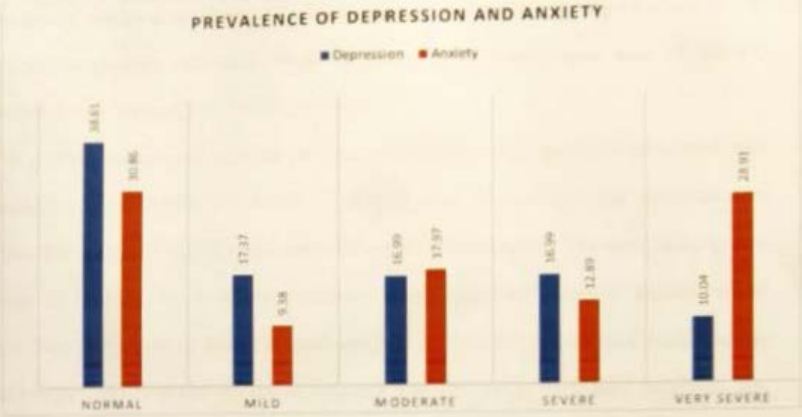

Figure 2: Prevalence of depression and anxiety

4.4 Association between depression and other variables

A cross tabulation in order to determine the presence or otherwise of any form of association between depression and the remaining variables resulted in no variable exhibiting any demonstrable association with the outcome variable in this case (depression).

Sex did not prove to have any significant association with depression ($\chi^2 = 2.1912$, $p=0.334$) even though relatively more of the severely depressed (62.9%) were females, and the remaining 37.1% were males. Of those that had moderate depression, 61.8% were also females with the remaining being males. The rest of the students were normal when it comes to depression. The phenomenon was also more dominant among students who fell within the ages of 16-20 as they were made of 83.0% and 86.5% of those that suffered severe and moderate depression respectively. These differences were, however, not significant statistically (fisher's exact= 3.7325, $p=0.443$).

Students who had their fathers being the payers of their school fees also demonstrated more

depression relative to the others. They made up 58.57% of the severely depressed and 57.3 of the mild/moderately depressed. These disparities demonstrated again were of not any statistical significance (χ^2= 7.8504, p=0.643).

The guardian educational level did not also prove to have any significant association with depression (χ^2 = 6.9036, p = 0.547). 71.43% of those who were severely depressed were those with guardians with the secondary-tertiary level of education. The same category also made up 71.9% of those who are mild/moderately depressed. However, students whose guardians had no formal education demonstrated the least depression status. Such students only contributed 11.4% of the severely depress and 6.7% of the moderately depressed. The majority of severely depressed students were also those of parents who had fathers as the heads of households. 70% of them had fathers being the heads whiles 64.0% of the moderately depressed also had their fathers heading the households. Only 14.3% of the severely depressed and 21.3% of the moderately depressed belonged to households where mothers were the heads. This relationship, however, did not demonstrate any form of statistical significance (fisher's exact= 19.3524, p=0.080). Similar to the effect of the educational status of fathers, the educational level of the household head did not also have any discernible differences as far as depression is concerned However, 71.4% and 66.3% of the severely and moderately depressed respectively were students whose parents were highly educated (secondary-tertiary). Also, the trend is similar among those household heads; the highest level of education attained was the basic level. 21.4% of the severely depressed and 25.8% and moderately depressed belonged to this group of households. This differences also was not significant statistically (fisher's exact= 3.3275, p=0.912).

When it comes to the educational level of mothers of students, the contribution of students whose mothers had basic school education and those of secondary/tertiary levels in the occurrence of severe depression is almost the same as each of them contributed to 38.6% of

severely depressed. However, students whose mothers had attained a level of education of secondary/tertiary contributed to 39.3% of the moderately depressed relative to 33.7 for those with mothers with a basic level of education. The group with the least prevalence of depression was that of students whose mothers were not alive at the time of the study. Such students only constituted 5.7% and 1.1% of the severely and moderately depressed respectively. This difference was also statistically not significant (fisher's exact= 10.2139, p=0.597). The educational level of fathers took a trend that is similar to that of the mothers. Similarly, students whose fathers attained secondary-tertiary as their highest level of education contributed the highest to the prevalence of depression as 57.1% of the severely depressed and 60.7% of the moderately depressed belonged to that group. This was also followed by fathers with basic education constituting 20.0% and 27.0% of the severely and moderately depressed. The group also with least depression prevalence like in the case of the mothers as those who did not have their fathers still alive. They made up 5.7% and 3.4% of the severely and moderately depressed. This was also not statistically significant (fisher's exact= 13.5695 p=0.329).

Table 2: Association between depression and demographic characteristics

	Depression Status			
Variables	Normal	Mild - Moderate	Severe - Very Severe	Test Statistic
Sex of the study participant				
Male	47 (47.0)	34 (38.2)	26 (37.1)	χ^2 = 2.1912
Female	53 (53.0)	55 (61.8)	44(62.9)	p = 0.334
Participants' age				Fisher's exact test = 3.7325
<=15	10 (10.0)	12 (13.5)	9 (13.0)	
16-20	88 (88.0)	77 (86.5)	61 (83.0)	p = 0.443
21+	2 (2.0)	0 (0.0)	0 (0.0)	
Guardian/ who provides participants' school fees				χ^2 = 7.8504 p = 0.643
father	60 (60.0)	51 (57.3)	41 (58.6)	
Mother	21 (21.0)	19 (21.4)	19 (27.1)	

Others	19 (19.0)	19 (21.4)	10 (14.3)	χ^2 = 6.9036 p = 0.547
Education of guardian				
no education	6 (6.0)	6 (6.7)	8 (11.4)	
Basic (Primary/JHS)	23 (23.0)	19 (21.4)	12 (17.1)	
Secondary-tertiary	71 (71.0)	64 (71.9)	50 (71.4)	
Who is the head of the household?				Fisher's exact test = 19.3524 P = 0.080
father	65 (65.0)	57 (64.0)	49 (70.0)	
mother	19 (19.0)	19 (21.3)	10 (14.3)	
Other relatives	16 (16.0)	13 (14.6)	11 (15.7)	
Educational level of the household head				Fisher's exact test = 3.3275 p = 0.912
no education	6 (6.0)	7 (7.8)	5 (7.1)	
Basic education (primary/JHS)	23 (23.0)	23 (25.8)	15 (21.4)	
Secondary-tertiary	71 (71.0)	59 (66.3)	50 (71.4)	
Educational level of mother				Fisher's exact test = 10.2139 p = 0.597
no education	15 (15.0)	13 (14.6)	9 (12.9)	
Basic education (primary/JHS)	31 (31.0)	30 (33.7)	27 (38.6)	
Secondary-tertiary	45 (45.0)	35 (39.3)	27 (38.6)	
Mother not alive	2 (2.0)	1 (1.1)	4 (5.7)	
Educational level of father				Fisher's exact test = 13.5695 p = 0.329
no education	10 (10.0)	2 (2.3)	4 (5.7)	
Basic education (primary/JHS)	16 (16.0)	24 (27.0)	14 (20.0)	
Secondary-tertiary	63 (63.0)	54 (60.7)	40 (57.1)	
Don't know	7 (7.0)	6 (6.7)	8 (11.4)	
Father not alive	4 (4.0)	3 (3.4)	4 (5.7)	

4.5 Associations between anxiety and other domains

The level of education of guardian demonstrated to have a statistically significant

association with anxiety ($\chi^2 = 15.77$, $p = 0.046$). About 74.8% of students who suffered from severe anxiety and 68.6% of those who suffered from moderate anxiety were students with guardians with a higher educational level (secondary/tertiary). This was followed by students whose guardians had attained basic education (primary/JHS) as they were 17.8% and 25.7% of the population that suffered severe and moderate forms of anxiety, respectively. More females suffered from both moderate and severe forms of anxiety than males, even though the difference is not significant statistically ($\chi^2 = 5.898$, $p = 0.052$). Of the students that were severely depressed at the time of the study, 60.8% were female's whiles males constituted the remaining 39.2%. Similarly, 67.1% of those with moderate anxiety were females whiles the remaining 32.9% were males. Just like in the case of depression, 87.9% of the severely anxious were in the age bracket of 16-20 years, with 12.1% of them aged less than 15 years. No student above 21 years demonstrated any form of anxiety. Also, 90% of the moderately anxious were of the ages 16-20 years whiles the remaining 10% were under 15 years. This differences however are not statistically significant ($\chi^2 = 4.8507$, $p = 0.303$).

Among the students who were moderately depressed, 67.1% had their fathers being the main financiers of their school fees. 14.3% had their fees being paid by their mothers, whiles other relatives paid the fees of the remaining 18.0%. With the severely anxious, 53.3% also had their fathers paying for their fees, 29.0% by their mothers and 17.8% by other relatives. This differences however are not statistically significant ($\chi^2 = 15.919$, $p = 0.135$).

The type of head of the household did not have any statistically significant association with anxiety in this study ($\chi^2 = 13.282$, $p = 0.349$). More of the depressed class had their fathers as the heads of the households, and they make up 64.5% and 71.4% of the severely and moderately anxious category. Mothers as household heads also contributed 20.6% of the severely anxious and 10.0% of the moderately anxious.

The researcher also was wanted to know how the level of education of the head of the household relates to anxiety. It was discovered that 71.0% of the severely anxious were students belonging to families where the household head had attained secondary/tertiary education. 17.7% had the head attaining basic education, and the remaining 7.5% of them had no form of formal education. Also, 67.1% and 25.7% of students who faced moderate forms of anxiety had household heads who attained secondary/tertiary and basic education, respectively. 7.1% had no education. These differences however are not significant statistically ($\chi^2 = 2.413$, $p = 0.966$).

Though not statistically significant (Fisher's exact test = 15.000, $p = 0.241$), students with mothers who had attained secondary/tertiary and basic education constituted 40.1% and 37.1% of the severely anxious group. 38.6% of the students with moderate anxiety had parents with secondary/tertiary education whiles 34.3% had mothers with basic education. Students with fathers who had attained secondary/tertiary education at the time of the study constituted 57.9% of the severely anxious and 57.6% of the moderately anxious. Also, those with parents with basic education were made up of 23.4% of those with severe anxiety and 27.1% of those with moderate anxiety. Students with fathers with only informal education had the least anxiety making 3.7% and 4.2% of those that are severely and moderately anxious respectively. The differences, however, are not statistically significant (Fisher's exact test = 13.8433, $p = 0.311$).

Table 3: Associations between Anxiety and other domains

Variables	Anxiety Status			Test Statistic
	Normal	Mild - Moderate	Severe - Very Severe	
Sex of the study participant				Fisher's exact test = 5.898 p= 0.052
Male	41 (51.9)	23 (32.9)	42 (39.2)	
Female	38 (48.1)	47 (67.1)	65 (60.8)	
Age of study participant				Fisher's exact test = 4.8507 p = 0.303
<=15	10 (12.7)	7 (10.0)	13 (12.1)	
16-20	67 (84.8)	63 (90.0)	94 (87.9)	
21+	2 (2.2)	0 (0.0)	0 (0.0)	
Guardian who provides participants' school fees				χ^2 = 14.919 p = 0.135
father	47 (59.5)	47 (67.1)	57 (53.3)	
mother	17 (21.5)	10 (14.3)	31 (29.0)	
other	15 (19.0)	13 (18.6)	19 (17.8)	
Level of education of guardian				χ^2 = 15.77 p = 0.046
no education	8 (10.)	4 (5.7)	8 (7.9)	
Basic education (primary/JHS)	16 (20.3)	18 (25.7)	19 (17.8)	
Secondary-tertiary	55 (69.6)	48 (68.6)	80 (74.8)	
Who is the head of household?				χ^2 = 13.282 p = 0.349
father	50 (63.3)	50 (71.4)	69 (64.4)	
mother	18 (22.8)	7 (10.0)	22 (20.6)	
other	11 (13.9)	13 (18.6)	16 (15.0)	
Educational level of household head				χ^2= 2.4137 p = 0.966
no education	7 (8.9)	5 (7.1)	6 (5.6)	
Basic education (primary/JHS)	17 (21.5)	18 (25.7)	25 (23.4)	
Secondary-tertiary	55 (69.6)	47 (67.2)	76 (71.0)	
Educational level of mother				Fisher's exact test = 15.0001 p = 0.241
no education	16 (20.3)	8 (11.4)	12 (11.2)	
Basic education (primary/JHS)	24 (30.4)	24 (34.3)	40 (37.4)	

Secondary-tertiary	36 (45.6)	27 (38.6)	43 (40.2)	
Don't know	2 (2.5)	8 (11.4)	9 (8.4)	
Mother not alive	1 (1.3)	3 (4.3)	3 (2.80)	
Educational level of father				Fisher's exact test = 13.8433 p = 0.311
no education	9 (11.4)	3 (4.3)	4 (3.7)	
Basic education (primary/JHS)	10 (12.7)	19 (24.4)	25 (23.4)	
Secondary-tertiary	51 (64.6)	41 (61.2)	62 (57.9)	
Don't know	6 (7.6)	6 (8.9)	9 (8.4)	
Father not alive	3 (3.80)	1 (1.4)	7 (6.5)	

Objective 2: To examine how academic stress influence anxiety and depression.

A simple linear regression was calculated to predict the adolescents' depression level based on their academic stress score (Table 4). A significant regression equation was found ($F(1,257) = 91.117$, $p < .001$), with an R^2 of 0.262. The adolescents' predicted depression level is equal to -6.669 + .337(Academic Stress score) points. The adolescents' average depression score increased .337 points for each point of Academic stress.

Table 4:

Depression Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
Academic Stress Score	.337	.035	9.55	0	.268	.407	***
Constant	-6.669	2.233	-2.99	.003	-11.066	-2.272	***

Mean dependent var	14.112	SD dependent var	9.264
R-squared	0.262	Number of obs.	258.000
F-test	91.117	Prob > F	0.000
Akaike crit. (AIC)	1805.318	Bayesian crit. (BIC)	1812.424

*** $p<.01$, ** $p<.05$, * $p<.1$

Further, a multiple linear regression model was run to predict the adolescents' depression based on their academic stress score, peer-parents attachment relation score, relationship with male parent score and relationship with close friends score (Table 5). After controlling for other variables, academic stress was the only variable still found to be significantly related to

the adolescents' depression ($F(4,254) = 22.951$, $p < .001$), with an R^2 of 0.266. The Study participants' predicted depression score is equal to -9.407 + .337 (Academic Stress Score). The participants increased .337 point of depression for each of academic stress score. Only academic stress was a significant predictor of depression.

Table 5:

Depression Score	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Academic Stress Score	.337	.036	9.41	0	.266	.407	***
IPPA_Score	.041	.04	1.03	.303	-.037	.12	
RMP_Score	.004	.034	0.13	.899	-.063	.072	
RCF_Score	-.011	.035	-0.30	.762	-.08	.058	
Constant	-9.407	3.986	-2.36	.019	-17.258	-1.557	**

Mean dependent var	14.112	SD dependent var	9.264
R-squared	0.266	Number of obs.	258.000
F-test	22.951	Prob > F	0.000
Akaike crit. (AIC)	1810.001	Bayesian crit. (BIC)	1827.766

*** $p<.01$, ** $p<.05$, * $p<.1$

On the other hand, a simple linear regression was also calculated to predict the relationship between the adolescents' anxiety score and their academic stress score (Table 6). A significant relationship was found between anxiety and the participants' anxiety and their academic stress score ($F(1,257) = 65.132$, $p < .001$), with an R^2 of 0.205. The adolescents' predicted depression score is equal to -6.518 + .332 (Academic Stress Score).

Table 6:

Anx_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
SLSI_Score	.332	.041	8.07	0	.251	.413	***
Constant	-6.518	2.602	-2.51	.013	-11.642	-1.394	**

Mean dependent var	13.957	SD dependent var	10.314
R-squared	0.205	Number of obs	255.000
F-test	65.132	Prob > F	0.000
Akaike crit. (AIC)	1858.332	Bayesian crit. (BIC)	1865.414

*** $p<.01$, ** $p<.05$, * $p<.1$

A multiple linear regression model was computed to predict the adolescents' anxiety score based on their academic stress score, peer-parents attachment relation score, relationship with

male parent score and relationship with close friends score (Table 7). After controlling for other variables, academic stress was again the only variable found to be statistically significantly related to the adolescents' depression ($F(4,254) = 16.942$, $p < .001$), with an R^2 of 0.213. The Study participants' predicted anxiety score is equal to -9.349 + .328 (Academic Stress Score). The participants increased .328 point of anxiety for each of academic stress score. Only academic stress of the adolescents was found to be significantly related to their anxiety.

Table 7:

Anx_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
SLSI_Score	.328	.041	7.90	0	.246	.41	***
IPPA_Score	.074	.046	1.60	.111	-.017	.164	
RMP_Score	-.034	.04	-0.87	.386	-.113	.044	
RCF_Score	-.003	.041	-0.08	.933	-.083	.076	
Constant	-9.349	4.609	-2.03	.044	-18.426	-.273	**

Mean dependent var	13.957	SD dependent var	10.314
R-squared	0.213	Number of obs	255.000
F-test	16.942	Prob > F	0.000
Akaike crit. (AIC)	1861.581	Bayesian crit. (BIC)	1879.287

*** $p<.01$, ** $p<.05$, * $p<.1$

Objective 3: To examine how parent attachment will influence adolescent anxiety and depression.

A simple linear regression was performed to ascertain how the inventory of parent's attachment relationship influences depression (Table 8). The regression equation was not significant ($F(1,258) = 1.800$, $p > .05$) with an R^2 of 0.007. The inventory of peer-parents attachment relationship score is not a significant predictor of the adolescents' depression scores.

Table 8:

Dep_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
IPPA_Score	.056	.042	1.34	.181	-.026	.138	
Constant	9.622	3.387	2.84	.005	2.953	16.292	***

Mean dependent var	14.100	SD dependent var	9.248
R-squared	0.007	Number of obs	259.000
F-test	1.800	Prob > F	0.181
Akaike crit. (AIC)	1888.465	Bayesian crit. (BIC)	1895.578

*** $p<.01$, ** $p<.05$, * $p<.1$

Another simple linear regression model was used to examine the interaction between the relationship with male parent score and the participants' depression score (Table 9). This relationship was also found not to be statistically significant, ($F(1,258) = 0.060$, $p > .05$) with an R^2 of 0.000.

Table 9:

Dep_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
RMP_Score	.009	.035	0.25	.806	-.06	.077	
Constant	13.466	2.646	5.09	0	8.255	18.677	***

Mean dependent var	14.100	SD dependent var	9.248
R-squared	0.000	Number of obs	259.000
F-test	0.060	Prob > F	0.806
Akaike crit. (AIC)	1890.212	Bayesian crit. (BIC)	1897.325

*** $p<.01$, ** $p<.05$, * $p<.1$

The study results further showed that anxiety score of the respondents was not related in any way, statistically to the peer-parents attachment relation score with an equation of ($F(1,258) = 0.060$, $p > .05$) with an R^2 of 0.000 (Table 10).

Table 10:

Anx_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
IPPA_Score	.073	.046	1.57	.117	-.018	.165	
Constant	8.101	3.766	2.15	.032	.684	15.518	**

Mean dependent var	13.945	SD dependent var	10.295
R-squared	0.010	Number of obs	256.000
F-test	2.480	Prob > F	0.117
Akaike crit. (AIC)	1920.840	Bayesian crit. (BIC)	1927.930

*** $p<.01$, ** $p<.05$, * $p<.1$

Again, a simple linear regression model was used to predict the participants' anxiety scores based on their relationship with their male parents' score. The regression equation was not significant ($F(1,255) = 0.155$, $p > .05$) with an R^2 of 0.001. The adolescents' relationship with their male parents' score is not a significant predictor of their anxiety scores (Table 11).

Table 11:

Anx_Score	Coef.	St. Err.	t-value	p-value	[95% Conf Interval]		Sig
RMP_Score	-.015	.039	-0.39	.694	-.092	.061	
Constant	15.081	2.954	5.10	0	9.263	20.899	***

Mean dependent var	13.945	SD dependent var	10.295
R-squared	0.001	Number of obs	256.000
F-test	0.155	Prob > F	0.694
Akaike crit. (AIC)	1923.171	Bayesian crit. (BIC)	1930.262

*** $p<.01$, ** $p<.05$, * $p<.1$

Objective 4: To examine how peer attachment relationship will influence adolescents' anxiety and depression.

Further analysis was performed to examine the interaction between the relationship with close friends score and the depression score of the study participants. The results showed that there was no significant relationship between the two variables, ($F(1,258) = 0.901$, $p > .05$) with an R^2 of 0.003 (Table 13).

Table 12:

Dep_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
RCF_Score	.035	.037	0.95	.343	-.038	.107	
Constant	11.371	2.933	3.88	0	5.596	17.146	***

Mean dependent var	14.100	SD dependent var	9.248
R-squared	0.003	Number of obs	259.000
F-test	0.901	Prob > F	0.343
Akaike crit. (AIC)	1889.366	Bayesian crit. (BIC)	1896.480

*** $p<.01$, ** $p<.05$, * $p<.1$

Again, a simple linear regression model was used to predict the participants' anxiety scores based on their relationship with their male parents' score. The regression equation was not

significant ($F(1,255) = 0.687$, $p > .05$) with an R^2 of 0.003. The adolescents' relationship with their male parents' score is not a significant predictor of their anxiety scores (Table 11).

Table 13:

Anx_Score	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
RCF_Score	.034	.041	0.83	.408	-.047	.115	
Constant	11.279	3.281	3.44	.001	4.818	17.74	***

Mean dependent var	13.945	SD dependent var	10.295
R-squared	0.003	Number of obs	256.000
F-test	0.687	Prob > F	0.408
Akaike crit. (AIC)	1922.636	Bayesian crit. (BIC)	1929.727

*** $p<.01$, ** $p<.05$, * $p<.1$

CHAPTER FIVE

DISCUSSIONS

The study aimed at examining the incidence of anxiety and depression among SHS adolescents at Adenta Municipality. Furthermore, the study looked at the influence of academic stress on anxiety and depression and also investigated to see if peer and parent attachment relationships had any bearing on anxiety and depression. All these findings are adequately explained in this chapter and compared with other studies. The chapter ends by outlining the strengths and limitations of the study.

5.1 Prevalence of anxiety and depression?

The first finding from the quantitative analysis indicated that anxiety was common among the students as about 28.91% and 12.89% of the students had very severe forms of anxiety and depression respectively, whiles 9.4% to 18.9% of the students suffered from mild to moderate levels of anxiety and 38.8% of the student samples did not present any form of anxiety. Comparing depression to anxiety, depression was relatively lower in the students as compared to anxiety. Again, measuring the level of depression, the study found that 17.9 percent of the students reported having mild depression, however, the remaining respondents reported normal level of depression at the time data collection. Similar prevalence was reported by (Moeini, 2019) who recorded this to be 33% and 52% in a cross sectional study with 670 student sample and (Sandal et al., 2017) who recorded high prevalence of anxiety and depression to be 65.53% and 47.02% respectively in their study on the prevalence of anxiety and depression among school going adolescent using a 21 item instrument called DASS 21 which is a shorter version of the DASS 42 which was used in this study. Their prevalence was also high because, they included in their study 10 private schools and 10 government schools and after systematic random sampling they came out with a sample size

of 470 students for their study. Meanwhile, for this study, only one government school was used with a sample size of 259 which explains the low prevalence of anxiety and depression in this study.

There was no gender disparity between males and females on depression. However females seemed to have reported slightly higher forms of depression as compared to males, but the difference was not significant as seen in the cross-tabulation. This implies that in this study, gender was not a predictor of a mental health issue such as depression. This finding is in partial agreement with a meta-analytic study on adolescent depression by (Stellmach et al., 2018) in which they reported a disparity in adolescent depression as more females than males were diagnosed. Again, they reported that this disparity could lead to depression being stereotyped as a female disorder which could be harmful to males and females as more of the females could be diagnosed with depression and be overmedicated as well. And in men, depression could be overlooked which might also results in gender biases in diagnosis and treatment. Again in this study, the findings of gender and depression not accounting for any significance, could be attributed to certain influencers such as the sample selection or the measuring instrument for assessing depression.

With regards to age, the difference among and within the different age groups was not statistically significant, yet the study population who fell between the ages of 16 to 20 seemed to have reported some form of depression ranging from moderate levels to severe levels. This finding agrees with (Fiske et al., 2010) who indicated that young adults have high prevalence of depression than early adolescence and late adulthood due to stressful situations such as academic workloads, higher expectations from families and significant others. The depression in this age group he suggested, that when not treated early, could persist to adulthood and results in serious consequences such as impairment in functioning, loss of

interest in activities, poor academic performance, increased burden on physical illnesses among others.

Interesting to note in this research, with the use of the IPPA, students who had a father figure in their life, paying their school fees had reported more severe symptoms of depression relative to their colleagues who had no father paying their fees. The disparity however between this categories was not relevant statistically. This finding is however not surprising, as the theoretical framework for this study which is the attachment theory clearly outlined parental attachment to be an important protective factor for adolescent depression. This evidence was documented by (Rawatlal et al., 2015.), in their study on adolescent attachment, family functioning and depressive symptoms, adolescents and their maternal, paternal figures, where they concluded that, adolescents who had a secured-parent attachment relationship had low levels of depression. Therefore, in this research, even though, father figures pay participants school fees, depressive symptoms was severe probably due to insecure attachments or parenting style especially the neglectful parenting as recorded by (Sanjeevan & Zoysa, 2019). A limitation of this study however, is the inability to examine history of parental psychopathology as this could also be a significant predictor of adolescent's depression. This limitation could be attributed to the cross sectional quantitative study method used in this study, future studies involving mixed methods could consider parental dynamics and family structures to be useful in understanding the patterns of depression in adolescents.

Comparing educational levels of parent and guardians in the student population, the study findings indicated that father's educational level had no discernible influence on adolescent depression, but surprisingly, students whose mothers or guardian have basic education to secondary or tertiary education rather reported severe forms of depression. Drawing a link between the prevalence of depression in mothers in terms of gender, it can be deduced from

this finding that, maternal depressive symptoms, chronic illness of mothers or guardians and single motherhood could make these adolescents vulnerable to severe depressive symptoms irrespective of the level of education of mothers or guardians (Sieh & Visser-meily, 2013) This finding however is in agreement with (Moeini, 2019) in his cross-sectional study on prevalence of depression and it's association between 670 female adolescents in secondary school and he recorded socio demographic factors such as parental education, occupation and income levels to have no significant effect on adolescent depression whereas, another study recorded parental education being the reason for occupational opportunities that provided economic security thereby reducing poverty which is implicated in adolescent depression (Thomson et al., 2017).

Surprisingly, in this study, students with the least prevalence of depression were those whose mothers were not alive at the time of study. This finding is in agreement with (Moeini, 2019) who found no relationship between depressions of adolescent students with the death of their parents. However, other studies have reported evidence of adolescent depression being influenced by the absence of a parent figure being dead, separated or divorced (Stikkelbroek et al., 2018). For this study, the reason for the low levels of depression in participants whose mothers were not alive at the time of the study could be due to the fact that, they had a strong guardian support.

The quantitative findings in terms of gender and anxiety showed that more females suffered from moderate to severe forms of anxiety than males even though the difference was not significant implying that males and females have the same level of anxiety. This is similar in the evidence of depression presented earlier as males and females did not differ in depression and anxiety. This finding is however not in agreement with (Ohannessian et al., 2018) in their three year prospective study on gender difference in anxiety from middle to late adolescence. Their findings indicated that, social anxiety and panic disorder was more prevalent in females

than males, although other studies agreed with this finding as they also recorded no gender differences for the types of anxiety disorders in males and females (Mclaughlin & King, 2015).

In terms of age, a careful examination of the prevalence of anxiety in the study population reveals that participants who are above 21 years did not demonstrate any form of anxiety. This finding agrees with (Schmidt, 2015) in their 3 year prospective study with 277 adolescents on anxiety symptoms in early and late adolescence where they recorded that when males and females age over time, their anxiety levels decline, even though this decline could vary from one adolescent to another taking into consideration the spheres of influence in the adolescent's environment. This notwithstanding, the study also found that students between the ages of 16 to 21 years reported moderate level of anxiety whiles those under age 15 had no level of anxiety. The differences within and between these the ages were however not relevant. This finding is however not surprising as (Schmidt, 2015) attributed these differences in the levels of anxiety in this age groups to developmental differences and biological or social factors surrounding the adolescents. They further explained that, moderate or no levels of anxiety in this population should not be ignored as this could increase the risk and diagnosis of anxiety disorder in the adolescent population. Therefore, this finding will serve as an important indicator for identifying adolescents who are at risk of being diagnosed for anxiety disorder since those with moderate and low levels of anxiety belong to the same classes.

A careful examination of the study with the use of the IPPA, the results show that, students who suffer very severe forms of anxiety had their fathers paying their fees as compared to students, whose mothers paid their fees for them or had other relatives paying the fees. However the difference between and within these age groups were not statically significant. This finding is however not surprising as it was similar to the finding on depression where

students with severe forms of depression were the ones whose fathers and mothers paid for their fees in school. The attachment theory again gives relevant insight of the association between positive parental attachment in early childhood and adolescence and its effect on adolescents' anxiety. It has been agreed that insecure attachment especially to fathers and negative parental behaviors make adolescents vulnerable to the development of anxiety (Kerns et al., 2014). Again, securely attached adolescents show positive emotions and do not experience stress or seek for parental comfort when separated. Even with the use of diverse instruments and methods, similar conclusions were made with reference to paternal attachment style being strongly associated with adolescent anxiety (Karayagiz, Saban et al, 2020), (Yuksek & Solakoglu, 2016). This findings implies that, even though for this study, fathers paid fees for the students, they still reported high levels of anxiety in the student population, suggesting that insecure attachment and parenting styles such as rejection or overprotection coupled with high expectations from fathers pertaining to academic work were significant predictors of anxiety in the student population (Amaral et al., 2013). The limitation of this study however, is the inability to include father and mother figures in the investigation as well as using mixed methods for a more understanding of the phenomenon under study.

Looking at the domain of the anxiety, it was reported that the level of education of the guardian had a relevant association with anxiety. For instance, students who suffer moderate to severe forms of anxiety had guardians who had basic and higher level of education of at least secondary education. This finding disagrees with studies that has attributed high levels of anxiety in school adolescents to low parental educational level as these parents put pressure on their school adolescent and have high expectations from them in terms of academic performance (Thomson et al., 2017). Again, drawing a link between level of anxiety and type of households, the findings did not show any significant difference. For

instance students who had fathers as head of households presented symptoms of anxiety as high as those who had mothers and other relatives as heads of family.

5.2 Academic Stress, Anxiety and Depression.

The second objective sought to find how academic stress influences anxiety and depression after controlling for demographic variables; parents attachment relationship and peer attachment relationship, the findings showed that academic stress had a strong effect depression but not anxiety. This finding is however inconsistent with that of (Rohtak, 2015) who found that reported academic stress is associated with depression of anxious state and school going adolescent. A similar study by Duncan Williams, (2015) also reported that academic related stress induces psychological problems such as depression. However, the current finding is in partial agreement with Sani 2019, WHO 2017 also established that there is a reciprocal relationship between academic stress, depression as well as anxiety. More so, (Sandal et al., 2017) also agreed with this finding by reporting academic stress to be a risk factor for depression and suicide in adolescents. The finding of this study is however not surprising considering the contextual factors of the research as elaborated by quantitative findings such as the double- tracking system which was introduced in Ghana in September, 2018 to ease pressure on the existing educational facilities as a result of the introduction of the free SHS policy. This double track system allows students and teachers to attend schools in batches of two, where one batch finishes and goes home for vacation whiles the other batch resumes to school. Few studies have reported anxieties associated with the double-tracking system which was introduced to contain students enrolled in the free SHS systems. These anxieties exhibited by students were attributed to the computerized placement system which saw students being placed far from home. Again, the policy removed all financial barriers associated in accessing second cycle education which was a significant influence in adolescent depression which also subsequently affecting their academic work (Deho &

Agangiba, 2019). This notwithstanding, as more students got enrolled they experienced less anxieties due to the flexibility in the educational structure, thus significantly accounting for academic stress not having any influence on anxiety but depression. This finding could also be attributed to the tool used for measuring academic stress and anxiety as being too difficult for the students to understand. Again, for the sub-dimension of questions used to measure anxiety, it was difficult to assess the type of anxiety that each student might be exposed to from academic stress considering the diagnostic criteria for different anxiety disorders by the DSM-IV. This implies that, respondents might experience academic stress which may induce symptoms of anxiety, but these symptoms may not be severe to meet the criteria for diagnosis. In agreement of this finding, the onset of adolescent depression has been identified to be preceded by major life stressors including academic stress accounting for depression more than anxiety. These stressors include sleeplessness, intense academic work and high expectations from families could have a reciprocal relationship between academic stress and depression (Bisson, 2017).

5.3 Peer Attachment and Adolescent Mental Health

After conducting the quantitative analysis, the third finding of this research indicated that there was no significant relation between peer attachment relationship and adolescent anxiety and depression after controlling for demographic variable and parent attachment relationship. This implies that relationship with peers have no influence on mental health outcomes such as anxiety and depression in adolescents. This finding is agrees with (Pickering et al., 2019) who used the same instrument IPPA to assess the influence of peer attachment to anxiety and depression, the report indicated that high peer acceptance and close friendships rather improved mental health outcomes such as anxiety and depression in adolescents. Similarly, (Care, 2016) also documented that secured peer attachment make adolescents less vulnerable to symptoms of anxiety and depression. Again, adolescent who have been alienated from

heir peers are reported to have higher intensity of worry and anxiety symptoms. (Curzik & alkicevic, 2016). On the contrary, social anxiety have been found to be a major factor for eer attachment which also predicts the use of substances and risky behaviors in adolescents onsequently causing anxiety and depressive symptoms (Miers & Bos, 2019).

.4 Parent Attachment and Adolescent Mental Health.

The quantitative analysis shows that the regression equation was not significant which mplies that parents had no significant relationship with adolescent mental health outcomes. For instance after running a simple linear regression module to predict whether parent elationship will have any impact on adolescent mental health, the findings indicate no ignificant relationship for male parent score. This implies that parental attachment has no nfluence on adolescent's anxiety and depression which is consistent with documented evidence from the attachment theory to prove that parental attachment has a robust protective effect against stressors which cause anxiety and depression as a result of stronger family ties (Okello et al., 2014). In contrast to this finding, peer attachment have been recorded to be an important construct in relation to anxiety and depressive symptoms than parental attachment.

5.5 Strengths and Limitations of the Study.

The study have several strengths and limitations. Strengths of the study are: the sample size was adequate and questionnaires used were all validated with the exception of the demographic questionnaire which was constructed by the principal investigator. Again, even though most findings were not significantly related, adequate interpretations was given to each finding. Lastly, this study has also shed more light on adolescent mental health issues in Ghana since research is seriously lacking in this area.

The limitations include: the importance of including parents or guardians in the study to draw a link between attachment relationships and adolescents' anxiety and depression. Again,

nce these conditions have genetic predisposition, it was prudent for the study to examine story of parental psychopathology to be able to rule out those vulnerabilities to establish an sociation between the variables under study. Another limitation is that, most of the findings ere not significantly related but had to be adequately interpreted. Some of the reasons for e disparities in findings may be due to difficulty in understanding the questions by the spondents or because participation was voluntary, students chose to respond to the uestions or not, therefore, measures were self-reported and could not be validated by the searcher.

lack of services and community/societal factors that are likely to influence adolescent ental health were not considered by principal investigator. These factors would have given levance to most of the finding in this study if included.

lso, Principal investigator could have considered a behavioral theory as a basis for the onstruction of the conceptual framework.

gain, even though, students were assured of confidentiality prior to the study, it may also be ossible that students failed to give truthful responses, not forgetting the stigma associated ith anxiety and depression that could have a bearing on the ratings of the respondents.

lore so, the disparities in the findings of this research could also be attributed to the cross-ectional, school based, quantitative nature of the study which restricted the findings from eing generalized and also the researcher from identifying other sources of academic stress.

dolescent mental health was non-existent and due to that, governments do not pay attention the mental health needs of their adolescents even though they form majority of the opulation in these countries. And this has translated in low adolescent mental health rvices, low number of adolescent specialists, psychologist and psychiatrists and policies as ell as facilities and programs that could enhance them to build resilience to deal with ressors that might have a toll on their mental health. For instance in Ghana, the existing ental health facilities are located in the capitals and are not very much accessible and iendly to the adolescents because majority of these do not have separate wards for dolescents. Coupled with this is also the issue of institutional related stigma that prevents the dolescents from seeking help from these facilities. The chapter ended by identifying cademic stress to be one of the stressors adolescents in SHS experience therefore, drawing elevant insights from the attachment theory, peer and parent attachment were measured to scertain if they could be protective factors to these stressors or exacerbate the mental health utcomes of anxiety and depression in the school going adolescents.

n view of these, the chapter three of this study collected a cross sectional quantitative data rom 259 adolescents males and females aged 10-19 with a demographic questionnaire and xamined the influence of gender, age, head of household, educational status of parent or uardian on adolescent mental health, DASS-42 also examined the prevalence of anxiety and epression, IPPA, examined the influence of peer and parent attachments relationships on nxiety and depression of the participants and finally the SLSI examined academic stress and ts relationship to anxiety and depression.

he chapter four of this study, outlined the results after statistical analysis of the cross ectional data collected. These results were presented on tables in accordance with each esearch questions.

ersons and their families and society as a whole which produces significant burden in their conomic, occupational and social functions, therefore, must be given the needed attention.

.4 Recommendations

.4.1 Recommendations relating to the study

n view of the key findings of this research, the following strategies are highly recommended o improve the outcomes identified from this study.

1. The school health educators are encouraged to educate participants with severe anxiety and depression needs to be seek help and receive appropriate therapies to prevent exacerbation of their symptoms which could impair significantly on their academic, family and social functions.
2. For practice, the District Health Management Teams (DHMTs) should provide mental health first aid services in the schools to assist adolescents with severe anxiety and depressive symptoms to build resilience to cope with stressors to prevent being overwhelmed.
3. For policies, adolescent mental health friendly services should be provided in the schools, communities where these worried adolescents could walk in freely to receive emotional care and mental health assessment. This is because of the institutional related stigma which deters the adolescent from visiting the facilities for care, therefore, just like the adolescent friendly corners for reproductive health, there should also be mentally friendly health corners manned by competent mental health personnel to improve accessibility of care as well.

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APPENDIX A : Questionnaires

Student -life Stress Inventory (SLSI)

Please read each statement and tick a number **1 = never, 2 = seldom/ a little, 3 = occasionally, 4 = often, 5 = most of the time**, which agrees with you. There is no right or wrong answer.

(1 = never), (2 = a little / seldom), (3 = occasionally), (4 = often), (5 = most of the time)

A.I have experienced frustration (frustration)					
1. As a student I have encountered frustration at the delays in achieving my goal	1	2	3	4	5
2. I have encountered everyday complaints or difficulties which affected me in getting to my targets.	1	2	3	4	5
3. I have experienced lack of sources (money for auto, books, etc.).	1	2	3	4	5
4. I have experienced setbacks in accomplishing the goals that I set.	1	2	3	4	5
5. I have not been accepted socially (became a social outcast).	1	2	3	4	5
6. I have experienced dating frustrations.	1	2	3	4	5
7. I feel I was denied opportunities in spite of my qualifications.	1	2	3	4	5
B. I have experienced conflicts which were (conflicts):					
8. Produced by two or more options	1	2	3	4	5
9. Produced by two or more unnecessary alternatives and choices.	1	2	3	4	5
10. It was generated when a goal had both positive and negative alternatives.	1	2	3	4	5
C. I experienced pressures (pressure):					
11. As a result of competition (on grades, work, relationships with spouse and/ or friends).	1	2	3	4	5
12. subject to time constraints (paper due, payments to be made, etc.).	1	2	3	4	5
13. Due to an overload (attempting too many things at one time).	1	2	3	4	5
14. Because of interpersonal relationships (family and/ or friends, expectations, work responsibilities).	1	2	3	4	5
D. I have experienced (changes):					
15. Fast unpleasant changes.	1	2	3	4	5
16. Too many happenings occurring at the same time.	1	2	3	4	5
17. Change which disrupted my life and/ or goals.	1	2	3	4	5
E. As a person (self-imposed)					
18. I like to play and win.	1	2	3	4	5
19. I like to be heard and be loved by all of you.	1	2	3	4	5
20. I think a lot about everything and everyone	1	2	3	4	5

21. I prefer to put off things that have to be done).	1	2	3	4	5
22. I feel I have to find the right solution to the problems I undertake.	1	2	3	4	5
23. I worry and I'm excited to take the tests.	1	2	3	4	5

(DASS-42)

Please read the following statements carefully and tick appropriately as the statement applies to you. 0, 1, 2 or 3. Please rate as follows;

0 - Not at all

1- To some degree, or some of the time
2- To a considerable degree, or a good part of time 3- Very much, or most of the time

	I was well aware of dryness of my mouth	0	1	2	3
	I didn't seem to have had any positive feelings at all	0	1	2	3
	I had trouble breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
	I can't seem to be doing a lot of things	0	1	2	3
	I had a nervous feeling (e.g., legs going to give way)	0	1	2	3
	I found myself in circumstances that made me so nervous I was most relieved when they ended	0	1	2	3
	I felt that I didn't have much to look forward to	0	1	2	3
	I have been feeling sad and depressed	0	1	2	3
	I had a sense of weakness	0	1	2	3
	I thought I had lost interest in almost everything.	0	1	2	3
	I felt I wasn't worth much as a person	0	1	2	3
	I perspired noticeably (e.g., hands sweaty) in the absence of High temperatures or physical exertion	0	1	2	3
	I felt scared for no reason	0	1	2	3
	I did not feel that life was worthwhile	0	1	2	3
	I had with swallowing	0	1	2	3
	I couldn't seem to be able to have fun with the things I did	0	1	2	3
	I was aware of the activity of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
	I felt depressed and down hearted.	0	1	2	3
	I felt I was close to panic	0	1	2	3
	I feared that I would be "overloaded" by some trivial but unfamiliar task	0	1	2	3
	I was unable to become happy about anything	0	1	2	3
	I felt I was pretty useless	0	1	2	3
	I was scared	0	1	2	3
	I could see nothing in the future to be hopeful about	0	1	2	3

	I felt that life was meaningless	0	1	2	3
	I was worried about situations in which I might panic and Make a fool of myself	0	1	2	3
	I experienced shaking (e.g., in the hands)	0	1	2	3
	I found it difficult to work on an initiative to do things	0	1	2	3

Inventory of Parent and Peer Attachment (IPPA)

This questionnaire is about your relationships with your mother. Each of the following statements asks about your feelings about your mother or the woman who served you as your mother (e.g., a natural mother and a step-mother). Answer the questions for the one you consider to be the most powerful.

Almost Never Or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
1	2	3	4	5

1.	My mother is respects how I feel.	1	2	3	4	5
2.	I feel that my mother is doing a good job as my mother.	1	2	3	4	5
3.	I wish I had a better mother.	1	2	3	4	5
4.	My mother embraces me the way I am.	1	2	3	4	5
5.	I like to get my mother's point of view on stuff I'm worried about.	1	2	3	4	5
6.	I don't think it's helpful to let my feelings display around my mother.	1	2	3	4	5
7.	My mother knows when something bothers me.	1	2	3	4	5
8.	Speaking about my issues with my mother makes me feel embarrassed or stupid.	1	2	3	4	5

9.	My mother expects so much of me.	1	2	3	4	5
10.	I am easily upset about my mother.	1	2	3	4	5
11.	I get lot more angry than my mother knows about.	1	2	3	4	5
12.	When we talk about things, my mother cares from my point of view.	1	2	3	4	5
13.	My mother believes in my decision	1	2	3	4	5
14.	My mother has issues of her own so I don't bother her with mine.	1	2	3	4	5
15.	My mother helps me understand myself better.	1	2	3	4	5
16.	I am asking mother about my issues and troubles.	1	2	3	4	5
17.	I feel angry with my mother.	1	2	3	4	5
18.	I don't get all the attention from my mother.	1	2	3	4	5
19.	My mother helps me talk with my problems	1	2	3	4	5
20.	My mother understands me.	1	2	3	4	5
21.	When I am mad about anything, my mother tries to be compassionate.	1	2	3	4	5
22.	Well, I trust my mum.	1	2	3	4	5
23.	My mother doesn't understand what I'm going through these days.	1	2	3	4	5
24.	I can count on my mother when I need to relieve myself something	1	2	3	4	5
25.	If my mother knows something is bothering me, she asks me about it.	1	2	3	4	5

The next set of questions asks you about your relationship with your male Parent (i.e. father or whomever takes care of you).

1.	My dad is respects how I feel.	1	2	3	4	5
2.	I feel my dad is doing a good job.	1	2	3	4	5
3.	I wish I had a new dad.	1	2	3	4	5
4.	My dad embraces me as I am.	1	2	3	4	5
5.	I like to get my dad's point of view on Stuff I'm worried about.	1	2	3	4	5
6.	I don't think it's helpful to let my feelings display around My dad.	1	2	3	4	5
7.	My dad can tell when I'm upset about something.	1	2	3	4	5
8.	Sharing my issues with my him embarrasses me	1	2	3	4	5
9.	My dad wants me to do so much.	1	2	3	4	5
10.	I'm easily upset around him.	1	2	3	4	5
11.	I get angry a lot more and he knows about it.	1	2	3	4	5
12.	When we talk about things, my father worries about it from my point of view.	1	2	3	4	5
13.	My dad has faith in my judgment.	1	2	3	4	5
14.	My dad worries about his own problems, so I don't bother him with mine.	1	2	3	4	5
15.	My dad makes me understand myself better.	1	2	3	4	5
16.	I tell my about my issues and he worries	1	2	3	4	5
17.	I feel mad with my dad,	1	2	3	4	5
18.	I don't get much attention from my dad.	1	2	3	4	5

19.	My dad makes me talk about my problems.	1	2	3	4	5
20.	My dad understands me.	1	2	3	4	5
21.	When I'm mad at anything, My dad tries to be compassionate.	1	2	3	4	5
22.	My dad doesn't understand what I'm going through Recently.	1	2	3	4	5
24.	I can count on my dad when I need out of something off my chest.	1	2	3	4	5
25.	If my dad knows that something is worries me, he asks me about it.	1	2	3	4	5

The next set of questions asks you about your relationship with your close friends.

1.	My friends know when something worries me.	1	2	3	4	5
2.	When we discuss issues, my friends Understand my point of view.	1	2	3	4	5
3.	When I discuss things, my friends care about my point of view.	1	2	3	4	5
4.	I wish to have new friends.	1	2	3	4	5
5.	My friends respect my point of view.	1	2	3	4	5
6.	My friends help me to talk about my difficulties.	1	2	3	4	5
7.	My friends welcome me as I am.	1	2	3	4	5
8.	I feel the need to contact them more often.	1	2	3	4	5
9.	My friends don't understand what I'm going through these days.	1	2	3	4	5
10.	I feel alone or apart when I'm with them.	1	2	3	4	5
11.	My friends listen to what I have to say.	1	2	3	4	5
12.	I believe my friends are good friends.	1	2	3	4	5
13.	My mates are fairly easy to talk to.	1	2	3	4	5
14.	When I am mad about anything, my friends try to be understanding.	1	2	3	4	5
15.	My friends help me to understand myself better.	1	2	3	4	5
16.	My friends care about how I am.	1	2	3	4	5

17. I feel mad at with my colleagues.	1	2	3	4	5
18. I can count on my friends When I need to get something off my chest.	1	2	3	4	5
19. I rely on my friends.	1	2	3	4	5
20. My friends value my feelings.	1	2	3	4	5
21. I get a lot angrier than my friends know about.	1	2	3	4	5
22. It seems as if my friends Are angry at me for no reason.	1	2	3	4	5
23. I can tell them about my issues and troubles.	1	2	3	4	5
24. If my they know something bothers me, they will ask me about it.	1	2	3	4	5

Please read and tick where appropriate

	Demographic information			
	Sex of the study participant		01 Male 02 Female	
D1	**What is your age? (in completed years)**	__	Enter Age in completed years **(example, 15 years)**	
D2	**What is your date of birth?**	_/_/____	DD/MM/YYYY	
D3	**Who is your Guardian/Who provide your school needs**	__	01 Father 02 Mother 03 Grandmother 04 Grandfather 05 Brother 06 Sister 07 Aunt 08 Uncle 09 Step father 10 Step mother 11 Other relative 12 Self 13 Other (specify)	
D4	**What is the Educational Level of your Guardian**	__	01 No education 02 Primary 03 Junior High School 04 Secondary 05 Tertiary	
D5	**Who is the head of your household?**	__	01 Father 02 Mother 03 Grandmother 04 Grandfather 05 Brother 06 Sister 07 Aunt 08 Uncle 09 Step father	

			10 Step mother 11 Other relative 12 Self 13 Other (specify)	
D6	What is the Educational Level of your household head	__	01 No education 02 Primary 03 Junior High School 04 Secondary 05 Tertiary	
D7	What is the Educational Level of your mother	__	01 No education 02 Primary 03 Junior High School 04 Secondary 05 Tertiary 06 Don't Know 07 Mother not Alive	
D8	What is the Educational Level of your Father	__	01 No education 02 Primary 03 Junior High School 04 Secondary 05 Tertiary 06 Don't Know 07 Father not Alive	
D9	What is the main occupation of the head of household?	__	01 Professional/technical/Managerial 02 Clerical/secretariat 03 Sales and service 04 Skilled and manual 05 Unskilled and manual 06 Agricultural/Farming 07 Other (specify)	

APPENDIX B: PARTICIPANTS INFORMATION SHEETS

FACTORS AFFECTING ADOLESCENT MENTAL HEALTH: A CASE OF SENIOR HIGH STUDENTS AT ADENTA MUNICIPALITY.

INTRODUCTION

Dear Student,

You have been selected to be part of a study to examine factors influencing adolescent mental health: A case of senior high adolescent boys and girls at Adenta Municipality. The West African Senior High School has been selected. 259 adolescent boys and girls aged 10-19 years of age are enrolled in this research. The research is done by Doris Etornam Amemorbu, an MPH student SPH, University of Ghana, under the guidance of Prof. Philip Baba Adongo, with Department of Social and Behavioral Sciences at the School of Public Health, University of Ghana, and Legon.

Background and Purpose of the research: Adolescent Mental health remains a major public health problem affecting large segments of the Ghanaian adolescent boys and girls. According to the Ghana Statistical service, these adolescents constitute 38% of the country's population, yet their mental health needs are less examined and there are not enough facilities and professionals to manage adolescent mental problems. Good mental health is a pre requisite for optimal psychological development, effective learning, good physical health and effective economic participation as adults among others. Currently, data on adolescent mental health in Ghana is lacking, therefore, it is imperative for this study to examine the factors affecting adolescents' well-being to ensure that appropriate health interventions are put in place to address their mental health needs.

Nature of Research:

This is a cross-sectional survey that seeks to get information on the incidence of anxiety and depression, as well as examine the impact of academic stress, parent attachment and peer attachment on adolescent mental health outcomes.

Duration/Procedures of study: If you accept to be part of this study, you will be given out questionnaires in class to answer to help me assess factors that are likely to cause anxiety and depression, how academic stress is likely to cause such outcomes and finally, questions on

peer and parent attachment relationships will help me examine their influence on mental health outcomes.

Potential risks: You are likely to recollect unpleasant memories if you have gone through any form of trauma from childhood that might trigger severe anxiety, you will be withdrawn from this study immediately and be assisted with psychological management. Study participants identified with symptoms of anxiety and depression will be referred to appropriate facility for management. This research will help us learn more about the mental health status of adolescent boys and girls and to know the factors that influence their mental health in Ghana, this will also inform the government plan programs to help prevent them.

Benefits: You will not be paid any money for participating in the study. Also, the outcome of this study will be disseminated with the Ghana Health Service and could be used to make decisions that will benefit all adolescent boys and girls in the country and the Greater Accra Region in particular in the area of establishment of adolescent friendly corners that provide mental health services to de-stigmatize mental health problems.

Cost: There will be no cost incurred.

Compensation: You will not be paid in kind or cash for participating in the study.

Confidentiality: Your name and other details that would be collected will not be given to any person other than for the purpose of identifying the information collected and it will not be part of the final report when it is published.

Voluntary Participation/Withdrawal: Your participation in this research is entirely voluntary, you are free to withdraw your consent for participation at any time without any penalty.

Outcome/Feedback to participant: You will be referred to a health facility for further care if it is necessary.

Funding: Soley Principal investigator.

Sharing of participants' information: The data collected from this research will be used for analysis and writing of the research report. A written report will be shared with the University of Ghana, School of Public Health, Ghana Health Service, Ghana Education Service.

For further information:

Doris Etornam Amemorbu (Student, School of Public Health, University of Ghana)—Principal Investigator on 0592739091 or email at deamemorbu@st.ug.edu.gh to address concerns of participants on the study.

Madam Abena Apatu (0503539896) for further clarification on ethical issues and rights as participants if need be.

APPENDIX C: PARENT/ GUARDIAN INFORMATION SHEETS

FACTORS AFFECTING ADOLESCENT MENTAL HEALTH: A CASE OF SENIOR HIGH STUDENTS AT ADENTA MUNICIPALITY.

INTRODUCTION

Dear Parent,

Your ward has been selected to be part of a study to examine factors influencing adolescent mental health: A case of senior high adolescent boys and girls at Adenta Municipality. The West African Senior High School has been selected. 259 adolescent boys and girls aged 10-19 years of have been enrolled in this study. This research is out carried by Doris Etornam Amemorbu, an MPH student, SPH, University of Ghana, under the guidanceship of Prof. Philip Baba Adongo, with Department of Social and Behavioral Sciences at the SPH UG, Legon.

Background and Purpose of the research: Adolescent Mental health remains a major public health problem affecting large segments of the Ghanaian adolescent boys and girls. According to the Ghana Statistical service, these adolescents constitute 38% of the country's population, yet their mental health needs are less examined and there are not enough facilities and professionals to manage adolescent mental problems. Good mental health is the pre requisite for optimal psychological development, effective learning, good physical health and effective economic participation as adults among others. According to WHO, adolescent mental health is the capacity to achieve and maintain optimal psychological functioning.

Currently, data on adolescent mental health in Ghana is lacking, therefore, it is imperative for this study to provide an exploratory analysis on factors affecting adolescent mental health outcomes to ensure that appropriate health interventions are put in place to address their mental health needs.

Nature of Research:

This survey that aims to get information about the incidence of anxiety and depression, as well as examine the impact of academic stress, parent attachment and peer attachment on adolescent mental health outcomes.

Participants' involvement:

Duration/Procedures of study: If you accept for your ward to be part of this study, he or she will be given out questionnaires in class to answer to help me assess factors that are likely to

cause anxiety and depression, how academic stress is likely to cause such outcomes and finally, questions on peer and parent attachment relationships will help me examine their influence on mental health outcomes.

Potential risks: Your ward is likely to recollect unpleasant memories if he/she has gone through any form of trauma from childhood that might trigger severe anxiety, he/she will be withdrawn from this study immediately and be assisted with psychological management.

Study participants identified with symptoms of anxiety and depression will be referred to appropriate facility for management. This research will help us learn more about the mental health status of adolescent boys and girls and to know the factors that influence their mental health in Ghana, this will also inform the government plan programs to help prevent them.

Benefits: You will not be paid any money for participating in the study, findings shall be shared with the Ghana Health for decisions to benefit all adolescents in Ghana particularly in the area of establishment of adolescent friendly corners that provide mental health services to de-stigmatize mental health problems.

Cost: There will be no cost incurred.

Compensation: You or your ward will not be paid in kind or cash for participating in the study.

Confidentiality: Your ward name and other details that would be collected will not be given to any person other than for the purpose of identifying the information collected and it will not be part of the final report when it is published. Your ward privacy and identity will be protected.

Voluntary Participation/Withdrawal: Your ward participation in this research is entirely voluntary you are free to withdraw your consent for participation of your ward at any time without any penalty.

Outcome/Feedback to participant: you will be referred to a health facility for further care if it is necessary.

Funding: Solely by Principal investigator.

The data collected from this research will be used for analysis and writing of the research report. A written report will be shared with the University of Ghana, School of Public Health, Ghana Health Service, Ghana Education Service.

For further information:

Doris Etornam Amemorbu (Student, SPH, UG, Legon)—Principal Investigator on 0592739091 deamemorbu@st.ug.edu.gh to address concerns of participants on the study.

Madam Abena Apatu (Administrator, Ghana Health Service Ethics Review Committee)—on 0503539896 for further clarification on ethical issues and rights as participants if need be.

APPENDIX D: STUDENT ASSENT FORM

TOPIC: Factors Influencing Adolescent Mental Health: A Case of Senior High Students in Adenta Municipality.

PARTICIPANTS' STATEMENT

I acknowledge that I have read the contents of the Participants' Information Sheet and all questions are satisfactorily explained to me in a language I understand (English□/Twi□). I fully understand the contents and any potential implications as well as the right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree for my ward to be part of this research.

Name/Initials of Parent..... ID Code .....

Parent's Signature .....OR Thumb Print.....

Date: .....

INVESTIGATOR'S STATEMENT AND SIGNATURE

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

Researcher's name..... Signature .....

Date.....

APPENDIX C: PARENT CONSENT FORM

TOPIC: FACTORS AFFECTING ADOLESCENT MENTAL HEALTH: A CASE OF SENIOR HIGH STUDENTS AT ADENTA MUNICIPALITY.

PARENT/GUARDIAN'S STATEMENT

I acknowledge that I have read the purpose and contents of the Parents' Information Sheet and all questions satisfactorily explained to me in a language I understand (English□/Twi□). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form. I voluntarily agree for my ward to participate in this research.

Name/Initials of Parent/Guardian..... ID Code .....

Participants' Signature .....OR Thumb Print..... Date: .....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Parents' Information Sheet to the fore named participant to the best of my ability in the (English/Twi) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter: .....

Signature of Interpreter: .....

Date:

STATEMENT OF WITNESS

I was present when the purpose and contents of the Parents Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (English□/Twi□) I confirm that the above parent was given the opportunity to ask questions/seek clarifications which was duly answered to his satisfaction before voluntarily agreeing to be part of the research.

Name:

Signature.....

OR Thumb Print .....

Date:

INVESTIGATOR'S STATEMENT AND SIGNATURE

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

Researcher's name.....

Signature .....

Date.....