

**DEPARTMENT OF PSYCHOLOGY**

**UNIVERSITY OF GHANA**

**COLLEGE OF HUMANITIES**

**PSYCHOSOCIAL PREDICTORS OF GENERALISED ANXIETY DISORDER**

**SYMPTOMS AMONG ADOLESCENTS: EXAMINING RISK AND**

**PROTECTIVE FACTORS**

**BY**

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN  
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**DECLARATION**

I hereby declare that this thesis: **“Psychosocial predictors of Generalized Anxiety Disorder Symptoms among adolescents: Examining risk and protective factors”** is a result of my own research work carried out in the Department of psychology of the University of Ghana, Legon, under the supervision of Dr. Adote Anum and Dr. Angela Gyasi-Gyamerah. It has not been previously published, nor has it been submitted for the award of any other degree elsewhere. Other people’s works I have used or quoted have been indicated and acknowledged by means of complete references.

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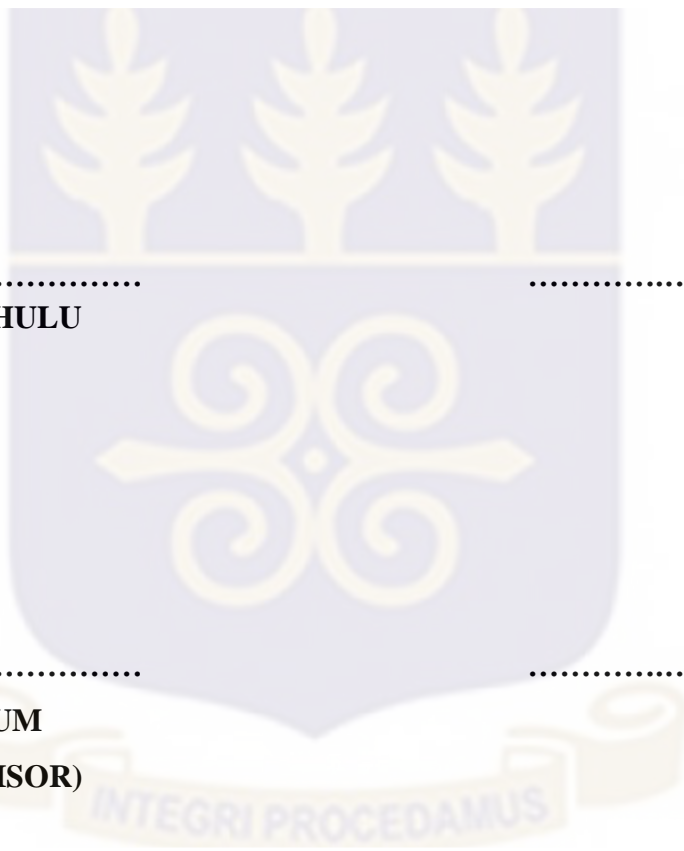
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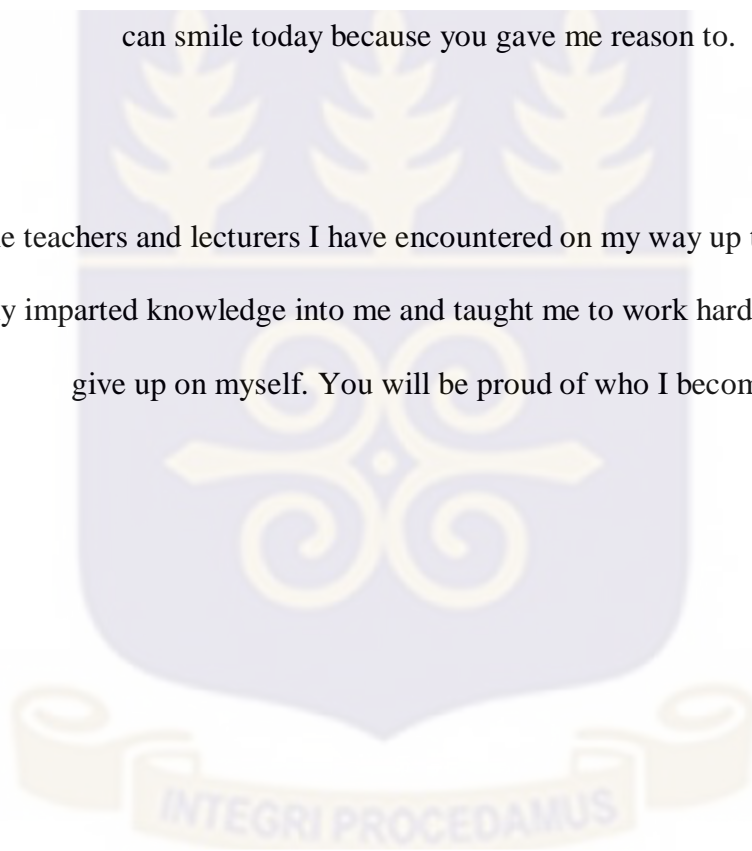
## DEDICATION

“Success is not a comparison of what we have done with what others have done; it is simply coming up to the level of our best and making the most of our capabilities and possibilities”

Mrs. Betty Dzokoto (Head mistress, Wesley Girls High School)

This work is dedicated to my dear parents Mrs. Mercy Asiedua Ahulu and Mr. George Kwesi Ahulu, who gave me life and encouraged me through it all. Thank you Mummy and Daddy, I can smile today because you gave me reason to.

And to all the teachers and lecturers I have encountered on my way up the education ladder; who selflessly imparted knowledge into me and taught me to work hard, persevere and never give up on myself. You will be proud of who I become!



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## ABSTRACT

Generalized Anxiety Disorder is prevalent among adolescents because myriads of biological changes, psychological conflicts and social circumstances come together to create an austere atmosphere of distress at the adolescence stage. The situation is more pronounced among adolescents in low and middle-income countries. Current research has therefore called for attention to examining context-specific risk and protective factors among non-clinical adolescent populations to ensure early detection amongst the general population and inform timely evidence-based interventions. The current study contributed to this agenda by examining context-specific psychosocial risks and protective factors of Generalized Anxiety Disorder symptoms in two different communities in Ghana; Accra, the capital city and Obuasi, a municipality noted for its rich gold deposits and mining activities. A total of 300 adolescents aged 13-19 years, comprising 147 males and 153 females sampled from Obuasi (137) and Accra (163) responded to a six-scale questionnaire including the Screen for Child Anxiety Related Emotional Disorders. Analysis of Variance and Regression Analysis revealed that non-productive coping, parental autonomy and parental involvement are risk factors for Generalized Anxiety Disorder. Self-esteem was identified as a protective factor against Generalized Anxiety Disorder. Female adolescents, adolescents in Obuasi who lived with their fathers only, and those who worked reported higher symptoms of Generalized Anxiety Disorder. Different risk and protective factors for Generalized Anxiety Disorder were identified in Accra and Obuasi. These findings provide an in-depth understanding of adolescent mental health in Ghana with regards to Generalized Anxiety Disorder.

**Keywords:** Generalized Anxiety Disorder, Psychosocial Risk Factors, Protective Factors, Adolescents, Ghana

## CHAPTER ONE

### Introduction

#### Background of the Study

Every society needs a healthy youthful population. Specifically, the adolescent population must be completely sound in all aspects of their lives including physically, socially, and psychologically (WHO, 1948). This is particularly germane to posterity as countries, communities and families rely on young people to manage affairs when the older generations are no more. The adolescent is however plagued with many challenges as they maneuver their way through this particularly difficult developmental stage. Approximately 20% of adolescents worldwide are known to experience mental health related problems (WHO, 2012) ranging from biophysical, social, emotional and psychological challenges which affect optimal mental health development of adolescents (Cummings, Caporino, & Kendall, 2014; Duchesne & Ratelle, 2016; Merikangas et al., 2010).

It is undeniably ideal for adolescents to develop in contexts that optimize their mental health. Nevertheless, aside the fact that the number of changes occurring in adolescence is unusually higher than other developmental stages, adolescents in low and middle-income countries (LMICs) further develop in difficult and harsh environments that potentially impair development in all areas of their lives (Kabiru, Beguy, Crichon, & Ezeh, 2010; Pachan, 2012). In sub-Saharan Africa (SSA), adolescents develop within extremely challenging environments which put them at risk of several mental health challenges (Kabiru et al., 2010). In a developing country like Ghana for instance, whose population is considered to be generally young (Ghana Statistical Service, 2013), some researchers have reported that adolescents face several psychosocial challenges which impairs their normal personality development in adulthood

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(Acquah, Wilson, & Doku, 2014; Owusu, 2008). One particular group of mental health disorders that have been found to pose developmental challenges among adolescents in sub-Saharan African countries like Ghana are anxiety-related disorders (Abbo, Kinyanda, Levin, Ndyabangi & Stein, 2013; Kabiru et al., 2010). According to Abbo et al. (2013) and McBride (2015) being an adolescent growing up in SSA presents a person with a wider range of worries and fears than their counterparts in higher income countries. These range from worries about puberty, role changes and identity crises that accompany the transition from childhood to adulthood along with other specific psychosocial factors (Peterson, 2013; Shaffer & Kipp, 2013). This is juxtaposed with the innate need to find themselves and their role and place in society.

While these acts of worrying might seem a normal characteristic of the adolescent stage, there is ample evidence to show that these seemingly normal worries, if left unchecked become persistent and develop into anxiety disorders (Peterson, 2013; Shaffer & Kipp, 2013). They are often associated with increased persistence of symptoms across the lifespan of the individual, greater symptom severity and poorer treatment response resulting in lifelong implications for adolescents who experience them regularly (Cummings et al., 2014; Merkgangas et al., 2010).

High levels of anxiety symptoms can hinder adolescents' emotional development and predict negative mental outcomes like suicidal ideations and attempts (Boden, Fergusson & Horwood, 2007; Roza, Hofstra, Van Der Ende & Verhulst, 2003). For optimal mental health of adolescents therefore, adolescent related anxiety disorders, the factors that are implicated in their development and their effects cannot be underemphasized. Many researchers show that Generalized Anxiety Disorder (GAD) is the most common form of anxiety disorders among adolescents (e.g. Higa-McMillan, Francis, & Chorpita, 2014; McBride, 2015).

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**GAD and the adolescent.** As a prototype of common anxiety disorders in adolescence, GAD has not always been diagnosed in adolescence – it is a comparatively new diagnosis (Angst et al. 2006; Hunt, Issakidis & Andrews, 2002). Before the inception of the DSM-IV (APA, 1994), GAD was only diagnosed in adults and required a minimum age of 18 years. Youth with excessive anxiety were diagnosed with overanxious disorder which was replaced with GAD when the age requirement was discontinued. Core symptoms of GAD include excessive, uncontrollable worry that is pervasive and occurs for a period of at least six months (APA, 2000). Among adolescents, other characteristic associated symptoms mark GAD, and these include restlessness or being on edge, being easily fatigued, trouble concentrating, irritability, muscle tension and disturbed sleep. For a diagnosis of GAD, the adolescent must endorse at least one of the associated symptoms as compared to three in adults (Bernstein & Victor, 2010).

Some researchers have distinguished adolescents with GAD from normal populations as there is the possibility of confusing normal worries with chronic worry. Two significant features are known to tell apart adolescents with GAD from other anxiety disorders within the general population. Firstly, GAD among adolescents has an early and gradual onset and leads to a chronic course (Dugas, 2000). This has been attributed to persistent, unchecked and unabated normal childhood worries and concerns that are often ignored, which progress into GAD in adolescence (Cummings et al., 2014; Merikangas et al., 2010). For instance, some previous epidemiological studies show that GAD starts as early as eleven years (McBride, 2015). Secondly, within the general population, the adolescent group has emerged from several epidemiological studies as the most prone to GAD with prevalence rates ranging between 8% and 30% (Abbo et al., 2013; Kessler, Berglund, Demler, Jin, Merikangas & Walters, 2005; Merikangas et al., 2010).

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It is therefore not surprising that GAD accounts for a significantly higher proportion of common behavioural and mental health disorders in adolescents (Higa-McMillan et al., 2014). It poses severe mental health challenges which impair normal personality development, causes severe distress to the adolescent, harms normal psychosocial functioning and significantly undermines adaptive functioning in various areas of their lives. These areas include their self-concept, academic functioning and social interaction (Duchesne, Vitaro, Larose, & Tremblay, 2008; Stein & Sareen, 2015). In view of that, a scrutiny of these areas in Ghana may provide rich information on GAD and its psychosocial correlates.

**Psychosocial predictors of GAD in adolescence.** Psychosocial predictors of GAD have been conceptualized as basic risk factors for and protective factors against the development of GAD amongst adolescents (Jin et al., 2014). In this sense, risk factors of GAD are the factors within the developmental context of adolescents that predispose them to GAD while protective factors are the factors that protect adolescents from developing the condition (Hemphill, Heerde, Herrenkohl, Patton, Toumbourou & Catalona, 2011). Hence, a factor can be perceived as a risk or protective factor of GAD if adolescents experience high or low GAD symptoms respectively in the presence of these factors.

Several risk factors have been found to be associated with GAD among adolescent populations depending on the contexts in which they find themselves (Merikangas et al., 2010; Kessler et al., 2005). For example, some studies (e.g. Jin et al., 2014) have identified parents' educational level, dietary and siesta habits, sex and number of children per parent as risk factors of youths' anxiety statuses in high income countries. Being the only child in the family, having a gentle temper, eating regular breakfast and friend support are among some protective factors that have been identified (Duchesne & Ratelle, 2016). The concepts of individualism and power

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distance have been the focus of some cross-cultural studies as impacting on GAD. According to Crocetti et al. (2014), it is more likely for adolescents living in low individualism and high power distance contexts to face the pressure to adhere to others' expectations of them within fortifications of social mobility and societal norms. This invariably exposes them to high levels of protracted worry that leads to the development of anxiety disorders like GAD (Crocetti, Hale, Dimitrova, Abubakar, Gao, & Pesigan, 2014).

In LMICs however, psychosocial predictors of GAD symptoms among adolescents have not received enough empirical attention. This has created the situation where diagnosis and assessments of GAD as well as mental health interventions for adolescents in SSA are developed based on findings from studies in high income countries (Acquah et al., 2014; Kabiru et al., 2010; Owusu, 2008). Nevertheless, in low income countries, the challenges adolescents face growing up (poverty, conflict, parental factors etc.) have been argued to predispose them to several mental health problems including GAD (Kabiru et al., 2010). These relevant factors may thus be missing in the diagnosis of GAD in this part of the world by foreign researchers when they may in actual fact be key. Truly, even within the same context, these factors may differ from one adolescent to another based on other inter and intra-specific cultural and psychosocial dynamics.

Some environmental factors like parental factors, peer pressure, adolescent religiosity and individual factors like self-esteem, adolescent coping systems etc. have been found to be significantly associated with anxiety among adolescent populations (e.g. Abbo et al., 2013; Chu, Merson, Zandberg & Margaret, 2012; Kessler et al., 2012; Merikangas et al., 2010). This study looks at some of these environmental and individual factors that may either serve as threats to adolescents or as shields for them.

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*Environmental factors.* Parents are prominent figures in the healthy psychosocial development of their children. The styles they employ in socializing adolescents vary in the degrees to which they support or foil their satisfaction needs. Whereas some parents consider that pressuring adolescents into compliance accomplishes socialization, it is often a hindrance to their development of autonomy and wellbeing (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). The parent-adolescent bond during this critical transition marks the nadirs and zeniths of adolescent personality and other relevant psychosocial developments (Yap, Pilkington, Ryan, & Jorm, 2014). Perceiving their parents as warm or friendly, as involved or indifferent or as controlling in their daily interactions have several psychological outcomes on self-confidence, anxiety, self-esteem and tendency to be influenced by peers (Merikangas et al., 2010; Yap, Pilkington, Ryan & Jorm, 2014). This is particularly significant in cultures where children were brought up with strict discipline and feared being punished for questioning their parents, especially the girls (Brocato & Dwamena- Aboagye, 2007). They would rather confide in their peers.

Peer pressure is also found to be another risk factor in emotional development with several other psychological outcomes, the most common being anxiety (Acquah et al., 2014; Cummings et al., 2014). In the context of the current study, peer pressure is the negative influence adolescents experience from their peers. Thus, when people of the same age (peer group) encourage or beseech one to do or not do something, whether or not an individual wants to do it (Acquah, et al., 2014; Boundless Psychology, 2015). Most adolescents suffer from peer pressure as they seek answers about various topics including sexuality from their friends who are not experienced or qualified to provide the appropriate information on these topics. Such information from peers may not be accurate, and they often are not, yet the youth may feel more

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comfortable discussing these issues with friends as their questions will be treated sympathetically, with understanding and discretion (Moore & Rosenthal, 1993). The outcomes are often rather disturbing.

Additionally, one other important social factor in adolescent mental health is religion. Religiosity amongst adolescents may be described by their belief in and/or reliance on a supreme-being or deity. According to Hackney and Sanders (2003), religiosity is a multi-layered concept involving cognitive, emotional, motivational and behavioural aspects that serves numerous functions for adolescents including shielding them against indulging in risky health compromising behaviours (Wallace, 2007; Wills, Yaeger, & Sandy, 2003). The concept of religion also serves as a form of coping among people in dealing with various life struggles.

***Individual/dispositional factors.*** Coping mechanisms are considered as critical factors in health and well-being. In the adolescent population, coping mechanisms constitute the major route to dealing with the developmental challenges associated with their social and mental health (Sveinbjornsdottir & Thornsteinsson, 2008). When adolescents are faced with various situations, their perception of their ability to cope or deal with the situation, the resources within themselves and their environment available to them, and the mechanisms they employ, may have constructive or destructive effects on them. When the effects are positive, the adolescent has improved development in many areas, when the opposite happens, they suffer several consequences. The self-concept of adolescents thus, highlights their willpower, esteem and view of themselves in relation to others. This has been studied to have many consequences on several salient areas of the adolescent's life including school grades, psychosocial and emotional well-being (Baumeister, Campbell, Krueger, & Vohs, 2003; Ciarrochi, Heaven, & Fiona, 2007). Are these factors then, pertinent to GAD symptoms in Ghana?

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To answer the above question, and to better understand the phenomenon of GAD, this study examined gender, location and some correlates of GAD symptoms in a sample of Ghanaian adolescents within two settings to examine the similarities and differences that exist. Again, this study sought to confirm, if results obtained in western cultures apply to and can be replicated in non-Western contexts (Arnett 2008). Clearly, an attempt to combat mental health challenges like GAD in adolescence must be holistic. Early detection is important to prevent full blown consequences which not only sufferers, but also all stakeholders must bear. Context is thus extremely relevant as the factors that regulate GAD symptoms is complex and exist amidst the diversities within differing societies.

**Statement of the Problem**

From the foregoing discussion, GAD is evidently a problem in adolescence. Peculiar challenges are faced by adolescents in LMICs which leads to high levels of anxiety among adolescents living in low and middle-income countries (Crocetti et al., 2014). As noted previously, these high levels of anxiety faced by adolescents, if left unchecked, may linger on and lead to disorders like GAD (WHO, 1994), which has been proven to have incapacitating consequences including avoidance and suicidal ideations as well as suicidal attempts (Boden, Fergusson, & Horwood, 2007; Duchesne & Ratelle, 2016).

Longitudinal studies of the developmental trajectories of GAD symptoms among general population of adolescents, have found that GAD symptoms are not simply “outgrown”, but continue on into early adulthood and this may become a big burden to their social contacts (Hale, Raaijmakers, Muris, Van Hoof & Meeuse, 2008; Van Oort, Greaves, Verhulst, Ormel & Huizink, 2009). Research into factors that contribute to the development of adolescent GAD is needed to gain more insight into the nature of this psychopathology.

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Secondly, there is a likely cyclical effect in course GAD. Some developmental challenges (e.g. parental neglect) may increase GAD symptoms (e.g. worry) among adolescents and these symptoms may effect developmental problems (negative peer influence). This cyclic dilemma requires empirical studies to identify the components of the problem and the nature of its course. Previous research suggests that clinical features of anxiety (e.g. duration, higher severity and avoidance) as well as other comorbid mental disorders are particularly useful for predicting an unfavorable course of anxiety disorders. Others like Asselmann and Beesdo-Baum (2015), have suggested the study of risk factors for individual course trajectories of anxiety disorders as well as for specific diagnosis such as GAD. Tracing such patterns is key in identifying individuals with anxiety disorders who are at increased risk of adverse long-term outcomes as well as those who might particularly profit from targeted early interventions (Asselmann & Beesdo-Baum, 2015).

Whereas some researchers have used clinical samples (diagnosed) in GAD studies, other researchers have found this problematic. This is due to referral biases which may limit the generalizability of research findings to the general population (Birmaher, Brent, Chaipetta, Bridge, Monga & Baugher, 1999; Hale et al., 2005). Thus, research on general populations of adolescents is a better reflection of the developmental course of adolescent anxiety disorders and has as such received greater recognition (Pine, Cohen, Gurley, Brook & Ma, 1998). Examining general populations help in early detection and interventions as there may be adolescents within the general population who do not qualify for a diagnosis of GAD by diagnostic manual standards but may be in severe distress or exposed to associated risk factors. For such people, waiting to meet diagnostic standards will mean that symptoms would have been full blown and prevention may be too late. This is indeed avoidable!

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Moreover, in places where mental health facilities are available, accessibility is not easy for adolescents living in developing countries like Ghana due to societal perceptions and stigmatization (Barke, Nyarko, & Klecha, 2011; Lui, 2017). In actuality, some communities do not even have access to these facilities at all or the existing ones are overburdened. According to Wittchen (2002), sufferers of GAD place a strong burden on the primary care settings. In Ghana for instance, there are only 3 specialist psychiatric hospitals in two southern regions which is woefully inadequate for the population suffering from mental disorders and the number predicted to experience it in a lifetime (WHO, 2003; WHO, 2007). There is a 93% treatment gap, that is, only 7 out of 100 people with mental health conditions will efficiently access the help they need. The sector is seriously understaffed (Sodzi-Tettey, 2012).

Even in places where mental health services are advanced, assessment and diagnosis are done based mainly on tools that were developed in foreign contexts with foreign samples which may miss context specific factors and associated symptoms in the diagnoses of GAD (Acquah et al., 2014; Kabiru et al., 2010; Owusu, 2008). Adolescents may thus score low on these scales as their context specific indicators are not captured on these scales, leading to misinformed diagnosis and treatments, which is indeed a problem. This is perhaps the reason why the DSM-5 predicts that individuals in developed countries are more likely to report GAD symptoms than individuals in less developed countries (APA, 2013). Development of GAD among adolescents is evidently influenced by a combination of risk and protective factors in very complex ways and varies within different contexts. Additionally, it is worth noting that even within the same context, several intra-contextual disparities exist. This therefore requires rigorous intra-cultural as well as cross-cultural empirical investigations to understand the factors that give rise to GAD among adolescents (Crocetti et al., 2014).

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That notwithstanding, GAD has not been thoroughly examined, particularly among non-clinical adolescent populations in low income countries. Due to this, majority of adolescents in LMICs like Ghana may suffer the long-term consequences of GAD as they may often go unrecognized, undiagnosed and as such remain untreated (Keeton, Kolos & Walkup, 2009). There is therefore the need for empirical studies devoted to examining the risks and protective factors of anxiety disorders among non-clinical adolescent samples in LIMCs to understand fully adolescents who are predisposed to GAD and those who are not (Abbo et al., 2013).

There is also the need for context-specific empirical studies to systematically examine risks and protective factors of GAD to facilitate assessment, diagnosis, and treatment. This is because GAD and its characteristic symptoms develop within socio-cultural circumstances that differ and this accordingly makes risks and protective factors vary across contexts. In SSA for instance, adolescents grow within the context of extreme poverty which comes with several other challenges such as child labour, parental neglect, peer pressure etc. Inherent in such a context is a blend of peculiar risks and protective factors that require empirical investigation.

In Ghana, there is not much studies on the issue of GAD. Examining GAD and its correlates among adolescents serves the purpose of providing contextually-relevant insights into the risk and protective factors for adolescents. This is particularly relevant in developing countries and a sensitive context like Ghana where the development trajectories of majority of adolescents takes place within a difficult structural-material context. These difficulties include family poverty, parental unemployment, school problems, peer pressure and religious affiliation (Abbo et al., 2013; Brocato & Dwamena-Aboagye, 2007; Duchesne & Ratelle, 2016). Also in Ghana, there exists a complex interaction between society and culture, economy, spirituality and other interconnected factors in daily life.

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**Aim and objectives of the study**

This study primarily focuses on examining GAD symptoms among two general populations of Ghanaian adolescents to identify and understand the associated psychosocial risk and protective factors. The specific objectives therefore are to:

1. Examine group differences in GAD symptoms among adolescents.
2. Evaluate risk and protective factors of GAD symptoms among adolescents.
3. Examine gender-specific differences in risk and protective factors of GAD symptoms among adolescents.
4. Assess context-specific differences in risk and protective factors of GAD symptoms among adolescents.

**Relevance of the study**

Research into factors that contribute to the development of adolescent GAD is needed to gain more insight into and awareness on the nature of this pathology. This study is relevant in that, its findings will improve mental health among adolescents in Ghana in particular and low-income countries in general. It will provide insights to mental healthcare givers (e.g. clinical psychologists, psychiatrists, school counselors etc.) and provide relevant information that will inform effective evidence-based diagnoses and therapies. Mental healthcare facilities within specific locations will thus seek out for various factors within their localities that may serve as risk indicators of GAD. This will aid in planning community based interventions that will promote mental health care. This will also invariably ease the burden on the healthcare facilities that mental illness poses (Wittchen, 2002). This study therefore exposes particular cultural, social, and economic circumstances that may exacerbate adolescent anxieties and eventually lead to the development of an anxiety disorder like GAD.

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Furthermore, findings provide awareness into the contextually relevant factors that predispose adolescents in low income countries to develop generalized anxiety disorder. This helps in early detection among non-clinical adolescent populations so that adolescents at risk are protected from the full effects of these disorders. Early detection of these symptoms is very important as studies have shown that the course of GAD is a very chronic one (Dugas, 2000). These interventions could target communities, groups, and individuals. Information on GAD is scarce in the Ghanaian mental health literature and not much has been done in the form of empirical studies on the nature of this phenomenon in Ghana. The study therefore makes available relevant information on protective factors and coping strategies that are helpful in ensuring positive outcomes for the adolescent population.

Additionally, it will inform further probing into the issue of GAD and help in the conceptualization and understanding of interrelationships that exist between pertinent predictors of anxiety among adolescents. Perhaps it will also go as far as informing the development of scales that are sensitive to the needs of the Ghanaian society on mental health disorders in general and GAD specifically (Acquah et al., 2014; Flaherty et al., 1988). At the national level, it provides relevant information on mental health status of the youth in Ghana, who form a significant component of national development and form the bulk of the population. These are also generational leaders and the nation's human resource. Thus, through this study, more premium would hopefully be placed on preventing adolescents within the general population from the adverse effects of anxiety disorders like GAD (Duchesne et al., 2008; Stein & Sareen, 2015). By addressing these factors head-on through follow-up preventive interventions like psycho-education, this study can inform national policies on adolescent mental health.

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Finally, since GAD affects all aspects of adolescents' lives including their academic and social functioning, findings from this research will educate teachers and parents who play a key role in modeling adolescents. It will help identify struggling adolescents and look out for relevant symptoms that may indicate the onset or course of anxiety disorders especially GAD. This will enable them encourage adolescents at risk or suffering from GAD to seek timely help, which is even more relevant in our society where seeking mental healthcare comes with a burden of personal and societal stereotypes and stigma (Barke et al., 2011). This will also inform a joint effort at all levels of analysis (i.e. personal, interpersonal, intragroup, intergroup levels, and ideological levels) in combatting the relentless consequences of GAD.

**Chapter summary**

Adolescent mental health is important. One of the major mental health concerns that affects adolescents is the worry and anxiety that characterize the adolescent stage of development. This worry becomes chronic and may develop into GAD when not identified early and dealt with appropriately. GAD has debilitating consequences on those who suffer it as such, detecting its symptoms early within the general population before it becomes chronic is essential. This study mainly aims at assessing associated risk and protective factors which may come in handy in helping all stakeholders (sufferers, caregivers, mental health workers and facilities, researchers as well as policy makers) understand the condition, appreciate what is at stake, recognize what its indicators are and how to deal with it to ensure optimal mental health of the adolescent population in Ghana.

## CHAPTER TWO

### Literature Review

#### Introduction

This chapter situates the current study within the context of relevant literature on prevalence, risk, and psychosocial factors associated with GAD. The theories that served as the framework for the study are discussed and related studies reviewed. Finally, the rationale for this study and hypotheses to be tested are stated.

#### Theoretical framework

To explain the development and maintenance of GAD, three main theories form the framework for this study. They are; the Bronfenbrenner's ecological systems' theory of development (Bronfenbrenner, 1999), the Erikson's theory of psychosocial development (Erikson, 1998) and the Transactional model of stress (Lazarus, 1966).

**Ecological systems theory of development.** Bronfenbrenner (1999) developed this theory to explain the complex multi-level and interactive systems embedded within developmental trajectories. The theory is based on the assumption that the principal focus of development across a lifespan is the emergence of positive personality in adulthood (Bronfenbrenner, 1999). Over the years, the ecological systems theory is the most used of developmental theories in the study of developmentally-oriented disorders and in explaining different facets of developmental outcomes in people's lives. In a review of theoretical models on GAD, Behar, DiMarch, Hekler, Mohlman, and Stapes (2009), were of the view that the ecological system theory of development offers critical insights into how different factors within children's environment explain how disorders arise. This, according to Broeren, Muris, Diamantopoulou, and Baker (2013), helps in planning treatment and interventions that target

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different aspects of the complex systems within which children and adolescents develop. The aim is thus, to offer comprehensive care.

Brofrenbrenner (1999) stated also that, emotional and psychosocial developments of adolescents take place within a multi-layered web that interacts to produce positive or problematic personality outcome. These layered systems explain factors that are related to individual factors, social factors, family factors and the broader structural or community-specific factors within an adolescent's budding environment (Brofrenbrenner, 1999; Broeren et al., 2013). The theory further assumes that the complex multilevel web that adolescents develop within is grouped into micro, meso, exo and macro systems. Each of these systems exerts its own force on emotional development and comes with its peculiar factors that shape adolescents' developmental course.

For instance, at the micro system, GAD among adolescents is influenced by systems that are closest to them and in which they have direct contacts (Behar et al., 2009; Brofrenbrenner, 1999). Systems here include family, peers, school, religious sects, etc. that the adolescent is frequently and constantly interacting with. At the meso system, an adolescent's development is influenced by factors within different parts of the micro systems. For example, parents' economic circumstances, such as their employment status or their poverty levels, affect adolescents' development. Family poverty could lead to troubles at school which may affect psychological outcomes among adolescents. At the exo system, adolescents' development is affected by factors in a setting where they do not actively participate in but are affected by virtue of their interconnectedness. For example, if an adolescent's parent is laid off from work (a setting where the adolescent has no direct contact), it will invariably affect the adolescent payment of school fees, feeding habits and overall wellbeing. The macro system encompasses

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the broader cultural, social, and economic environments that affect adolescent development. For example, emotional development of adolescents is influenced by the sociocultural values and economic circumstances within which adolescents find themselves (Broeren et al., 2013; Brofrenbrenner, 1999). An example is the fact that every culture has some particular norms and ethics as well as what it terms acceptable or unacceptable behaviours that people who identify with it must abide by.

The ecological theory, as applies in this current study explains how risk and protective factors of GAD among adolescents in Obuasi and Accra would be shaped by different factors operating within and interacting with these different systems. These systems have inherent factors that provide both risks and resources that adolescents use in their emotional and psychosocial growth.

**Erikson's theory of psychosocial development.** The theory of psychosocial development by Erikson (1998) places emphasis on the search for identity during adolescent years (Newman, Shin, & Zeullig, 2016). Erikson argues that the psychosocial development of individuals involves their understanding of themselves and the changes in their lives during the course of development. This happens through their interactions with one another and the world around them. Erikson (1999) therefore developed an 8-stage theory of psychosocial development that individuals proceed through across a lifespan. In each of the stages, there is a fundamental psychological conflicts that needs to be efficiently resolved for optimal and healthy personality and psychosocial development. Unless the conflict of one stage is properly resolved, the next stage may suffer.

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Trust versus mistrust characterizes the first stage and starts from birth to one and half years. The fundamental psychological conflict at this stage is a feeling of trust through support from a child's social environment (Erikson, 1999). When this conflict is properly resolved, the child develops trust towards others and can boldly and freely relate to people. However, when the conflict is not well resolved, children develop mistrust and therefore tend to be *anxious*, *fearful* and suspicious of people. Some researchers (e.g. Behar et al., 2009; Broeren et al., 2013) argue that GAD which develops among adolescents begins from this stage.

The second stage is autonomy versus shame and doubt. It spans from one and half years to three years. The fundamental psychological conflict here is a feeling of autonomy and self-sufficiency or doubt about self-efficacy (Erikson, 1999). When this conflict is resolved well, children develop a feeling of independence and self-efficacy if not; children develop a sense of doubt and lack of self-confidence. Self-concepts like *self-esteem* and self-worth have been argued to begin at this stage of adolescents' psychosocial development (e.g. Behar et al., 2009; Broeren et al., 2013; Erikson, 1999).

The third stage is initiative versus guilt which starts from three to six years. At this stage, the fundamental conflict is a feeling of initiative characterized by the ability to discover different ways of doing things (Erikson, 1999). Proper resolution of this conflict leads to feelings of initiative which makes a child confident and creative in exploring new skills. Otherwise, the guilt from series of failed actions and thoughts of incapability strains their *social interactions*.

The third stage is immediately followed by industry versus inferiority which starts from 6 - 12 years. The fundamental psychological conflict at this stage is a feeling of industry through the development of a feeling of competence (Erikson, 1999). When this conflict is resolved

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adequately, children develop a feeling of competence and belief in their ability to achieve difficult goals. When not well resolved, children develop a sense of inferiority. Some researchers believe that *self-esteem* which begun in the second stage becomes solidified at this stage (e.g. Behar et al., 2009; Broeren et al., 2013; Erikson, 1999).

The fifth stage is the adolescent stage. It starts from 13 to 19 years and marks the zenith of *identity and role confusion*. It is at this point that adolescents must determine their identities by appreciating what is unique about themselves, who they are, what their strengths are, and what roles they are best suited to play for the rest of their lives. When adolescents lag in appropriate resolution of the conflicts in this stage, they may struggle to negotiate their identities within their social relationships. Thus, in negotiating this stage, psychological outcomes are heavily affected by the dynamics of their social relations. This theory informed the age range of adolescents (13-19 years) for this study and explains the inherent difficulty adolescents' face that could expose them to chronic worry and an eventual development of GAD.

**Transactional model of stress (Lazarus and Folkman, 1984).** The transactional model of stress was developed to explain how ways of dealing with stressors in life affects and shapes the development of anxiety disorders. Lazarus argued that people deal with stress in different ways, some use productive means while others use non-productive means. When people use non-productive ways to deal with the stressful situations in their lives, anxiety levels increase. Using productive means has the opposite effect. Thus, anxiety is caused by a subjective definition or interpretation of stressful events or situations in a person's life. An appraisal of the situation characterized by the belief in having the ability and resources to cope or otherwise, has psychological consequences.

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Thus, adolescents who perceive that everyday life events and situations are beyond their control and means to manage are likely develop a disorder. It is based on this theory that coping strategies among adolescents were measured. In adolescents, ways of dealing with stress is argued to be one of the most significant contributing factors to the eventual development of anxiety disorders (Duchesne & Ratelle, 2016). This is because adolescents are found to use more of non-productive coping mechanisms in meeting the challenges they face in life (Cummings et al., 2014). This theory is therefore applied to the current study to assess how GAD symptoms among adolescents are influenced by the coping styles they employ.

These theories of development therefore highlight the relevant roles that the various interconnected systems within which adolescents grow play in their emotional development. They also explain how unresolved conflicts along the developmental path influences development across all facets of the adolescent's life. Finally, they describe the extent to which the various strategies employed by adolescents in dealing with various challenges in their lives influences their mental health and psychosocial development.

**Review of related studies**

The diverse literature reviewed for this study showed that GAD has received quite some attention. Only a handful of studies have been done on LMICs on GAD (e.g. Abbo et al., 2013). Majority of studies that have been done in western cultures have been epidemiological in nature. Several of these epidemiological studies have shown that GAD appears very early in the adolescent stage. It has also been found to have high levels of lifetime prevalence in adolescents than in the general population (Farrer, Gulliver, Bennett, Fassnacht, & Griffiths, 2016; Newman et al., 2016). This sub-section reviews some empirical studies that have been conducted on anxiety and GAD to get understanding of the literature.

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**Gender, age, and anxiety disorders among adolescents.** Female adolescents have reported higher levels of anxiety disorder symptoms than their male counterparts (Muris, Merckelbach, Ollendick, King, & Bogie, 2002). Retrospective data shows that by the age of six years, females are twice as likely to have experienced an anxiety disorder of some sort as males (Lewinsohn, Gotlib, Seeley, & Allen, 1998). Several studies on GAD in adolescence have revealed similar results with females scoring higher on anxiety symptoms (Zhao, Xing, & Wang, 2012; Hale et al., 2005, Crocetti et al., 2009). A study in rural Uganda, Abbo et al. (2013), revealed that female adolescents recorded higher rates of anxiety disorders (29.7%) compared to male adolescents (23.1%).

GAD symptoms among adolescents were recently studied in cross-section of adolescents from six countries in three different continents including Africa, Europe, and Asia by Crocetti et al. (2014). They sampled a total of 3445 adolescents aged between 14 and 18 years. 51% of them were males and 49% were females. They found significant gender differences with females scoring higher on GAD symptoms. There was however no significant gender differences in the Kenyan sample. Thus, the Kenyan sample deviated from this trend and showed similar levels of GAD symptom among males and females. Some reasons given by researchers in Western cultures for the high levels of anxiety reported in the female gender is their interpersonal difficulties which is more likely to affect anxiety in girls than in boys (Hale et al., 2006; Rapee, 2001). The deviation observed from the Kenyan sample, suggests cultural differences in gender and GAD symptomatology.

Gender differences in GAD have also been associated with age in various studies by researchers in western and non-western countries alike. For instance, some studies have reported a higher prevalence of anxiety symptoms in girls than boys from age 12 to 15 years (Duchesne et

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al., 2012). Sakolsky and Birmaher (2008) also reported a higher rate of GAD in females than in males, with several studies showing a ratio of 2:1 that emerges by age six. A recent study has reported that among adolescents reporting moderate anxiety symptoms toward the end of childhood, a subgroup of girls emerged as particularly at risk for an increase in these symptoms, peaking at around age 14 (Duchesne & Ratelle, 2016). These studies may have ignored the fact that age related roles in adolescents vary with culture and adolescents in different cultures may have certain experiences much earlier than others. A typical example is child marriages where adolescent females below 15 years are given off to be married to in countries like Niger, Chad, Mali, Bangladesh etc. (UNICEF, 2012; The Economist, 2011). This may never be a problem among their cohorts in other cultures. While children and adolescents in one part of the world may glide along with their parents in shops, their counterparts in other countries are recruited to fight in wars (Dudenhoefer, 2016). Every culture must thus, identify its own peculiar risk factors of anxiety pertaining to age and gender.

**Risk factors of GAD.** Ample studies (e.g. Abbo et al., 2013; Farrer et al., 2016; Newman, Shin, & Zeullig, 2016) have reported risk factors of adolescent anxiety to include parental conflict, low academic achievement, peer pressure, engaging in childhood economic activity, bullying and socio-economic status.

**Parental factors.** Some researchers have taken a holistic approach in studying factors pertaining to parents of adolescents and in relation to GAD. They found that, family interactions that include high amounts of rejection or are highly enmeshed, both very high and very low levels of family adaptability, high levels of parental conflict and violence, separation, divorce, living arrangements, educational level, occupation or employment status and socioeconomic

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status increase the risk of GAD development (Van Oort, Greaves-Lord, Ormel, Verhulst, & Huizink, 2011; Vine, Vander Stoep, Bell, Rhew, Gudmundsen, & McCauley, 2012).

*Parental relationships.* Numerous researchers (e.g. Behar et al. 2009; Eng & Heimberg 2006; Hale et al., 2006; Viana & Rabian, 2008) have stated that problems in the parent-adolescent relationship are a risk factor for the presence and development of GAD symptoms. For instance, the quality of parent-adolescent attachment relationship might result in the development of GAD symptoms. However, they also noted that it is possible that adolescents' GAD symptoms could lead to a lower quality of the parent-adolescent attachment relationship. Rapee, Schniering, and Hudson (2009) found the two most common parenting styles that have been associated with a GAD diagnosis in adolescents to be overprotective or over-controlling and negative or highly critical parenting styles.

Common findings in reviews of family systems of adolescents with GAD reveals perceived insecure parent-child relationships that are marked by lower levels of trust, greater feelings of alienation and poor communication (Van Eijck, Branje, Hale, & Meeus, 2012). Adolescents who experience parental autonomy and relatedness are more driven and better adjusted. However, adolescents' perceptions of low parental care and difficulty communicating with and confiding in their parents about problems are significantly associated with emotional health. To avoid adolescent psychosocial difficulties therefore effective parent-adolescent relationships are relevant (Ryan & Deci, 2002).

*Socioeconomic status.* Mixed results have however been produced by studies investigating the relationship between socioeconomic status and the risk of GAD in adolescents. Vine et al. (2012), found that adolescents had a higher likelihood of developing GAD if their parents had a lower occupational status and income. The National Health and Nutrition

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Examination Survey, in contrast, found that adolescents from lower socioeconomic backgrounds had lower rates of GAD than their wealthier counterparts. It follows that, when parents are gainfully employed, financially stable and able to take care of their children satisfactorily, they do not need to get involved in any form of work or engage in child-labour which is indeed a problem in many developing countries (Harsch, 2001). In a study on socioeconomic causes of child labour in urban Nigeria, Togunde and Carter (2007) sampled 1,535 children aged 8-14 years. They studied the causes of child labour and parental socioeconomic status (SES) and found that children whose parents are of higher SES are more likely to own businesses rather than assist parents. These children are also more likely to keep and spend their work earnings than use them in supporting themselves and their families. Thus, children in lower SES families may be more psychologically burdened by labour and the pressure to support themselves and family than their higher SES counterparts.

*Living arrangements and divorce.* Sun (2001) stated that youth of divorced parents have more psychological problems than their counterparts raised in intact families with two biological parents. For example, Pálmarsdottir (2015) conducted a study with a sample of adolescents ranging from 13-16 years. Twenty percent (20%) of them had been through parental divorce and 31% of them had experienced family conflicts. Results showed that the effect of parental divorce on adolescent anxiety is mediated by family conflict. Clearly, going through these experiences has effects on adolescents' mental health.

*Peer factors.* Peers are influential in an adolescent's life, at home they are playmates, at school they are classmates. Most adolescents model their personalities around their friends and confide in them while seeking advice in dealing with various struggles (Undergraff, 2001). Consequently, adolescents' mental health has been linked to their peers in many dimensions. For

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example, adolescent risky behaviours like smoking has been linked to peer pressure and anxiety disorders in late adolescence and early adulthood (Johnson, Cohen, Pine, Klein, Kasen, & Brook, 2000; Patton et al., 1998). Also, studies have shown that peer factors like victimization, bullying etc. affect anxiety levels in adolescents and leads to anxiety disorders. For instance, a study by Stapinski et al. (2014), assessed if peer victimization during adolescence was a risk factor for the development of anxiety disorders in adulthood. Results showed that frequently victimized adolescents were about three times more likely to develop anxiety disorders.

*Adolescents' self-concepts.* According to Van Oof et al. (2011), personality characteristics that are identified as risk factors for GAD include behavioral inhibition, highly negative affect, low self-esteem, decreased adaptability, and poor self-regulation. Particularly studies have shown that self-esteem is regulated by anxiety disorders. An example of such studies was by Maldonada, Huang, Chen, Kasen, Cohen, and Chen (2013). They conducted a community study aimed at examining the relationships between early adolescent anxiety disorders and development of self-esteem from early adolescence to young adulthood with young people with mean ages of 13, 16 and 22.

They used multilevel growth models to analyze changes in self-esteem from early adolescence to young adulthood and to evaluate whether adolescent anxiety disorders predicted both average and slope of self-esteem development among the youth. They found that girls scored lower on self-esteem than boys. Also, adolescents with anxiety disorders had lower self-esteem than healthy adolescents. Of the anxiety disorders they studied, they found that separation anxiety did not have a significant impact on self-esteem development. On the contrary, social phobia, overanxious disorder and simple phobia were found to have significant impact on self-

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esteem. Also, obsessive compulsive-disorder (OCD) predicted a significant decline in self-esteem from adolescence to young adulthood.

**Protective factors in adolescence and psychological outcomes.** Some protective factors which have been reported among adult samples and college students against anxiety disorders include social support, religiosity, academic achievement etc. (Farrer et al., 2016). Other researchers have also reported protective factors for adolescents' negative behaviours such as drug use include community protective factors, family protective factors and peer protective factors (Hemphill, 2011).

**Religion.** The subject of religiosity and its implications on the mental health of young people has received a lot of attention in modern literature. Some studies have shown that religion has an effect on adolescents' mental health outcomes. Religiosity has been found as a buffer to substance abuse, suicidal behaviours, risky sexual activity, aggression and hostility, depression, suicidal behaviours and overall psychological health of young people (Cotton, Zebracki, Rosenthal, Tsevat, & Drotar, 2006; Gearing & Lizardi, 2009; Pearce, Little & Perez, 2003; Renaud, Berlim, McGirr, Tousignant, & Turecki, 2008).

In a study by Chiswick and Mirtcheva (2010), the effect of religion on the general and psychological health of the youth between the ages of 6 to 19 years was assessed. They employed three measures of Religiosity in their study; religious affiliation, importance of religion and the frequency of church attendance. They found that youth who had positive views on their religions across these three areas generally had better psychological health. Particularly, adolescents aged 12 to 15 years according to their study who had religious affiliations, viewed religion as important, and found regular church attendance as relevant emerged as healthy (overall and psychologically). In their view that age bracket marked the years of transitioning

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from childhood to adolescence and may be associated with peer pressure and teenage angst. They suggested further research to ascertain if that is typical of young teens in general, or is related to issues of measuring health and religion among young people. They also found that girls, blacks and Hispanics (as compared to Caucasians), children living in a two-parent household, adolescents aged between 12 and 15 years, and youth with religious affiliations recorded greater psychological health. They thus concluded that starting a child on the path of religious belief and involvement can have beneficial health effects in the short-run and in the long-run.

As a form of coping among adolescents, religion has been studied by Van Dyke, Glenwick, Cecero, and Kim (2009) as having both negative and positive effects. They explored the relationship between religious coping and spirituality to adjustment and psychological distress in urban early adolescents. Seventy Six (76) participants were sampled from 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade students attending Catholic day schools. They completed a set of self-report measures assessing religious coping, daily spiritual experiences, positive and negative affect, life satisfaction, and psychological distress. The study revealed that positive religious coping and daily spiritual experiences were associated with positive affect and life satisfaction, while negative religious coping was associated with negative affect and psychological distress.

**Coping.** In any situation that carries with it an indication of some sort of harm, coping has implications. It is conceptualized as a very salient mediator between psychological well-being and negative life happenstances. Coping is thus an important determinant of successful adaptation in adolescence (Lazarus & Folkman, 1984). Studies have categorized several forms of coping, however, two broad dimensions have been repeatedly identified. They are the approach/problem-focused/problem solving strategies (Compas, Malcarne, & Fondacaro, 1988;

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Curry & Russ, 1985; Gamble, 1989) and the withdrawal/avoidant/emotion-focused/non-productive strategies (Causey & Dubow, 1992; Compas, 1987; Frydenberg & Lewis, 1993).

Herman-Stabl, Stemmler and Peterson (1995), samples 603 adolescents from Grades 6 to 11 to assess coping among them. They found that adolescents who adopted approach strategies as compared to their avoidant colleagues reported fewer symptoms of depression. Over time, adolescents who switched from avoidant to approach coping reported a significant decrease in depressive symptoms and vice versa. It follows that approach strategies in dealing with the problems of adolescence has positive psychological outcomes. This is consistent with findings from other studies on generalized anxiety disorder that show that some adolescents with poor coping mechanisms have high GAD symptoms (Newman et al., 2016).

**General risk and protective factors of adolescence in Ghana.** In Ghana, a number of studies have focused on the different risk factors of adolescent emotional well-being among the general population and how chains of intertwined bio-psycho-social factors affect adolescents (Acquah, et al., 2014; Glozah, 2013). For instance, Acquah and colleagues (2014) studied peer influences among 6,235 adolescents aged between 11 and 16 years. They found that the risk factors associated with peer bullying behaviour among adolescents in a Ghana included alcohol use, misuse and alcohol related psycho-socio-pathology. The risk of being bullied was reduced if adolescents had understanding parents and kind classmates.

Oppong, Oppong, and Odotei (2006) have also explored how physiological changes of puberty and its attendant sexuality consequences (sexual activity, relationships, pregnancy and early parenthood, relationship pressures, efforts at impressing the opposite sex) become very stressful to adolescents and make them anxious. The effects of peer influence, drug abuse and

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alcoholism for instance have also been linked to high levels of anxiety among adolescents in four sub-Saharan African countries including Ghana (Kabiru et al., 2010).

Other studies have also reported in Ghana that parental factors like parenting styles, parent-child relatedness, single parenthood, foster care, child labour, neglect, child abuse and strict adherence to age-long taboos and traditions negatively affect emotional and psychological well-being (Brocato & Dwamena-Aboagye, 2007; Nyarko, Adentwi, Asumeng, & Ahulu, 2014; Nyarko, 2011).

Additionally, some studies have reported that academic factors like nonperformance, academic stress, and bullying as well as internal factors like personality, body image, self-esteem are all related to adolescent well-being in Ghana (Pachan, 2012; Quarcoo, 2013). For example, Pachan (2012) in a study of adolescents in urban Ghana reported that the relationship between adolescents and their parents is critical to the mental health of the adolescents. Finally, some factors such as religion, appropriate sex education and social support have been reported to provide resources for adolescents in Ghana at meeting their psychological and emotional difficulties associated with their adolescence developmental trajectory (Ankomah, 2001; Eshun, 2003; Glozah, 2013; Osei, 2009).

**Rationale for the study**

In Ghana, population level research on mental health is limited (Read & Doku, 2012). There is an even greater scarcity of scientific evidence in Ghana on anxiety disorders among adolescents. Some studies done in Ghana have indeed looked at factors that are relevant to adolescent development. However, as to if these factors are implicated in a predominantly adolescence-tagged anxiety disorder like GAD is unknown. A few of these studies were directly

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linked to the psychological well-being of young people (e.g. Eshun, 2003; Glozah, 2013; Nyarko, 2014; Nyarko, 2011).

A recent study in Ghana by Ibrahim, Aryeetey, Asampong, Dwomoh and Nonvignon (2016) examined GAD among university students on the erratic power supply 'dumsor' (on and off) that was experienced nationwide. The adolescent population has not received any attention concerning this issue in Ghana. Considering the relevance of contextual differences and similarities in risk and protective factors of anxiety disorders, as well as suggestions by various researchers on the need to study general populations and the adolescent group to facilitate evidence-based context specific assessments, diagnoses and treatments, this study is justifiable.

As indicated earlier, none of the risk and protective factors in adolescent development here in Ghana have been linked to adolescents and the development of GAD. This study therefore fills the research gap in context-specific risk and protective factors of GAD in Ghana amongst general populations of adolescents. Majority of studies reviewed for this research were conducted in Western cultures, it is important to find out how these factors relate to GAD in Ghana. This will serve as a rich source of literature in future studies that may seek to trace GAD trends in Ghana.

It is expected that adolescents in the Ghanaian context with its current economic upheavals would experience high levels of generalized anxiety symptoms that would serve as markers for chronic anxiety disorders like GAD. Factors like parental economic situations, familial circumstances, and specific coping mechanisms adopted by adolescents within the Ghanaian context play a relevant role in their development. They predict exposure to everyday situations that could make an adolescent anxious and eventually develop an anxiety disorder. It is expected also that due to the different socio cultural circumstances in Obuasi and Accra, adolescents in

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these localities will report different degrees at which they are affected by the factors that are of interest in this study and GAD symptoms as a whole. Identifying these markers on time together with appropriate and timely interventions at various levels of analyses (intrapersonal, interpersonal, groups and structural levels) go a long way to safeguard the mental health of adolescents in Ghana.

**Statement of hypotheses**

The following hypotheses were formulated and tested:

1. Adolescents' demographics will significantly affect their GAD symptoms.
2. Adolescents' parental perceptions will significantly predict GAD symptoms
3. Non-productive coping style will significantly predict GAD symptoms among adolescents
4. Religiosity will significantly predict GAD symptoms among adolescents
5. Peer pressure will significantly predict GAD symptoms among the adolescents
6. Self-esteem will significantly predict GAD symptoms among the adolescents
7. Female adolescents will score higher on predictors of GAD symptoms than male adolescents
8. Adolescents in Accra will score lower on predictors of GAD symptoms than adolescents in Obuasi.

**Operational definition of terms**

**Adolescents' demographics:** Gender of adolescents (male and female), location (Accra and Obuasi).

**Chapter summary**

The ecological systems' theory of development, the psychosocial theory of development and the transactional model of stress formed the framework for this study. They postulate that adolescent's psychosocial development is embedded in complex systems amidst the identity dilemma they must solve. Those who perceive themselves as resourceful enough to cope and as such, employ effective skills are protected from possible adverse effects. This study fills the mental-health research gap on GAD and its correlates among adolescents in Ghana.



## CHAPTER THREE

### Methodology

#### Introduction

This chapter captures the detailed procedures that were followed in the course of data collection, instruments that were used, how scoring was done and data analyzed to test the hypotheses of the study. It also entails a detailed description of the design of the study, the population of the study, sample and sampling techniques, inclusion and exclusion criteria as well as ethical considerations that were employed in gathering data from participants.

#### Research setting

The study was conducted in two regions in Ghana: Greater Accra Region and the Ashanti Region. Adolescent populations within these regions are high. For example, the regional level analytical report by the Ghana Statistical Service (GSS, 2013), shows that, the percentage of young people aged between 10 and 19 years constitute 30.9% of the total population of Ashanti region (4,780,380) whereas this youthful population constitute 19.3% of the total population of 4,010,054 in the Greater Accra region of Ghana.

The Obuasi Municipality in the Ashanti Region has one of the highest adolescent populace in the country with an estimated number of 42,558 adolescent inhabitants, which constitute 25.24% of the total population (168,641) in the municipality (GSS, 2014). Obuasi is the capital town of the municipality and being a mining community, several psychosocial and economic challenges such as parental neglect, child labour, school dropout and high incidence of youth and adolescent crime exist in daily life (Sarfo-Mensah, Adjaloo, & Donkor, 2010). It is therefore an interesting setting for the study of psychological experiences of adolescents.

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Within the Greater Accra Region, Accra was chosen because as a national and regional capital, its cosmopolitan nature attracts inhabitants with diverse ethnic and socio-economic background. Migration, trade and industry, dense populations, quest for greener pastures due to economic hardships etc. may typically influence the lives and psychosocial development of adolescents living there.

Besides their large adolescent populations, the two sites were deemed very good settings for examining various factors that influence adolescent anxiety and the dynamics of adolescent risk and protective factors within an urban capital (Accra central in the Greater Accra region) and a peri-urban mining town (Obuasi in Ashanti region).

In Obuasi, the questionnaires were administered to adolescents in two public schools; the Obuasi Complex Junior High School and Christ the King Senior High School. In Accra, the questionnaires were administered to adolescents in two schools; the Calvary Number 1 Junior High School and the Kinbu Senior High Technical School which are also public schools within the Accra Metropolis.

**Population/sample of the study**

The population of this study was male and female adolescents from the chosen public schools within the selected study settings. Two schools were selected from each site; one Senior High School and one Junior High School. In all 4 public schools were selected. Purposive sampling technique was used in selecting students who were between the ages of 13 and 19 years from these schools. Only adolescent who lived within the two selected study settings (Obuasi and Accra) and attend the chosen public schools were eligible. They were also required to be willing to partake in the study- participation was voluntary.

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A total of three hundred and five (305) questionnaires were administered to the participants (140 in Obuasi and 165 in Accra). This sample size was deemed adequate based on sample size determination formula for regression by Tabachnick and Fidell (2007), i.e.  $N > 50 + 8m$ , ( $m$  = number of predictors). The study had 6 predictors therefore 300 adolescents were adequate. Five (5) were rendered invalid (i.e. students did not fill out demographic information, responded to same set of answers on all scales, or left entire scales blank). The mean age of respondents was 16.09 years ( $SD=1.75$ ). The demographic characteristics of the participants are provided in Table 1 below.

Table 1

*Demographic characteristics of participants (N = 300)*

<b>Variables</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Gender</b>		
<i>Male</i>	147	49.0
<i>Female</i>	153	51.0
<b>Age</b>	<i>M = 16.09, SD = 1.75</i>	
<b>Location</b>		
<i>Obuasi</i>	137	45.7
<i>Accra</i>	163	54.3
<b>Academic Level</b>		
<i>JHS</i>	138	46.0
<i>SHS</i>	162	54.0
<b>Religion</b>		
<i>Christianity</i>	235	78.3
<i>Islam</i>	41	13.7
<i>Other</i>	24	8.0
<b>Lives with</b>		
<i>Both parents</i>	187	62.3
<i>Mother</i>	51	17.0
<i>Father</i>	18	6.0
<i>Other</i>	44	14.6
<b>Works</b>		
<i>Yes</i>	45	15.0
<i>No</i>	255	85.0

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Female adolescents (51.0%) were slightly more than their male counterparts (49.0%). 54.3% of the sample was from Accra and 45.7% from Obuasi. There were 54.0% of them in senior high school and 46.0% in junior high school. In terms of class distribution, 38.0% of them were in first year, 43.7% in second year and 18.3% of them were in third year. Majority (62.3%) of the sample lived with their parents and 85.0% of them were not employed.

**Instruments**

A survey questionnaire made up of 2 sections (A and B) was used for data collection for this study. The questionnaire had various instructions for respondents to read and understand as well as seek clarification on at each section before responding.

Section A assembled data on demographic variables. It entailed questions on participants' age, gender, religion, educational level as well as other personal characteristics that were relevant to the study (see Appendix V). Section B had six (6) Scales including the Screen for Child Anxiety Related Emotional Disorders (SCARED), Perceptions of Parents Scales (POPS), Rosenberg Self Esteem scale, Jessor's Value on Religion Scale, Peer Pressure Questionnaire and the Adolescent Coping Scale.

The Screen for Child Anxiety Related Emotional Disorders (SCARED) developed by Birmaher et al. (1997) was used to measure GAD symptoms among adolescents. The SCARED is a self-report questionnaire designed to measure anxiety disorder symptoms among children and adolescents. It originally has 41 items that measure 5 factors commensurate with classifications and diagnosis of youth anxiety disorders used by the DSM-IV. The GAD subscale which was used in this study measures persistent unspecified worry over a range of areas in a person's life for a period of 3 months. It has 9 items corresponding to question numbers 5, 7, 14,

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21, 23, 28, 33, 35 and 37 on the full 41- item scale. Some items on the scale were “I worry a lot, “I’m worried about how well I do things”, and “I worry about being as good as other kids”. It was measured on a 4-point likert scale ranging from 0=Not true to 3=Always true. In this study, one item on the scale “I am a worrier” was modified to “I worry a lot” to make it clearer and easy to understand. Three new items were added to the scale to make 12 items. The three items captured 3 physiological components of GAD, fear, difficulty sleeping and inability to concentrate. This was relevant because a diagnosis of youth GAD requires the endorsement of at least one associated symptom (Bernstein & Victor, 2010). They were “I have difficulty sleeping or staying asleep, “I am afraid something bad will happen” and “I worry so much I can’t think or concentrate. Items were averaged to compute a mean score, with higher mean scores indicating greater reports of GAD symptoms. The SCARED has demonstrated good reliability and construct validity in a number of studies in which it was used to assess GAD symptoms among adolescents (Hale et al., 2011). For the current study, reliability (Cronbach’s alpha) was 0.89.

The college-student version of the Perceptions of Parents Scales (POPS) designed by Robbins (1994), was used to measure adolescents’ perceptions or thoughts about their parents’ involvement, warmth and autonomy support in various aspects of their lives. The involvement subscale included items like “my parent is not very involved with my concerns”, “my parent finds time to talk to me”. Items on the warmth subscale included “my parent makes me feel special”, “my parent is typically happy to see me”, and the autonomy support subscale had items like “my parent allows me to decide things for myself” and “my parent is usually willing to consider things from my point of view”. It was measured on a 7-point likert Scale which ranged from 1 “strongly disagree” to 7 “strongly agree”. The original scale separated mother and father on the same sets of questions and asked respondents to respond to the questions about their

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mother/father or a father/mother figure in their house. It also required respondents to leave the space blank if they had no contacts with one of their parents and had no adult figure of the same gender playing the role of that parent. In this study participants' living arrangements had already been catered for at the demographics section (Section A). Therefore "mother" or "father" was replaced with "parent". Some items on the scale included "my parent seems to know how I feel about things", "my parent listens to my opinion or perspective when I have got a problem". The Cronbach's Alpha of the full scale in this study was .81. The reliability of the subscales are as follows: parental autonomy support ( $\alpha=.80$ ), parental warmth ( $\alpha=.81$ ) and parental involvement ( $\alpha=.81$ ).

The 10-item Rosenberg Self-Esteem scale (RSE) (Rosenberg, 1965) is reported to be the most broadly used scale of self-esteem and assesses a person's overall valuation of his or her worth as a human being. According to Whiteside-Mansell and Corwyn (2003), the RSE was originally developed for use in an adolescent population. It is one-dimensional (Single factor) and all 10 items on the scale are not equally discriminating and differentially linked to self-esteem (Gray-Little, Williams & Hancock, 1997). It measures a person's positive and negative feelings about themselves on a 4-point likert scale that ranges from 1 "Strongly agree" to 4 "Strongly disagree". It was required of participants to rate the extent to which they agreed to the statements about themselves. Sample statements included "I wish I could have more respect for myself". The reliability for this measure was 0.85.

The Adolescent Coping Scale (ACS; Frydenberg & Lewis, 1993) weighs the frequency of usage of a variety of coping strategies typically used by adolescents. The ACS is based on the transactional model of stress and coping developed by Lazarus and Folkman (1984) and found to be an effective measure of adolescent coping (Sveinbjornsdottir & Thorsteinsson, 2008). It

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identifies eighteen (18) distinct coping strategies and actions (coping actions) that accompany each of these strategies. In this study the ACS consisted of a coping action selected from each of the 18 coping strategies identified by Frydenberg and Lewis (1993), resulting in an 18-item scale. It has 3 subscales; a) reference- others coping which represents the use of strategies aimed at looking for support from others (friends, experts, deities etc.) rather than self (e.g. “ I talk to other people to see what they would do if they had the same problem”), b) non-productive coping which reflect inability to cope and as such the adoption of avoidance strategies (e.g. “I pretend as if there is no problem”) and c) productive/problem focused coping which represents a style of coping marked by working at a problem while remaining optimistic, fit, calm, and socially connected (e.g. “ I work at solving what is causing the problem”). The items were rated on a 5-point likert scale (1 “never”, 2 “sometimes” 3 “many times, 4 “almost all the time” and 5 “always”). In this study, the Cronbach’s alpha was .86 for problem-focused coping, .81 for non-productive coping, .87 for reference-other coping and .88 for the full scale.

The Jessor’s Value on Religion Scale was developed by Jessor and Jessor (1977) and adapted by Wallace (2007). The Wallace adapted version had 28 items, however 8 items were deemed irrelevant to the current study and were taken out completely resulting in a 20-item self-rated measure of the values adolescents place on religion and its role in their daily lives. It was rated on a 4-point likert scale (1=not important, 2=a little important, 3=pretty important and 4=very important). Some items on the scale are “To believe in God,” “To rely on your religious beliefs as a guide for day-to-day living.” The scale has demonstrated good internal consistency reliability (.78–.81) over assessments (Wills et al., 2003). In the present study, Cronbach’s Alpha was .86.

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The 9-item Peer Pressure Questionnaire (PPQ) was adapted from the National Institute of Child Health and Human Development (NICHD) study of Early Child Care and Youth Development (United States Department of Health and Human Services, 2005). Respondents are required to tick one answer to each statement that best applies to them concerning how much they go along with their friends on a 3-point likert scale (“agree”, “disagree” or “maybe”). Sample items on the Scale include “I would break the law if my friends say they would”, “I act in the same way when I am alone as I do when I am with my friends”. The reliability of the scale was ( $\alpha=.83$ )

**Research design**

A quantitative research design was employed in conducting this study. The quantitative method was used because of its ability to quantify data from a larger group of people which was in line with what this study sought to do. It is also known to give researchers the power to generalize the findings of the study, measure two or more variables, test a number of hypotheses and examine the relationship that exist between different variables using statistical techniques (Babbie, 2007). A cross-sectional survey was employed and questionnaires were administered to adolescents within the study setting to gather their demographic information and their responses on various scales. These responses were collated, scored and analyzed for the study.

**Procedure**

Any research using human participants require very high ethical standards (Declaration of Helsinki IV, 1989). In keeping with these ethical principles, the study began with obtaining ethical clearance from the Ethics Committee for Humanities (ECH) of University of Ghana by submitting a research protocol for approval by the committee (see Appendix II). This was very

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essential as it ensured that acceptable procedures are followed in carrying out the research and also to prevent abuse of study participants.

The protocol entailed a detailed description of the intended procedure for conducting the research. Hence, it guaranteed the researcher's intent to; explain the nature and purpose of the study to participants who were approached for the study; give informed consent, seek assent and also parents/guardians consent. Participants' right to voluntary participation, withdrawal at any point in time without explanation or penalty as well as their privacy and confidentiality were key inclusions to the protocol documents required. The protocol was approved after 6 weeks of submission (see Appendix I). After, an introductory letter and a sample of the questionnaire were sent to the heads of the various schools to seek their approval and make arrangements towards the pilot and thereafter, the main study.

**The pilot study.** The pilot served the purpose of establishing the psychometric properties of the scales to be used for the study since scales' psychometric properties are relevant in determining their appropriateness for any study. It again sought to evaluate and address challenges with design and procedure before proceeding with the main study. Two days were spent at each study site in the course of the pilot study. A sample size of 30 students was used for pilot study (Connelly, 2008). They consisted of 13 adolescent boys and 17 adolescent girls. The ages of the pilot sample ranged between 14 years to 19 years, with a mean age of 16.34 years (SD = 3.8years). Eighteen (18) of them were in Junior High School (JHS) and 12 of them were Senior High School (SHS) students. The sample consisted of 7, 12 and 11 adolescents in forms 1, 2 and 3 respectively. Majority (76.3%) of the pilot sample were Christians.

The pilot study brought to light some challenges with the questionnaire and its administration. For example, the pilot was conducted after school hours when students were tired

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and hungry. This made it quite difficult to get them interested in and concentrated on the questionnaire. Hence, the main study was conducted in the mornings when they were expected to be more alert. Again, since the scales were developed in cultural settings different from that of the respondents', the pilot helped to ascertain adolescents' understanding of the phrases and words as well as what each of the scales on the questionnaire required of them. There were a number of words and sentences that most participants sought clarification on, these words were modified or operationally defined to provide uniform explanation to all participants during the main study. For example, "I criticize myself" was operationally defined as "to blame or condemn oneself", and "I am a worrier" was modified to "I worry a lot". Students answered the questionnaires in approximately 45 minutes. The Cronbach's alpha values from the pilot study are provided in Table 2.

*Table 2*  
*Reliability values of piloted scales*

<b>Scales</b>	<b>No. of full scale items</b>	<b>Cronbach's alpha</b>
General Anxiety Disorder Scale	12	.824
Parental Perception Scale	20	.849
Adolescent Coping Strategies Scale	18	.833
Adolescent Religiosity Scale	20	.810
Peer Pressure Scale	9	.831
Self-esteem Scale	10	.848

According to Tabachnick and Fidell (2007), 0.75 – 0.90 should be the range of acceptable internal consistency of a scale. Table 2 shows that the Cronbach's Alpha ( $\alpha$ ) values of the scales and their sub-scales range between .81 and .85 indicating high internal consistencies. Therefore, the scales and their sub-scales were judged to be reliable for the study.

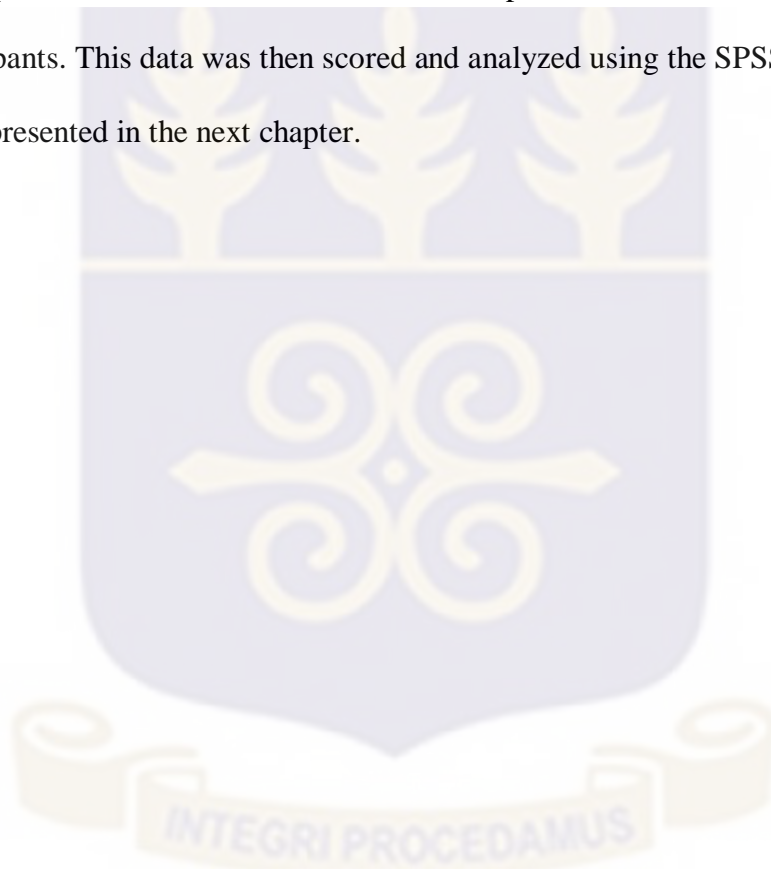
## RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS

**The main study.** After the pilot study, the main study was conducted. The first week of the fieldwork was used to recruit participants for the study and book appointments for survey administration at the various schools. At Kinbu and Calvary in Accra, head teachers appointed a class teacher each to supervise the process. Teachers and administrators distributed parental consent forms to interested students prior to the study and adolescents whose parents consented were also given an assent/consent form that described the study and other information relevant to study participants to sign (see Appendix III and IV). Participants were then administered the questionnaires in various classrooms allotted for the study. In Obuasi, data collection took longer than expected as the students returned the parental consent forms in batches thus, data was not collected in bulk as was the case in Accra, where most forms had been returned by the first day scheduled for data collection in the selected schools.

Throughout the study, students were provided with further information and their questions were addressed. Students were encouraged to be as truthful in their responses as possible. They were debriefed and appreciated for their time and willingness to partake in the study. As earlier indicated, students who requested for therapy were seen in individual sessions to address their concerns after the study and were directed on where to go for further help. A short meeting was held with school counselors in Kinbu and Christ the King senior secondary schools who were enthused about the study and requested that further interventions be planned based on the research findings. It took approximately 40-55 minutes for students to finish answering the questionnaires. The field work in the form of data collection took place from mid-February to mid-April 2017.

**Chapter summary**

The research was conducted in two settings within two regions in Ghana (Ashanti and Greater Accra) due to large adolescent populations in these regions as well as peculiar social dynamics in these settings (i.e. Obuasi being a mining town and Accra being the capital town of the Capital city of Ghana). Questionnaires were administered to a sample of 300 adolescent students in selected Senior and Junior high schools to gather their demographic information as well as their responses on reliable scales. Due ethical procedures were followed in collecting data from participants. This data was then scored and analyzed using the SPSS software (Version 20). Results are presented in the next chapter.



## CHAPTER FOUR

### Results

#### **Preliminary data analysis**

This sub-section contains all preliminary analyses that were conducted on the data to prepare for inferential statistical analyses. Among the preliminary analysis conducted here were assessments of normality of the data, checking the reliability of the scales, checking the distribution of the data and examining correlations between the variables.

**Reliability analysis.** The researcher began preliminary analyses with checking the reliability of the scales. Reliability assesses the ability of the scales used to yield consistent scores among the same participants at different time intervals (Bryman (2015). Scales that have high reliability coefficient are deemed to be trustworthy for research.

According to Tashakkori and Teddlie (2010), a scaled is considered reliable if its reliability coefficient is above 0.70. The most common way of calculating reliability coefficient is the use of the Cronbach's alpha coefficient. The Cronbach's alpha coefficient looks at the internal consistency among items on the scale (Cho & Kim, 2015). As shown in Table3, the all the Cronbach;s alpha values range between  $\alpha = .802$  and  $\alpha = .898$ . Cronbach's alpha values above the cut-off point of .70, show high reliability. Therefore the scales were all reliable and as such appropriate for the study.

#### **Descriptive statistics and assessment of normality.**

The normality of distribution of data is examined using the skewness and the kurtosis values. These values screen for any outliers in the data and also check for the distribution of scores (Cohen, Manion & Morrison, 2013; Fidell & Tabachnick, 2003). According to Tabachnick and Fidell (2007), a data is said to be normally distributed when the skewness values

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are within the ranges of +1.00 and -1.00 and the kurtosis values are within the ranges of +2.00 and -2.00. As shown in Table 3, values for skewness (-.936 to .516) and kurtosis (-.626 to 1.506) are within the acceptable limit. The data is thus, normally distributed.

Table 3

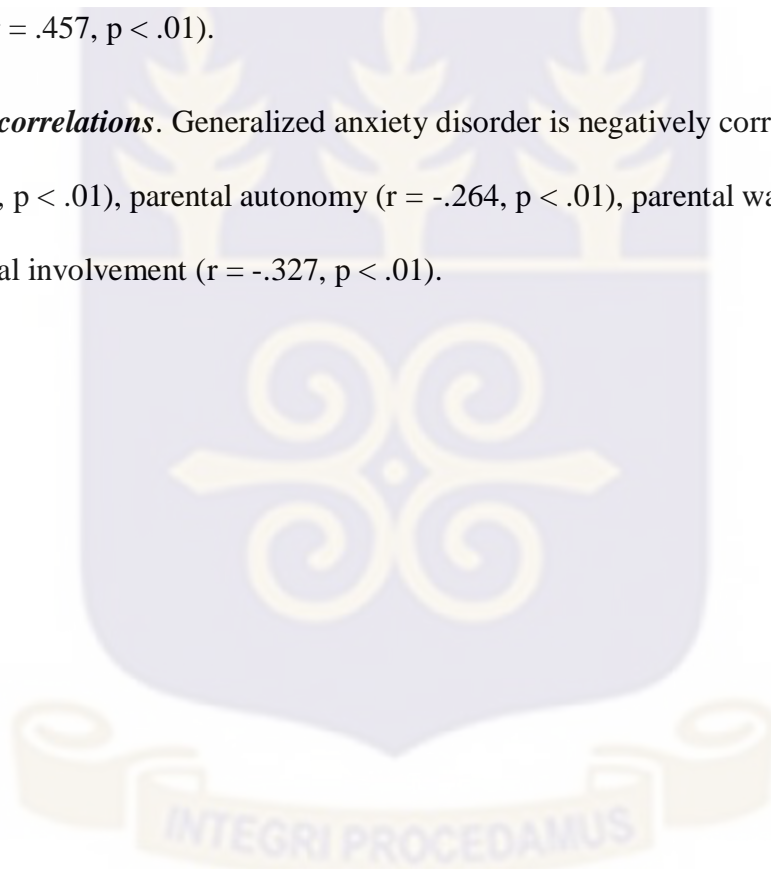
*Descriptive statistics of scores and reliability of scales*

Variables	Cronbach's						
	alpha ( $\alpha$ )	Min.	Max.	M	SD	Skewness	Kurtosis
GAD	.898	.00	31.00	14.74	6.26	.105	-.532
Parental Perception	.812	50.00	126.00	91.41	15.40	-.359	-.245
Parental Autonomy	.802	15.00	53.00	35.40	6.95	-.059	-.241
Parental Warmth	.811	8.00	35.00	26.32	6.06	-.879	.157
Parental Involvement	.805	11.00	42.00	29.69	6.34	-.321	-.159
Adolescent Coping	.875	27.00	73.00	47.37	8.28	.433	.687
Problem-focused Coping	.862	7.00	30.00	17.41	4.32	.516	.267
Non-productive Coping	.808	6.00	28.00	14.89	4.07	.419	.173
Reference other Coping	.865	7.00	22.00	15.07	3.24	-.018	-.526
Adolescent Religion	.859	28.00	80.00	64.29	8.48	-.936	1.506
Peer Pressure	.833	12.00	25.00	19.00	2.81	-.006	-.626
Self Esteem	.846	12.00	33.00	21.32	4.39	.036	-.613

**Correlation between variables.** The correlation matrix shows the relationships that exist between the variables in the study. Correlations between variables were computed using the Person  $r$  (Cohen et al., 2013). The results are provided in Table 4.

**Positive correlations.** There was a significant positive correlation between GAD and adolescent coping ( $r=.298$ ,  $p < .0$ ). However only non-reproductive coping among adolescents was significant ( $r = .457$ ,  $p < .01$ ).

**Negative correlations.** Generalized anxiety disorder is negatively correlated with self-esteem ( $r = -.242$ ,  $p < .01$ ), parental autonomy ( $r = -.264$ ,  $p < .01$ ), parental warmth ( $r = -.194$ ,  $p < .01$ ) and parental involvement ( $r = -.327$ ,  $p < .01$ ).



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Table 4

Intercorrelations between study variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1. GAD	1											
2. Peer Pressure	-.097	1										
3. Self Esteem	-.242**	-.349**	1									
4. Adolescent Religiosity	.013	.208**	-.233**	1								
5. Parental Perception	-.330**	.205**	-.302**	.174**	1							
6. Parental Autonomy	-.264**	.163**	-.230**	.133*	.801***	1						
7. Parental Warmth	-.194**	.124*	-.261**	.215**	.774***	.402**	1					
8. Parental Involvement	-.327**	.201**	-.233**	.071	.812***	.464**	.484**	1				
9. Adolescent Coping	.298**	.007	-.103	.217**	-.024	-.030	.061	-.084	1			
10. Problem-focused Coping	.090	.049	-.191**	.215**	.158**	.096	.195**	.092	.772***	1		
11. Non-productive Coping	.457**	-.163**	.172**	-.040	-.381**	-.257**	-.258**	-.398**	.644***	.151**	1	
12. Reference other Coping	.067	.157**	-.226**	.319**	.207**	.118*	.221**	.163**	.719***	.452**	.188**	1

\* Significant at  $p < .05$ ; \*\* significant at  $p < .01$ ; \*\*\* significant at  $p < .001$

## **Factor Analysis**

Factor analyses using Principal Axis Factoring (PAF) with varimax rotation were conducted. This was done for scales that had sub-scales. In this study the scales with sub-scales are the Parental perception and the Adolescent coping scales. Factor analysis was conducted to examine the underlying structure of the variables among adolescents within the Ghanaian context. Factor loadings were set at .30 for all the scales (Tabachnick & Fidell, 2007).

The assumption of sampling adequacy was assessed using Kaiser-Meyer-Olkin (KMO) test and the number of factors to be extracted was determined using eigenvalues greater than 1 and scree plot (Pallant, 2010). It was expected that all items that measure the same construct load onto the same factor (Tabachnick & Fidell, 2007). See appendix VI.

**Parental Perception Scale.** . Sampling adequacy using KMO test was found to be significant (KMO = .842,  $\chi^2 = 1408.329$ ,  $p < .001$ ). Three factors were extracted after inspecting eigenvalues of two factors exceeding 1 and the scree plot, where it was observed to have levelled out after the second factor (see Appendix VI). In this study all 20-items on the scale loaded under three factors consistent with the three factor model of the perceptions of parents scale by the author Robbins (1994). The items on the sub-scales recorded high internal consistencies; parental autonomy support (6-items;  $\alpha = .80$ ), parental warmth (9-items;  $\alpha = .81$ ) and parental involvement (5-items;  $\alpha = .81$ ) Robbins (1994). The results from the factor analysis confirmed the authors claim that truly, three (3) key variables (factors) best describe an adolescent's worldview of their parents. The three factors explained a cumulative variance of 61.35%. Factor analysis results for the Parental Perception Scale are summarized in Table 5 below.

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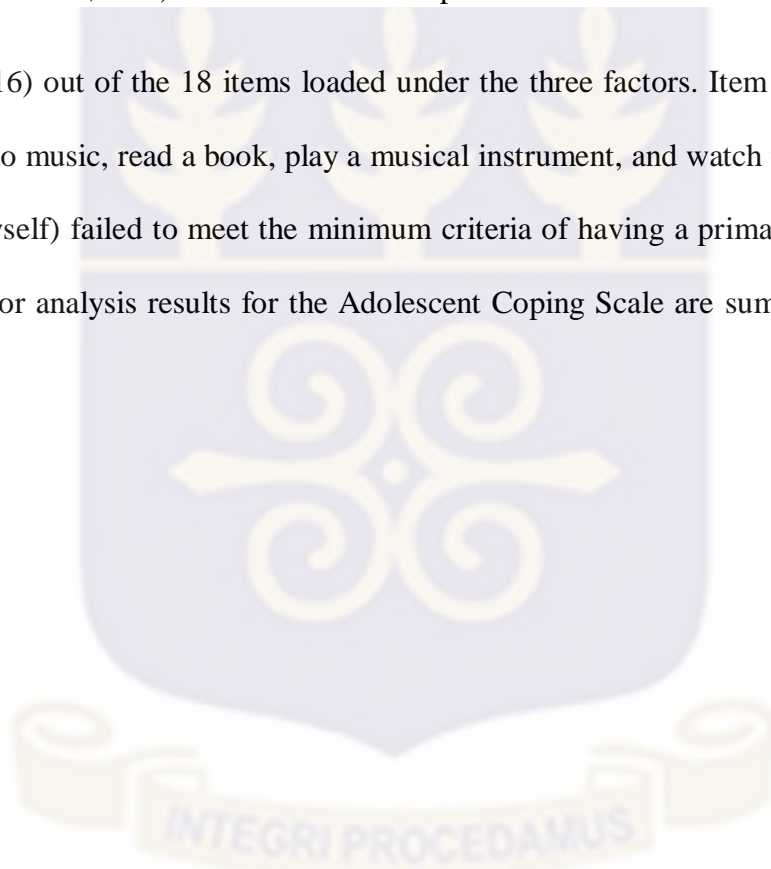
Table 5

Factor loadings based on a Principal Axis Factoring with Varimax Rotation for Parental Perception Scale (N = 300)

No.	Items	Factor		
		Warmth	Involvement	Autonomy
1	My parent seems to know how I feel about things.	<b>.482</b>	-.032	.044
3	My parents find time to talk to me	<b>.572</b>	-.061	.042
4	My parent accepts me and likes me as I am.	<b>.524</b>	-.173	.030
7	My parent clearly conveys her love for me.	<b>.572</b>	-.067	.073
8	My parent listens to my opinion or perspective when I've got a problem.	<b>.615</b>	-.149	.275
9	My parent spends a lot of time with me.	<b>.565</b>	-.047	.071
10	My parent makes me feel very special.	<b>.673</b>	-.151	.275
18	My parent puts time and energy into helping me.	<b>.520</b>	-.206	.154
16	My parent is typically happy to see me.	<b>.535</b>	-.117	.119
20	My parent seems to be disappointed in me a lot.	-.201	<b>.537</b>	.140
12	My parent often seems too busy to attend to me.	-.102	<b>.474</b>	.155
13	My parent is often disapproving and un-accepting of me.	-.008	<b>.686</b>	-.159
15	My parent is not very involved with my concerns.	-.015	<b>.570</b>	-.045
6	My parent doesn't seem to think of me often.	-.062	<b>.349</b>	-.044
5	My parent, whenever possible, allows me to choose what to do.	.104	-.027	<b>.474</b>
11	My parent allows me to decide things for myself.	.092	.059	<b>.544</b>
19	My parent helps me to choose my own direction.	.241	-.022	<b>.342</b>
17	My parent is usually willing to consider things from my point of view.	.293	-.054	<b>.592</b>
2	My parent tries to tell me how to run my life	.094	.105	<b>.574</b>
14	My parent insists upon my doing things their way.	.033	.193	<b>.351</b>
	<i>% variance explained</i>	<i>30.65%</i>	<i>19.11%</i>	<i>11.45%</i>

**Adolescent Coping Scale.** Sampling adequacy using KMO test was found to be significant (KMO = .715,  $\chi^2 = 600.996$ ,  $p < .001$ ). Three factors were extracted after inspecting eigenvalues of two factors exceeding 1 and the scree plot, it was observed to have levelled out after the second factor (see Appendix VI). The three factors observed from this study fitted Frydenberg and Lewis's proposed three factor structure and recorded high internal consistencies; non-productive coping (5-items; 0.81), reference-other coping (6-items; 0.87) and problem focused coping (5-items; 0.86). The three factors explained cumulative variance of 63.15%.

Sixteen (16) out of the 18 items loaded under the three factors. Item 14 (I find a way to relax; e.g. listen to music, read a book, play a musical instrument, and watch television) and item 16 (I criticize myself) failed to meet the minimum criteria of having a primary factor loading of .3 or above. Factor analysis results for the Adolescent Coping Scale are summarized in Table 6 below.



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Table 6

Factor loadings based on a Principal Axis Factoring with Varimax Rotation for Adolescent Coping Scale (N = 300)

No.	Items	Factor		
		Problem-focused Coping	Reference-other Coping	Non-productive Coping
2	I work at solving what is causing the problem	<b>.485</b>	-.022	.134
3	I talk to my parents/mother/father	<b>.494</b>	-.144	-.175
7	I make a good impression on others who matter to me	<b>.328</b>	.119	.018
13	I ask a professional person for help (e.g. counselor, teacher, medical professional)	<b>.550</b>	.219	-.111
18	I exercise or engage in other activities and sports	<b>.355</b>	-.055	-.024
9	I just give up	.012	<b>.423</b>	.078
10	I cry it all out or scream	-.029	<b>.385</b>	.106
11	I organize people facing the same problem and discuss ways to solve the problem	.259	<b>.463</b>	-.126
6	I meet up with my friends and tell them about it	.139	<b>.377</b>	.057
1	I talk to other people (Friends, older people etc.) to see what they would do if they had the same problem	.151	<b>.351</b>	.103
12	I remember those who are worse off so my troubles don't seem so bad	.088	<b>.447</b>	.164
4	I pretend as if there is no problem	-.043	.221	<b>.435</b>
5	I worry about my future	-.099	.015	<b>.380</b>
8	I hope for the best	.255	-.288	<b>.343</b>
15	I let God take care of my worries	.290	-.240	<b>.355</b>
17	I keep my feelings to myself	.020	.032	<b>.422</b>
16	I criticize myself	-.033	.152	.168
14	I find a way to relax; e.g. listen to music, read a book, play a musical instrument, and watch television)	.088	.107	.164
<i>% Variance explained</i>		<i>31.09%</i>	<i>21.73%</i>	<i>10.33%</i>

*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS***Group differences in General Anxiety Disorder Symptoms**

Mean differences in GAD symptoms among the adolescents were also examined. The groups included in the mean comparison were gender (males and females), location (Obuasi and Accra), education level (JHS and SHS) and form (Form 1=JHS1 & SHS1, Form 2=JHS2 & SHS2 and Form 3=JHS3 & SHS3). A four-way analysis of variance (4-Way ANOVA) test was used to examine both main and interaction effects. The results are summarized on Tables 7 and 8.

*Table 7**Test of Between-Subject Effects for demographic variables*

<b>Source</b>	<b>Type III SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>p</b>	<b><math>\eta^2</math></b>
Gender	339.89	1	339.89	12.563	.000	.044
Education level	336.62	1	336.62	12.442	.000	.043
Class	1417.59	2	708.79	26.198	.000	.160
Location	310.20	1	310.20	11.465	.001	.040
Gender * education	54.21	1	54.21	2.004	.158	.007
Gender * class	42.79	2	21.39	.791	.455	.006
Gender * location	8.55	1	8.55	.316	.575	.001
Education * class	16.76	2	8.38	.310	.734	.002
Education * location	.034	1	.034	.001	.972	.000
Class * location	115.08	2	57.54	2.127	.121	.015
Gender * education * class	65.53	2	32.77	1.211	.299	.009
Gender * education * location	7.92	1	7.92	.293	.589	.001
Gender * class * location	60.26	2	30.13	1.114	.330	.008
Education * class * location	38.83	2	19.42	.718	.489	.005
Gender * education * class * location	33.79	2	16.89	.625	.536	.005

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Table 7 shows that there are significant differences in mean scores of GAD symptoms. Thus, gender ( $F = 12.563$ ,  $p < .001$ ), education ( $F = 12.442$ ,  $p < .001$ ), class ( $F = 26.198$ ,  $p < .001$ ) and location ( $F = 11.465$ ,  $p < .01$ ). There was no significant interaction effect. This means that females, adolescents in Obuasi, adolescents in JHS and those in form 1 reported higher symptoms of GAD. These factors individually predicted GAD symptoms.

*Table 8**Descriptive Statistics of Mean Scores*

<b>Variable</b>	<b>Category</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>
Gender	Male	147	12.74	5.78
	Female	153	16.68	6.12
Education level	JHS	138	14.93	6.75
	SHS	162	14.74	6.26
Form	Form 1	114	16.68	5.87
	Form 2	131	15.49	5.92
	Form 3	55	9.19	4.44
Location	Obuasi	137	16.33	6.00
	Accra	163	13.08	6.12

From Table 8, the female adolescents had higher scores ( $M = 16.68$ ,  $SD = 6.12$ ) than male adolescents ( $M = 12.74$ ,  $SD = 5.78$ ) on GAD symptoms. Adolescents in Form 1 recorded higher GAD symptoms ( $M = 16.68$ ,  $SD = 5.87$ ) than those in Form 2 ( $M = 15.49$ ,  $SD = 5.92$ ) and those in Form 3 ( $M = 9.19$ ,  $SD = 4.44$ ). Adolescents in Obuasi recorded higher GAD symptoms ( $M = 16.33$ ,  $SD = 6.00$ ) than the adolescents in Accra ( $M = 13.08$ ,  $SD = 6.12$ ). Table 8 tests whether the differences in means between the groups are significant.

**Psycho-social predictors of GAD symptoms among adolescents**

Hierarchical multiple regression analysis was done to examine the effects of the independent variables that have hypothesized to predict on GAD symptoms among adolescents. In testing the model, demographic characteristics of participants that had significant mean differences (gender, location, education level and form) were controlled for. Controlling these demographic variables helped to examine the unique effect of the predictors on GAD symptoms (Pallant, 2010; Tabachnick & Fidell, 2007).

Certain assumptions must be met before hypotheses are tested using multiple regression. The assumption of multicollinearity is tested to ensure that the variables being included in the model do not measure the same thing (Pallant, 2010; Tabachnick & Fidell, 2007). Because the assumption of normality has already been tested (see Table 3), the assumption of multicollinearity was assessed using Tolerance and variance inflation factor (VIF). The Tolerance values ranged between .233 and .959 while the VIF values ranged between 1.043 and 3.381, which indicates no multicollinearity

The demographic variables that are categorical were ‘dummy’ coded before they were included in the model. In dummy coding gender, females were used as reference category (female = 1, male = 0), in dummy coding location, Obuasi was used as reference category (Obuasi = 1, Accra = 0), in dummy coding education, JHS was used as reference category (JHS = 1, SHS = 0), in dummy coding class, Form 1 was used as reference category (Form 1 = 1, others = 0). The control variables were put into the model in step 1. Parental factors (parental perceptions) that influence adolescence were put in step 2. Adolescent coping mechanisms in step 3, and factors that influence adolescents’ social behaviours (religiosity, peer pressure and self-esteem) were put in step 4. The results are summarized on Table 9 below.

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Table 7

Summary of Hierarchical Multiple Regression of Predictors of Adolescents' GAD Symptoms

Model		<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
1	Age	.199	.239	.056	.836	.404
	Females	2.586	.640	.207	4.042	.000
	Obuasi	1.991	.620	.159	3.212	.001
	JHS 1	1.117	.849	.089	1.316	.189
2	Parental Autonomy	-.062	.052	-.069	-1.207	.228
	Parental Warmth	.007	.061	.007	.122	.903
	Parental Involvement	-.204	.063	-.206	-3.262	.001
3	Problem-Focused Coping	.097	.080	.067	1.208	.228
	Non-productive Coping	.482	.088	.314	5.469	.000
	Reference Other Coping	.059	.114	.031	.519	.605
4	Adolescent Religion	.019	.040	.025	.469	.639
	Peer Pressure	-.008	.120	-.003	-.064	.949
	Self-esteem	-.169	.080	-.118	-2.119	.035

Model 1:  $R = .391$ ;  $R^2 = .153$ ; Adjusted  $R^2 = .144$ ;  $\Delta R^2 = .153$ ;  $F = 17.809$ ;  $df1 = 3$ ;  $df2 = 296$ ,  $p < .001$

Model 2:  $R = .472$ ;  $R^2 = .223$ ; Adjusted  $R^2 = .207$ ;  $\Delta R^2 = .070$ ;  $\Delta F = 8.819$ ;  $df1 = 3$ ;  $df2 = 293$ ,  $p < .001$ ;

Model 3:  $R = .570$ ;  $R^2 = .325$ ; Adjusted  $R^2 = .304$ ;  $\Delta R^2 = .112$ ;  $\Delta F = 14.633$ ,  $df1 = 3$ ,  $df2 = 290$ ,  $p = .330$ .

Model 4:  $R = .681$ ;  $R^2 = .437$ ; Adjusted  $R^2 = .410$ ;  $\Delta R^2 = .102$ ;  $F = 12.182$ ;  $\Delta F = 3.031$ ,  $df1 = 3$ ,  $df2 = 287$ ,  $p < .05$ .

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From Table 9, the overall model was found to be significant ( $F = 12.182, p < .001$ ) and accounted for 43.7% variance in GAD symptoms ( $R^2 = .437$ ). In step 1, only gender and location significantly predicted GAD among the adolescents ( $F = 17.809, p < .001$ ) accounting for 15.3% variance in GAD symptoms ( $R^2 = .153$ ). Compared to male adolescents, female adolescents experience higher GAD symptoms ( $\beta = .207, t = 4.042, p < .001$ ). Adolescents in Obuasi experience higher GAD symptoms ( $\beta = .159, t = 3.212, p < .01$ ) than those in Accra.

In step 2, adolescent parental perception predicted GAD symptoms ( $\Delta F = 8.819, p < .001$ ) which accounted for 7.0% additional variance ( $\Delta R^2 = .070$ ). However, only the parental involvement sub-scale was significant ( $t = -3.262, p < .01$ ). Thus, a unit improvement in perceived parental involvement is associated with 20.6% reduction in GAD symptoms among the adolescents ( $\beta = .206$ ).

In step 3, adolescents' coping strategies significantly predicted GAD ( $\Delta F = 14.633, p < .001$ ) accounting for 11.2% additional variance ( $\Delta R^2 = .112$ ). Table 9 shows that only non-productive coping sub-scale was significant ( $t = 5.469, p < .001$ ). A unit increase in non-productive coping is associated with 31.4% increase in GAD symptoms among the adolescents ( $\beta = .314$ ).

In step 4, a block of variables that directly influence adolescents' social behaviours (adolescent religiosity, peer pressure and self-esteem) together predicted GAD symptoms ( $\Delta F = 3.031, p < .05$ ) and also accounting for 10.2% additional variance ( $\Delta R^2 = .102$ ). However, only self-esteem was significant ( $t = -2.119, p < .05$ ). A unit increase in adolescents' self-esteem is associated with 11.8% reduction in GAD symptoms among the adolescents ( $\beta = -.118$ ).

**Comparing differences in location and predictors of GAD Symptoms among Adolescents**

A comparison of predictors of GAD symptoms among adolescents in Obuasi and Accra shows that, GAD symptoms among adolescents in Accra is increased by an increase in non-productive coping ( $\beta = .362$ ,  $t = 4.418$ ,  $p < .001$ ) and reduced parental autonomy ( $\beta = -.313$ ,  $t = -3.444$ ,  $p < .01$ ). However, among adolescents in Obuasi, GAD symptoms is increased by both non-productive coping ( $\beta = .348$ ,  $t = 4.026$ ,  $p < .001$ ) and a reduced parental involvement ( $\beta = -.279$ ,  $t = -2.913$ ,  $p < .01$ ). Also, GAD symptoms among adolescents in Accra is increased by a reduced Self-esteem ( $\beta = -.243$ ,  $t = -3.064$ ,  $p < .01$ ). Results are summarized in Table 10 below.

Table 8

*Predictors of GAD Symptoms among adolescents in Accra and Obuasi*

Model		Accra		Obuasi	
		B	T	B	T
1	Age	.074	.817	.042	.384
	Education level	.088	.967	.070	.641
	Form	.245**	3.355	.095	1.250
2	Parental Autonomy	-.313**	-3.444	.023	.259
	Parental Warmth	.008	.092	-.006	-.061
	Parental Involvement	-.046	-.490	-.279**	-2.913
3	Problem-Focused Coping	-.013	-.163	.140	1.688
	Non-productive Coping	.362***	4.418	.348***	4.026
	Reference Other Coping	-.004	-.046	-.032	-.351
4	Adolescent Religion	.028	.348	.059	.720
	Peer Pressure	-.077	-1.036	.038	.477
	Self-esteem	-.243**	-3.064	-.413	.680

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Comparing gender differences in the predictors of GAD symptoms among adolescents.**

Table 11 shows a comparison of predictors of GAD symptoms by gender of adolescents. The results reveal that GAD symptoms among female adolescents is only increased by non-productive coping ( $\beta = .362$ ,  $t = 4.418$ ,  $p < .001$ ). However, among male adolescents, GAD is increased by both non-productive coping ( $\beta = .319$ ,  $t = 3.615$ ,  $p < .001$ ) and a reduced parental involvement ( $\beta = -.233$ ,  $t = -2.538$ ,  $p < .01$ ). GAD symptoms among female adolescents is increased by a reduced Self-esteem ( $\beta = -.187$ ,  $t = -2.307$ ,  $p < .05$ ).

Table 9

*Predictors of General Anxiety Disorders among Male and Female Adolescents*

Model		Males		Females	
		B	T	B	T
1	Age	-.045	-.424	.144	1.433
	Education level	-.032	-.306	.178	1.788
	Form	.186*	2.340	.148*	1.988
2	Parental Autonomy	.054	.602	-.126	-1.512
	Parental Warmth	-.045	-.500	-.011	-.128
	Parental Involvement	-.233**	-2.358	-.053	-.591
3	Problem-Focused Coping	-.075	-.904	.136	1.547
	Non-productive Coping	.319***	3.615	.320***	3.808
	Reference Other Coping	.111	1.256	-.058	-.622
4	Adolescent Religion	.050	.618	.039	.469
	Peer Pressure	-.007	-.091	-.086	-1.102
	Self-esteem	.078	.908	-.187*	-2.307

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

**Differences in GAD symptoms based on living arrangements with their parents.**

The study further examined differences in GAD symptoms among the adolescents in the two locations based on the living arrangements of their parents. This was done to support the discussion of main findings on location. Thus, GAD was compared among adolescents who live with both parents, mother only, father only and those who live with other people in Accra and Obuasi. The results are summarized on Table 12.

*Table 10*

*Comparison of Differences in GAD Symptoms Based on Parental Living Arrangements among Adolescents in Obuasi and Accra*

	<b>Lives with</b>	<b>N</b>	<b>M</b>	<b>SD</b>	<b>SS</b>	<b>Df</b>	<b>MS</b>	<b>F</b>	<b>P</b>
Obuasi	Both Parents	98	15.55	5.94	330.32	3	110.11	3.189	.026
	Mother Only	25	17.84	6.18	5145.31	149	34.53		
	Father only	7	21.86	5.73	5475.62	152			
	Others	23	16.30	5.24					
Accra	Both Parents	89	12.61	6.00	145.63	3	48.54	1.305	.275
	Mother Only	26	12.88	6.67	5321.3	143	37.21		
	Father only	11	16.36	5.33	5467.0	146			
	Others	21	13.61	6.15					

The results showed significant differences in adolescent GAD symptoms among adolescents based on their parental living arrangements was significant in Obuasi ( $F = 3.189$ ,  $p < .05$ ) but not in Accra ( $F = 1.305$ ,  $p = .275$ ).

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A multiple comparison analysis (using Bonferroni test) showed that adolescents who live with their fathers only in Obuasi ( $M = 21.86$ ,  $SD = 5.73$ ) experienced the highest levels of GAD symptoms (See Table 13).

*Table 11**Multiple comparison of parental living arrangements using Bonferroni Test*

	Both Parents	Mother Only	Father only	Other
Both Parents	-			
Mother Only	2.28898	-		
Father only	6.30612***	-4.01714***	-	
Other	.75333	1.53565	5.55280***	-

\*\*\* $p < .001$

**Differences in GAD Symptoms Based on adolescent employment/working Statuses.**

To further support findings on location differences, this study assessed differences in adolescent work status and their GAD symptoms. There was found a significant difference in GAD symptoms among adolescents in Obuasi [ $t(143) = 2.809$ ,  $p < .01$ ] but not in Accra [ $t(141) = -.231$ ,  $p = .818$ ]. In Obuasi, adolescents who work ( $M = 20.11$ ,  $SD = 6.69$ ) experience higher GAD symptoms compared to those who do not work ( $M = 16.21$ ,  $SD = 5.46$ ). Results are summarized in Table 14 below.

*Table 12**GAD Symptoms Based on Working Status of Adolescents in Obuasi and Accra*

Location		Working status	N	Mean	SD	T	df	p
Obuasi	GAD	Yes	19	20.11	6.69	2.809	143	.006
		No	126	16.21	5.46			
Accra	GAD	Yes	14	12.86	4.57	-.231	141	.818
		No	129	13.26	6.28			

## **Summary of study findings**

Based on the objectives of this study, findings are summarized under four key sub-headings:

### **1. Demographic variables**

- a. Female adolescents scored significantly higher on GAD symptoms than males
- b. Adolescents in Obuasi reported significantly higher GAD symptoms than those in Accra

### **2. Predictors of Generalized Anxiety Disorder symptoms**

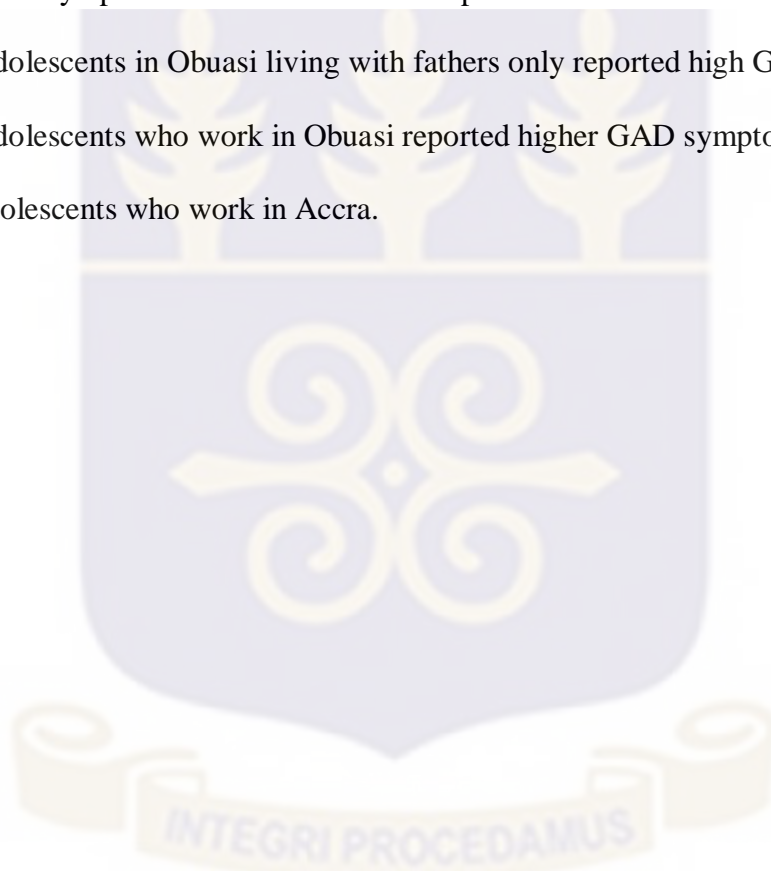
- a. Higher levels of Parental involvement was associated with reduced GAD symptoms among the adolescents
- b. Non-productive coping strategies was found to be associated with higher GAD symptoms among the adolescents
- c. Higher levels of self-esteem was associated with reduced GAD symptoms among the adolescents
- d. Peer pressure did not significantly predict GAD symptoms among adolescents
- e. Religiosity was not a significant predictor of GAD symptoms among adolescents

### **3. Gender differences in predictors of GAD symptoms among adolescents**

- a. GAD symptoms increased with higher levels of non-productive coping among both male and female adolescents.
- b. Among male adolescents, lower parental involvement increased GAD symptoms.
- c. Low self-esteem increased GAD symptoms among female adolescents

**4. Adolescents' location and predictors of General Anxiety Disorders symptoms**

- a. High self-esteem reduces GAD symptoms among adolescents in Accra but not those in Obuasi
- b. GAD symptoms were found to increase with higher levels of non-productive coping among adolescents in both Obuasi and Accra
- c. GAD symptoms increased with lower parental autonomy in Accra
- d. GAD symptoms increased with lower parental involvement in Obuasi
- e. Adolescents in Obuasi living with fathers only reported high GAD symptoms.
- f. Adolescents who work in Obuasi reported higher GAD symptoms than adolescents who work in Accra.



## **CHAPTER FIVE**

### **Discussion**

#### **Introduction**

The current study sought to examine the psychosocial risks and protective factors of GAD symptoms among adolescents in two different Ghanaian contexts; adolescents in ‘Accra central’ within the capital city of the Greater Accra region, and those in Obuasi, a peri-urban mining town in the Ashanti region. The study examined the dynamics in context-specific psychosocial predictors of GAD symptoms among the adolescents and compared gender and location differences in GAD symptoms. Results showed that factors that predispose adolescents to or protect them from GAD symptoms differ based on the different environments in which they find themselves.

In this chapter, the findings from the study are discussed to understand how these factors may predispose non-clinical sample adolescents in Ghana to GAD. Firstly, differences in demographics are discussed (gender, location, parental living arrangements and adolescent working status). It is followed by the predictors of GAD and then gender and location differences in GAD symptoms among the adolescents. The practical and theoretical implications of findings from this study on adolescent mental health in Ghana are also discussed. The chapter concludes with discussions of study limitations and makes suggestions for future research.

#### **Gender differences in GAD symptoms among adolescents**

The first purpose of this study was to compare levels of GAD symptoms reported by adolescent males and females. In line with this, findings from the study revealed that female adolescents reported significantly higher GAD symptoms than male adolescents. Thus, being an adolescent female puts a person at a higher risk of developing GAD as opposed to being a male

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adolescent. This is consistent with studies that have reported higher rates of anxiety disorders, GAD and other mental health illnesses among females than males (e.g. Asher et al., 2017; Muris et al., 2002; Ohannessian et al., 2016).

Some explanations have been provided for gender differences in anxiety disorders. For example, Asher et al. (2017) argue that females tend to be affected by the outcomes of social interactions and relationships with their significant others more than males. Thus, consistent strenuous relationships can predispose females to high anxiety-related symptoms compared to males. This position might account for why females of all ages consistently record higher symptoms of interpersonal-level anxiety disorders such as GAD and social anxiety disorder.

A qualitative study in Ghana by Ofori-Atta et al. (2011) on reasons for the higher rated of mental health illnesses among females than males, revealed that; inherent vulnerability (e.g. hormones), witchcraft and gender disadvantages (e.g. Weaker sex) are reasons people attach to high incidences of mental health illnesses among females. Generally, it is conceivable that high anxiety levels among females could be associated with the process of socialization. Females may be socialized to assume a background role and therefore become subservient and silent, which may reinforce mental distress (Brocato, Vanessa, & Dwamena-Aboagye, 2007). Consequently, as indicated by the ecological systems theory, the sociocultural (macro) systems within which females in Ghana grow and the roles they assume at various levels within these interconnected systems, have implications on their psychological health.

**Location of adolescents and their GAD symptoms.**

The study also assessed differences in GAD symptoms and the location of adolescents. Adolescents in Obuasi recorded significantly higher GAD symptoms than the adolescents in Accra. Adolescents in Obuasi are thus, at a higher risk of developing GAD than their

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counterparts in Accra. The differences in GAD symptoms among these two groups of adolescents could be explained by the different contexts within which they live. Adolescents in Obuasi may live in a harsher environment or under tougher conditions compared to those in Accra. Being the capital city of Ghana and considered as the nation's economic nerve center (Oteng-Ababio, 2016), many vibrant and less risky economic activities go on in Accra, income levels are relatively higher and working conditions are comparatively safer than in Obuasi (Sarfo-Mensah et al., 2010). Because of this, the psychosocial pressures that adolescents in Accra experience may be lower than those adolescents in Obuasi experience.

On the other hand, Obuasi is a municipality characterized by mining activities. Small scale and illegal mining 'galamsey' activities are predominant, especially among young people. Some researchers (e.g. Ampomah & Gyan, 2014) have shown that the harsher living conditions that children and adolescents experience in Obuasi affect various aspect of their development. Typical of communities dominated by both small and large scale mining activities, young people growing up in Obuasi are plagued with several psychosocial and economic challenges such as *parental neglect, child labour, poverty*, school dropout and high incidence of youth and adolescence crime (Sarfo-Mensah et al., 2010). This concept supports the ecological systems theory to the extent that, the conditions within the macro-system (e.g. mining community) wherein adolescent may be growing up, has diverse psychosocial effects on the developmental trajectories.

Overall, these findings confirm that the contexts within which adolescents develop affect their mental well-being. Some studies have reported similar findings (e.g. Acquah et al., 2014; Duchesne et al., 2015; Hemphill et al., 2011; Kabiru et al., 2010; Merikangas et al., 2010; Stein & Sareen, 2015). Specifically, one study by Kabiru et al., (2010), reported that in low income

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countries, adolescents and children who live in rather harsh economic contexts have poorer mental health compared to those who live in relatively better economic contexts. This study has further added that even within the same country (Ghana), intra-contextual factors predispose children and adolescents to poor mental health outcomes, which may explain why adolescents in Obuasi exhibit higher GAD symptoms than those in Accra.

**Employment\Working Statuses of adolescents in Obuasi and Accra.**

To support the discussion on location differences in GAD symptoms, this study assessed working statuses of adolescents. Although both settings have a significant number of working youth (GSS, 2013), there was significant differences in working statuses and GAD symptoms in the two settings. Adolescents who work in Obuasi experience higher GAD symptoms compared to those who do not work. In Accra however, there is no significant difference in GAD symptoms among adolescents who work and those who do not work. Ampomah and Gyan (2014) stated that in Obuasi, majority of working adolescents are engaged in activities related to 'galamsey' or illegal mining activities which is risky and poses a serious threat to physical and mental health among the adolescents within that municipality.

Also, there is the likelihood that the necessity to choose between working under unsafe conditions to fend for oneself and sometimes support the family due to economic hardships, or to suffer the consequences of familial penury, gives some adolescents no option but to endure the harsh conditions and the physical and emotional trauma that comes with engaging in illegal and risky mining activities. Risks involved in illegal mining may include long hours of work and exhaustion, exposure to harmful chemicals and unfavorable weather conditions (excessive heat or cold), the possibility of drowning or being buried alive-or having witnessed someone else drown or buried. These could further elevate worry levels-which is the core symptom of GAD.

**Parental Living arrangements and GAD Symptoms in Obuasi and Accra.**

The study also examined the differences in GAD symptoms among adolescents based on their parental living arrangements (i.e. living with both parents, mother only, father only or others) in either location. There were significant differences in GAD symptoms among adolescents based on their parental living arrangements, but this difference was only observed in Obuasi. Specifically, adolescents in Obuasi who live with their fathers only, reported higher GAD symptoms compared to those who live with both parents, mothers only and others. This implies that in Obuasi, living with a father only constitutes a risk factor for the development of GAD. Although some studies showed that mental health status of children and adolescents living in complete families were better than those with in divorced homes (Sun, 2001), the counter argument was unclear. This study shows that for adolescents who do not live with both parents, those that live with their fathers-only reported higher GAD symptoms.

Two main reasons might account for this finding. Some results from this study showed that adolescents in Obuasi are missing their parents' involvement which may have resulted in high levels of GAD symptoms. Although the study did not assess which particular parent that adolescents wanted more involved in their lives, it could be the fathers. The reason is that, firstly, fathers have been implicated in high levels of parental neglect in Obuasi (Marbell & Grolnick, 2013; Nyarko et al., 2014; Sarfo-Mensah, 2010). This may be because most men migrated to Obuasi to work in the AngloGold Ashanti mines and most indigenes engage in small scale mining and 'galamsey'. In working to improve their SES and to provide for their family's instrumental needs, they are unavailable to their children for days and sometimes weeks. Most mines run the shift system and most alluvial gold miners spend days unending at their mining sites. By the time fathers' return home, their children may be asleep or have gone to school. The

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result is that, adolescents who live with their fathers only may feel neglected in the absence of a mother figure to complement the absence of the father.

Secondly, men are often emotionally handicapped in dealing with issues relating to adolescents. Some believe that such topics like puberty and sex are the roles of mothers. In fact, in a recent study in Obuasi by Nyarko et al. (2014) on parental perceptions on sex education among children in Obuasi, none of the fathers who participated in the study felt that sex-education was a father's responsibility. They thought that it was the responsibility of mothers or teachers. Adolescents who live with their fathers alone may thus, miss out on relevant age-appropriate and empowering discussions on puberty, sexuality and identity conflicts that mark the adolescent stage. In support of this argument, it was stated earlier that, this study took much longer to conduct in Obuasi than it did in Accra. In Obuasi, parental consent forms were returned in batches as adolescents complained that their fathers were not around to sign. This may provide some evidence of unavailability of parents especially fathers to adolescents in Obuasi compared to those in Accra- who returned all forms by the first day scheduled for data collection.

Additionally, adolescents who live with their fathers only might be living with their step mothers, thus, if the fathers are re-married. Although my current study did not directly assess that, having been born and raised in the Obuasi municipality and having worked there for several years, it is a known fact that divorce rates are high. In most cases, the men remarry and bring their children to stay with them and their new partners. In such circumstances, adolescents may find the home environment stressful and uncomfortable, especially when the father is away for several days and the adolescent is left at home with their step mothers. Further research is however needed to provide empirical evidence in support of this assertion.

**Predictors of GAD symptoms among adolescents.**

**Parental Perceptions and GAD.** The impact of a parent on a child is massive. This study showed that adolescents' parental perceptions were a significant predictor of GAD symptoms in adolescence. Generally, when adolescents perceive that their parents are actively involved in their lives, they are at lower risks of developing GAD symptoms, especially for the males. There is ample evidence in developmental psychology research that parent-child interactions affect the mental health of their children (Marbell & Grolnick, (2013). Most of the evidence are dominated by studies that have focused on three parental styles; authoritative, authoritarian and permissive (Elias, & Yee, 2009; Lamborn, Mounts, Steinberg, & Dornbusch, 1990; Ugi, Sakamoto, Adachi, & Kitamura, 2014). This may indeed seem valid, however, viewing parenting from the adolescent child's perspective is also relevant in providing an in-depth understanding of the parent-child discourse and its direct and indirect effect on adolescent mental health.

The current study provides empirical evidence that is consistent with positive outcomes that have been attributed to parental involvement (i.e. parents making their children's needs a priority and apportioning quality time for them despite busy schedules), especially within the context of low and middle-income countries. Parental involvement has been linked to school engagement and academic achievement, *self-esteem*, *low anxiety-related symptoms*, and reduced depression (Griffith & Grolnick, 2014; Marbell & Grolnick, 2013; Nyarko, 2012). The effect of parental involvement on GAD symptoms has been established through this research. In low and middle income countries like Ghana, majority of parents may spend less quality time with their adolescent children due to long working hours. Most parents work from the early hours of the day to late evenings and therefore may only see and interact with their adolescent children in the

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evening when the day is almost over, often they return to meet them fast asleep. Thus, whereas parents may be trying their best to provide instrumental care for their adolescent children, they are psychologically absent in their lives and their emotional needs are ignored (Brocato & Dwamena-Aboagye, 2007; Griffith & Grolnick, 2014; Marbell & Grolnick, 2013; Maslow, 1954). The result is that, the emotional care and support that is needed by adolescents from their parents at this critical-identity-formation stage is inaccessible, which may constitute a major risk factor for GAD.

**Differing parental needs in Accra and Obuasi.** The study again found that adolescents' parental needs differ in Obuasi and Accra. Interestingly, the current study shows that high GAD symptoms were associated with low parental autonomy among adolescents in Accra while in Obuasi, high GAD symptoms was associated with low parental involvement. These findings suggest that in Accra, adolescents perceive their parents as being controlling, while in Obuasi adolescents perceive their parents as neglectful. Thus, in relating to more familiar parenting perspectives, adolescents in Accra might be exposed to parents who are authoritative or controlling while those in Obuasi might be exposed to parents who are too permissive or neglecting.

Parental control and parental neglect have been linked to mental health outcomes among adolescent (Benoit et al., 2016; Bilsky et al., 2016; Griffith & Grolnick, 2014; Marbell & Grolnick, 2013; Nyarko, 2011; 2010). Rapee and colleagues for instance have argued that parental factors are an important part of the etiology of anxiety. The two most common parenting styles that they identified to be associated with a GAD diagnosis in adolescents are overprotective or over-controlling and negative or highly critical (Rapee, Schniering & Hudson, 2009). Common findings from reviews of family systems for adolescents with GAD show that

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perceived insecure parent-child relationships are marked by lower levels of trust, self-worth, greater feelings of alienation and poor communication (Van Eijck et al., 2012). It does not come as a surprise then, that adolescents in Accra reported lower levels of self-esteem.

In support of this argument, Benoit et al., (2016) in an experimental study of parental autonomy and the emotional experiences of clinically anxious youth reported that, when adolescents perceive that they have some level of control, they become emotionally stable and less anxious. The reverse was also found to be true as adolescents' emotional reactivity increases when they perceived a high sense of powerlessness. This is also consistent with Lazarus' claim that the appraisal of control (real or perceived), has implications for effective coping and reduces psychological strain. The concept of autonomy indeed has consequences on adolescents' self-concepts and psychosocial growth (Benoit et al., 2016; Erikson, 1998; Lazarus, 1966)

Bilsky et al. (2016) studied parental control and frequency of panic symptoms among adolescents and found that elevated levels of parental control increase panic, anxiety symptoms and depression among adolescents. According to a study in Ghana by Marbell and Grolnick, (2013), basic school pupils whose parents grant some level of autonomy, become more engaged in school activities and are less likely to be depressed. They argued that rather than exercising extreme control over children, parents should rather provide structures that allow children some levels of guided independence to operate within those structures. These findings are consistent with the situation among adolescents in Accra where low parental autonomy is associated with high GAD symptoms and low self-esteem.

A very different picture characterized adolescents in Obuasi. Here, adolescents perceived their parents as uninvolved in their lives, which was associated with increased GAD symptoms. Some studies have ascertained the fact that, parental neglect has consequences on development

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of their children (e.g. Ampomah & Gyan, 2014; Nyarko et al., 2014; Sarfo-Mensah et al., 2010). Most parents in Obuasi are miners or traders, whereas some stay long hours at work to be able to provide instrumental support for their families, their children's emotional needs may be unmet. The socioeconomic status of others makes it impossible for them to well-cater for their wards. As indicated earlier, some children are thus, forced by these circumstances to engage in risky activities like illegal mining and other economic activities to fend for themselves and sometimes their families too.

There is ample evidence to support the fact that economic well-being of parents, impacts on control over their children (Merikangas et al., 2010; Yap et al., 2014). Parents who are well-to-do are reported to exercise extreme control over their children because they provide for all their needs, while those who are economically challenged exercise little control as their children must sometimes fend for themselves (Griffith & Grolnick, 2014; Marbell & Grolnick 2013). Comparatively, the economic status of average parents in Accra may be higher than those in Obuasi. This may explain why parents in Accra exercise control over their adolescent children, resulting in their long for parental autonomy to minimize anxiety levels.

The opposite may be true in Obuasi, parents may show little concern due to their low socioeconomic statuses. The average parent in Obuasi is often outside the home working to make ends-meet. Majority of them; are hardly at home and therefore the children and the adolescents may feel abandoned. This situation perhaps causes adolescents in Obuasi to miss parental presence in their lives. Parental involvement and autonomy have been linked to positive school engagement and academic outcomes (Griffith & Grolnick, 2014; Marbell & Grolnick, 2013; Nyarko 2010, 2011; Nyarko et al., 2014). In the absence of adequate parental emotional care and support, risk of GAD escalates.

**Adolescent coping strategies and their GAD symptoms.** The findings also showed that coping strategies among the adolescents significantly affect their GAD symptoms. Males and females, as well as adolescents in Obuasi and Accra used non-productive coping strategies which increased GAD symptoms. Specifically, employing non-productive approach to cope with difficulties (e.g. avoidance, pretending, worrying), was found to constitute a risk factor to the development of GAD among adolescents in Ghana. Many reasons can be given to this fact. Firstly adolescents may feel helpless and overwhelmed by the various circumstances (e.g. puberty, identity, social roles, poverty, parental pressures) in their lives at this stage. Whereas adolescent males may use non-productive coping because they are expected to be bold and not show weaknesses as 'men', the females may do same because they have been socialized to be quiet and remain in the background, they may thus feel uneasy opening up to someone about their problems.

This study recorded a significant relationship between non-productive coping and parental involvement and found that adolescents in Obuasi require the involvement of their parents while those in Accra required some autonomy to reduce GAD symptoms. While parents in Obuasi may be unavailable for their adolescents to confide in them about their qualms so that relevant age-appropriate information and guidance can be given them, parents in Accra may be available, but controlling them may make it difficult for adolescents to talk to their parents about their struggles for fear of being scolded and the worry of being judged.

Some studies (e.g. Nyarko et al., 2014), for instance have reported that many parents in Obuasi hardly discussed issues of sexuality with the children. Most issues in adolescence bother on puberty and sexuality and a discussion of these topics may require a supportive atmosphere, in the absence of that, adolescents may rather confide in their peers for information and support

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in these times (Moore & Rosenthal, 1993). It is evident that parental factors have a significant influence on adolescent coping. When parents are absent, adolescents are forced to use nonproductive means to cope, when they are present but restrictive, adolescents are still forced to use non-productive means to cope.

Most adolescents may be ignorant about what coping strategies are beneficial or who to approach when they need psychological support, and this may explain why adolescents generally use non-productive coping. According to Lazarus and Folkman (1984), when people perceive that their stressors are within their power to manage and that they have the appropriate resources to cope, they may have reduced psychological distresses. Adolescents in the Ghanaian setting may employ non-productive coping because these resources and structures (e.g. adequate parental involvement and autonomy support, socioeconomic or financial stability, self-confidence, sex education, adolescent health education, etc.) are not readily available in for them to fall on in addressing the mayhems of adolescence

**Self-esteem and GAD symptoms.** Findings from the study showed further that high self-esteem is significantly associated with lower GAD symptoms among the adolescents. Among adolescents, high self-esteem (e.g. being satisfied with themselves, believe in their worth etc.) constitutes an important resource against the risk of developing GAD. Self-esteem has been argued to play a dual-role in the mental health of young people. Firstly, it is conceptualized as a positive mental health outcome that enables adolescents to handle the complexities of the adolescence stage (Van Eijck et al., 2012). Secondly, it has been found to reduce several negative mental health outcomes including anxiety (Rapee et al., 2009).

Some studies have reported that self-esteem is generally not common amongst adolescents in LMICs like Ghana (e.g. Glozah, 2013; Pachan, 2011; Quarcoo, 2013). Compared

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to adolescents in higher income countries, adolescents in lower-income countries tend to be more reluctant. This may be due to psychosocial factors like poverty, parental factors and cultural norms that hinder children in the socialization process from being expressive, especially in front of adults (Brocato & Dwamena- Aboagye, 2007; Kabiru et al., 2010; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). This study however, showed some disparities in gender and locality- adolescents in Accra and female adolescents recorded higher GAD symptoms.

According to Erickson (1999), unless the salient psychosocial conflicts at various stages of child development are properly resolved, the growing child may mistrust, feel a sense of shame, guilt and inferiority-they may thus progress into adolescents with unsettled conflicts carried over from previous stages. The eventual outcome is an adolescent identity of low-self-esteem, characterized by feelings of low self-worth and confused society roles and an unstable identity. Lack of parental autonomy in Accra may be the reason why adolescents there reported lower self-esteem. The fact that their parents restrict or control them may have prevented the proper resolution of key conflicts along their developmental trajectory -the results being loss of their self-worth.

Further, females in Ghana may have reported lower self-esteem because of the loss of their “voice” and societal perceptions of the background role of females (Brocato & Dwamena- Aboagye, 2007). Females were in time past discouraged from going to school as their role was to “stay in the kitchen and cook” while their male colleagues were invigorated to pursue education. In the 21st century, times have changed the women are in school now, several of the stereotypes about women are outdated, female adolescent are doing as well as males. Therefore, there has been a counter-argument as to why girls still score low on self-esteem. On moral and ethical matters, girls are perceived to have higher self-esteem than boys; they may have been more

honest with their emotions and self-reported feelings of self-worth than their male counterparts in a world of male bigotry (Nolen-Hoeksema, 2010).

**Peer pressure and GAD symptoms.** In this study peer pressure did not significantly predict GAD symptoms among adolescents. This was not in accordance with studies that found that high levels of peer pressure amongst adolescents had mental health outcomes (Acquah et al., 2014; Cummings et al., 2014; Kabiru, Beguy, Crichon & Ezeh, 2010). An explanation to this finding may be that, whereas boys are more directed to a group of peers, their female counterparts are generally more directed towards individual relationships with their girlfriends (Lebedina-Manzoni & Lotar, 2011). Male adolescents are often more prone to peer-influence and engage in more risky peer-influenced behaviours like substance abuse than female adolescents. Some studies have mentioned a strong correlation between high self-esteem or positive self-concept, and high resistance to peer pressure (Bamaca, Umana-Taylor, 2006; Kaplan, 2004, Lebedina-Manzoni, & Ricijas, 2013).

This study also reported a strong negative correlation between peer pressure and self-esteem. Adolescents with high self-esteem may feel more content with themselves and their personal identities, this may give them a sense of security and put less pressure on them to meet the expectations of their peers. It follows that, because more male adolescent reported higher self-esteem than females, self-esteem may serve as a buffer to peer pressure among male adolescents and consequently shields them from developing the symptoms associated with GAD. This may have nullified the overall effect of peer pressure among adolescents in the study.

Another explanation to this finding could be the measure of peer pressure which relied on adolescents' self-report of peer susceptibility. Peer pressure may be very subtle and adolescents may believe that their behaviours are based on individual choices without understanding the

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contributions their peers make. Besides, adolescents may consciously deny being susceptible to peers and underreport to extent to which their peers influence them. This may serve the purpose of demonstrating that they are independent even if they are not. Honestly, come to think of it, many adolescents would really want to self-report their inability to assert their individuality in the presence of their peers. It may be beneficial for future researchers to assess traits that are not socially desirable with means that are not self-reported especially among adolescents.

**Religiosity and GAD symptoms among adolescents.** This study also showed that, GAD symptoms were not significantly affected by religiosity among adolescents. This is inconsistent with some studies that have found this construct to be relevant to adolescent psychological health (Cotton, Zebracki, Rosenthal, Tsevat, & Drotar, 2006; Gearing & Lizardi, 2009; Pearce, Little & Perez, 2003; Renaud, Berlim, McGirr, Tousignant, & Turecki, 2008; Wallace, 2007; Wills, Yaeger, & Sandy, 2003). It is unclear why this is so. However, it could be that adolescents detach themselves from religiosity in dealing with their problems when these problems are still apparent amidst their belief in or reliance on a supreme-being. It is also possible that most adolescents are mere consumers of religious practices and beliefs as passed on from insistent parents. This may feel like a bother and fail to achieve its intended purpose in their lives.

In fact, in this study, 78% of adolescents reported affiliation to Christianity, 13.7% to Islam and 8.0% to other religions (see Table 1). Yet, there is a disparity between self-reported religious affiliations and practical religious influence on adolescents in dealing with challenges in lives. A study in U.S. by Benson, Roehlkepartain, and Rude (2003) also found that a sizeable number of young people who reported high attendance at religious services also reported low personal importance of religion. It was suggested that parental pressures to attend religious programs,

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activities, and services, may cause young people to show up for the social rather than the religious aspects. Could this be somewhat true among adolescents in Ghana?

Plausibly, religiosity falls outside the confines of the main coping strategy adolescents' in this study reported to use in dealing with problems and difficulties in their lives. Whereas adolescents from both gender and either location reported using non-productive coping strategies, religiosity is a form of reference-other coping. The use of non-productive coping strategies may have overshadowed the effect of religion among adolescents in this study. In such a context where religiosity is that common, there may be little variations in the construct. Religiosity may thus, have no unique effect on psychosocial pressures among adolescents.

**Implications of the study**

The current study provides empirical evidence to support the essence of parental perceptions, non-productive coping strategies and self-esteem in protecting or putting adolescents at risk of severe mental health outcomes like GAD. Parental perceptions differ by gender and location in producing GAD symptoms among adolescents. Whereas adolescents in Accra seek freedom from control, those in Obuasi seek more parental involvement. Also, working status and living arrangement with parents were identified as risk factors for adolescents in Obuasi. These findings indicate that adolescents in Accra and Obuasi are exposed to different risk and protective factors associated with symptoms of GAD. There are several practical and theoretical implications of these findings on the mental health of adolescents in Ghana and in other low and middle-income countries.

**Practical implications of the study.** Firstly, reports of high levels of GAD symptoms among general populations of adolescents could mean that they are likely to develop GAD if interventions are not quick, or they may have developed the condition already and are ignorant of

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the fact. Problem behaviours and low school performances, peer pressure may be a direct consequence of unidentified generalized anxiety disorders. Parents and teachers must be encouraged not to trivialize evident symptoms. They must encourage adolescents to seek psychological help. For psychologists and researchers therefore, there is the need to develop evidence-based mental health interventions that addresses the peculiar and relevant factors within different settings that predict adolescents' mental health outcomes. A careful review of scales for assessing these constructs and inform diagnoses is relevant in preventing biases in interpretations, diagnoses and interventions.

Secondly, parents are very important facilitators of the socialization process not just of their children, but they are also instrumental across the lifespan of individuals and communities as a whole. Their influence on mental health outcomes is therefore enduring. It follows that, because adolescent mental health outcomes dwell heavily on their parents, they must not be left out in this battle against adolescent mental health illnesses. Too much control is harmful to development of a child and leads to unceasing worry and troubled personalities which may fuel GAD symptoms and eventually lead to GAD. The converse is also true, when parents are too neglectful it also has implications for psychosocial development of their children. Mental health interventions must be holistic and aimed at empowering parents with efficient and effective child-rearing habits and practices. This will enable them trace critical periods in adolescent development and provide adequate support. These interventions should also include equipping parents with the knowledge of factors to consider in making living arrangements for their children in cases where the parents live apart, are separated or divorced, remarried or widowed. Finally, efforts should be aimed at improving the socioeconomic status of parents at individual levels, societal and ideological levels. This will improve living conditions of people, lower the

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rates of school drop outs and child labour and eventually promote the mental well-being of their wards.

Concerns about sexuality are key in adolescence. Adolescents must feel at ease to discuss issues of sexuality and other problem areas with parents especially. “Charity begins at home”, if parents are properly armed in dealing with such matters at the micro system level, the combat will be easier at other levels. However, the approach must be thorough; parents, schools, mental healthcare centers, and mental health professionals like clinical and social psychologists must combine forces. The focus must be on male and female adolescents alike and interventions should be targeted at providing adequate age appropriate sexual health education to enable them make informed decisions that will promote mental health in adolescence.

The concept of self-esteem should be encouraged among adolescents in Ghana and featured in efforts aimed at promoting the psychological health of adolescents. This could help them deal effectually with the many difficulties they face at this stage alongside the numerous economic and social struggles within LMICs. Interventions should aim at acknowledging the negative effects of social perception about gender roles on the self-concept of female adolescents especially. It should also look at the plausibility that these age long perceptions may be harming the male gender under the guise of being “strong” even when expressing honest emotions of weakness may be beneficial. Adolescents must be encouraged to speak up about their struggles about self-worth, body image struggles, unhealthy peer competition, peer pressure etc. Peer pressure is reduced in the presence of self-esteem. Therefore, firstly by encouraging parental practices that promote autonomy and self-confidence in approaching adults for help, the impact of peers on adolescents is reduced and the undesirable outcomes of peer influence is accordingly countered. Mental health interventions should also target identifying strengths and assets

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available to adolescents to cope and encourage focusing on problem solving strategies rather than avoidance. Adolescents must know what focusing and approaching their problems may encourage healthier resolutions.

Finally, contextual differences in GAD symptomatology imply that special attention must be paid to the needs of adolescents within different Ghanaian contexts. Every setting has some peculiar factors that impact on the mental health of adolescents. If these factors persist and interventions are untimely, mental health is affected and productivity at various levels of the economy is stifled. Policies must thus be made to target context-specific needs of adolescents based on their empirically ascertained needs. This therefore calls for more research in the field of psychology on risk and protective factors of adolescents different contexts of the nation and its impact on their mental health generally and worry related psychopathologies like GAD.

**Theoretical implications of the study.** Findings from this study support different aspects of the theoretical framework. For instance, perceptions of the adolescents about their interaction with parents had significant association with their GAD symptoms. These findings were observed to be accounted for by the differential economic conditions of parents in Obuasi and Accra. This is consistent with what is theorized to exist at the meso system level of the ecological system theory of development. Brofrenbrenner (1999) argues that adolescence development is affected by parents' economic circumstances such as their employment status or their poverty levels.

The study showed further that in Accra, adolescents long for some level of autonomy and independence as low parental autonomy was associated with high GAD symptoms. Erikson's psychosocial theory conceptualizes children's quest for autonomy to happen between the ages of one and half years to 3 years where the fundamental psychological conflict is a feeling of

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autonomy and self-sufficiency (Erikson, 1999). The current study suggest that even at the stage of adolescence, young people may long for autonomy children might still long for autonomy, albeit it might have changed form. Between one and half to three years old, children's autonomy is based on their ability to carry out tasks by themselves. They build self-confidence if these tasks are successful. In adolescence however, autonomy originates from parents allowing their adolescent children to take certain decisions on their own while guiding them. Often, unresolved conflicts at earlier stages are carried forward into latter stages and linger on throughout a person's life. The current study therefore suggests that the fifth stage of Erikson's psychosocial theory of development needs to be broadened to incorporate constructs of autonomy in the creating of identity.

Lastly, the current study has shown that across context and gender, non-productive coping strategies were associated with high GAD symptoms among adolescents in Ghana. This finding provides support to the transactional model of stress which assumes that non-productive ways of dealing with stress increases anxiety and brings about further stress (Cummings et al., 2014; Duchesne & Ratelle, 2016; Lazarus, 1966). Even though the transaction model of stress does not explain the reasons for non-productive coping styles among adolescents (Duchesne & Ratelle, 2016), the current study suggest that the use of non-productive coping strategies by adolescents may be underpinned by their perceived parental interactions and lack of self-esteem.

In summary, these theories tie in adolescence and the psychosocial predictors of GAD. This is how: Adolescents live in different settings (Obuasi and Accra) within a low-middle income country (Ghana) characterized by peculiar factors like parental poverty, which may take parents away from home for long hours in search for means to cater for their families, and this may affects the mental health of their growing adolescents, their schooling and make them

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susceptible to peer pressure (*ecological systems theory*). The adolescent stage itself is arduous and adolescents may need their parents and other structured support systems to help out in dealing with their struggles.

If parents' approach to childrearing, helped in resolving key conflicts in their children while growing up, it may facilitate self-esteem in adolescence, a stable identity and the perception of relevance in society (*psychosocial stages theory*). If this is not the case, adolescents become overwhelmed with the stressful factors in their lives. This is because, ability to deal with problems in adolescence implores on the self –concept and an appraisal of personal control or reliance on environmental structures to cope, which may be absent. In effect, the adolescent worries, these worries become chronic and they eventually develop an anxiety disorder like GAD (*transactional model of stress*). Therefore, efforts to improve adolescent mental health is not simplistic, it must involve a critical examination of practical as well as theoretical underpinnings.

**Limitations of the study**

Study findings must be interpreted while considering the following:

Firstly, care must be taken in generalizing findings from this study to adolescent populations as there are clear cut context specific differences in risk and protective factors of adolescent mental illnesses. As such, psychosocial predictors within the chosen study sites may differ from what pertains elsewhere. There may indeed be similarities but this is not absolute as risk and protective factors of adolescent mental health are evidently not universal.

Secondly, the present study only included adolescents from public schools. Adolescents from private schools and adolescents who are out of school were not included in this study. As such, care must be taken in generalizing this study among these populations.

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Again, this study assessed GAD symptoms as having occurred for a period of three months. It is thus not comparable with studies that gathered data from adolescents diagnosed with GAD which must have occurred for a period of 6 months. However, this research provides relevant information on future epidemiology of GAD.

To end with, it is important to note that considering the small effect sizes from between-group comparisons, care must be taken in the interpretation of ‘significant’ results from the Preliminary Analysis made.

**Suggestions for future research**

This study makes significant contributions to the understanding of context-specific and gender-specific risk and protective factors of GAD symptoms among adolescents within resource-poor contexts. Considering the importance of these factors to adolescent psychosocial wellbeing, and the scarcity of empirical evidence on this phenomenon in Ghana, it is indeed important that future studies building on the current study to provide deeper understand into risk and protective factors of GAD among adolescents in Ghana. The following suggestions are therefore made for future studies:

To begin with, future studies should consider examining risks and protective factors for symptoms of GAD among adolescents in other high-risk areas in Ghana. Such studies could focus on areas such as slum communities, rural areas and urban poor community contexts. Most of what is known about high risk areas are anecdotal information. Researching into these areas solidifies the assertions and may probably expose factors that are unapparent, yet, may be causing psychological damages to the population.

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Methodological innovations are also encouraged in studying risks and protective factors associated with symptoms of GAD among adolescents. The current study has shown for instance, that parental autonomy and parental involvement are implicated in symptoms of GAD among adolescents in Accra and Obuasi respectively. Future studies should consider conducting qualitative studies to examine how adolescents in these two locations make sense of their parents' interactions with them and how that affects their mental health.

Further studies could assess specific socioeconomic activities engaged in by adolescents, the duration and reasons of engaging in these activities, and the degree to which these working conditions affect their lives and mental health outcomes. This is relevant because although child labour is illegal, young people especially engaged in risky activities could be further oblivious of the dangers and therefore may ignore key safety rules. This could have long term physical and psychological consequences.

This study has established that in Obuasi, adolescents who work report higher symptoms of GAD compared to those who do not work. The specific work that such adolescents are engaged in was not assessed. The study also established that in Obuasi, adolescents who live with their fathers only, reported highest GAD symptoms than the others. The study however did not directly examine whether or not the fathers have re-married. This study is therefore not able to indicate whether the adolescents who reported of staying with their fathers only actually live with the fathers alone or live with the fathers and their step mothers, or other mother-figures. These are areas future studies on adolescents in Obuasi could focus on.

Future research should also focus on examining factors that moderate or mediate psychosocial risk and protective factors of GAD among non-clinical adolescent populations in resource-poor contexts. This will particularly give a clearer picture of the associations that exist.

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Another important suggestion for future research is the use of solely self-report measures in eliciting responses on socially undesirable constructs (e.g. peer pressure). It may be beneficial for future researchers to assess traits that are not socially desirable with means that are not entirely self-reported especially among adolescents.

Lastly, studies should consider exploring the issues from the perspectives of parents as well. The current study has provided insight from the perspective of adolescents. Empirical understanding is also needed from parents' point of view concerning the factors that they believe predisposes their adolescent children to symptoms of GAD. A comparison between parental and adolescents perceptions will be interesting and may provide insight into what factors there are that could strain the parent-adolescent interaction.

**Conclusion**

In sum, this study examined GAD symptoms among adolescents within the context of two Ghanaian communities and found variations in risk and protective factors. Results showed that adolescents in Obuasi reported higher GAD symptoms compared to those in Accra. Adolescent girls reported high GAD symptoms than adolescent boys. Parental autonomy and parental involvement were found to be associated with higher GAD symptoms in Accra and Obuasi respectively. Non-productive coping was associated with higher GAD symptoms regardless of location or gender of adolescents. High self-esteem was associated with lower GAD symptoms for adolescent girls but not boys. Adolescents who work and those who stay with their fathers alone were found to report higher GAD symptoms.

These findings show clear contextual and gender-related risks and protective factors of GAD symptoms among non-clinical adolescent populations in Ghana. The practical and theoretical implications of the study are discussed as ensuring optimal mental health among adolescents by

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identifying adolescents at risk and planning interventions that will improve the mental health of adolescents.

All stakeholders (parents, teachers, adolescents, mental health workers, government, and policy makers) and the entire populace must know that the battle against mental health stereotypes and stigma is a collective effort. Interventions in adolescent risk factors and the promotion of protective factors in Ghana is essential in safeguarding the future of the nation.



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APPENDICES

Appendix I: Ethical Clearance



**UNIVERSITY OF GHANA**  
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)

P. O. Box LG 74, Legon, Accra, Ghana

24<sup>th</sup> March, 2017

My Ref. No.....

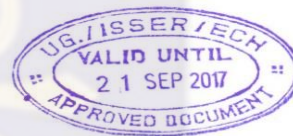
Ms. Linda Dede Ahulu  
Department of Psychology  
University of Ghana  
Legon

Dear Ms. Ahulu,

**ECH 105/16-17: PREDICTORS OF GENERALISED ANXIETY DISORDER IN GHANA: EXAMINING PSYCHOSOCIAL RISKS AND PROTECTIVE FACTORS AMONG ADOLESCENTS**

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date: 21/09/17  
On Agenda for: Initial Submission  
Date of Submission: 13/02/17  
ECH Action: Approved  
Reporting: Quarterly



Please accept my congratulations.

Yours Sincerely,

Rev. Prof. J. O. Y. Mante  
ECH Chair

CC: Dr. Maxwell A. Asumeng, Department of Psychology

**Appendix II: Departmental Introductory Letter**



**UNIVERSITY OF GHANA**  
**DEPARTMENT OF PSYCHOLOGY**  
**SCHOOL OF SOCIAL SCIENCES**

Ref. No. PSYC/2/33/03

13<sup>th</sup> February, 2017

The Administrator  
Ethics Committee for Humanities (ECH)  
Office of Research Innovation and Development  
University of Ghana

Dear Sir/ Madam,

**LETTER OF INTRODUCTION: LINDA DEDE AHULU**

The above-named student is an M.Phil Clinical Psychology student (index number, 10274011) at the University of Ghana, Legon. As part of the requirement, Lind Dede Ahulu has to write and submit an original thesis. The title of her thesis is "Predictors of Generalized anxiety Disorder: Examining Psychosocial risk and Protective Factors Among Adolescents in Ghana". She is planning to conduct her study in Obuasi and Accra.

She has received approval from the Department of Psychology Graduate Studies Committee.

She is applying to your board for institutional approval /clearance to enable her carry on with her research work.

Yours faithfully,

  
Dr. Maxwell A. Asumeng  
Head of Department

COLLEGE OF HUMANITIES

P. O. Box Lg 84, Legon, Accra-ghana

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• Website: [www.ug.edu.gh](http://www.ug.edu.gh)

**Appendix III: Parental Consent Form****UNIVERSITY OF GHANA,  
DEPARTMENT OF PSYCHOLOGY****PARENTAL CONSENT FORM**

Dear parent, your consent is being sought for your child to partake in a study assessing Generalized Anxiety amongst adolescents. By taking part in this study your child will be contributing to a pool of knowledge that will help understand risk and protective factors with regard to Generalized Anxiety and as such inform appropriate interventions for adolescents. Your child may also benefit from professional counseling if need be as some of the questions are sensitive. All data collected will be used for academic purposes only and as such ethical principles of privacy and confidentiality will be ensured. Hence, your child will not be required to provide their names or any identifying information (e.g. Phone numbers, house numbers etc.). If you consent to your child's participation in this study, he/she will be required to fill a questionnaire. Your child's participation in this study is strictly voluntary and he/she can pull out of this study at any time they want without penalty. If you need any further clarification, you can contact the researcher on **0244945612** or [lindaahulu@gmail.com](mailto:lindaahulu@gmail.com). You can also contact [aanum@ug.edu.gh](mailto:aanum@ug.edu.gh) (main supervisor) or the Department of Psychology at the University of Ghana, Legon

"I have read / have had someone read to me  all of the above information, asked questions, received answers regarding participation in this study, and am willing to give consent for my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form."

\_\_\_\_\_  
Signature or mark of consenting Parent

\_\_\_\_\_  
Date

**If parent/Guardian cannot/could not read the forms themselves a witness must sign here:**  
"I was present while the benefits, risks and procedures were read to the parent. All questions were answered and the parent has agreed for the child/ward to take part in the research".

\_\_\_\_\_  
Signature of witness

\_\_\_\_\_  
Date

**Appendix IV: Participant Consent Form****UNIVERSITY OF GHANA,  
DEPARTMENT OF PSYCHOLOGY****PARTICIPANT ASSENT/CONSENT FORM**

Please your assent (for younger adolescents) or Consent (for older adolescents) is required to take part in a study that examines the risk and protective factors of Generalized Anxiety among adolescents. The study is for academic purposes only and you can choose to participate or not (even if your parent/guardian has agreed). You can also choose to pull out of the study anytime you want without penalty. Your privacy and confidentiality are assured as you will not be required to provide any personally identifying information. If you need any further clarification, you can reach the researcher on **0244945612** or [lindaahulu@gmail.com](mailto:lindaahulu@gmail.com). You can also contact [aanum@ug.edu.gh](mailto:aanum@ug.edu.gh) (main supervisor) or the Department of Psychology at the University of Ghana, Legon

Should you choose to participate in this study, you will be required to complete a questionnaire that examines various aspects of your life from general information about yourself to those relating to your feelings, thoughts, and experiences. You are required to sign or make a mark below to show your agreement to participate in this study.

Please sign or make a mark below if you assent  /consent  to participate in this study

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

**“I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual”.**

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

**Appendix V: Questionnaire**

Please read the instructions carefully and select the options that best represents your response until you get to the last sheet. Specific guidelines and instructions are provided to guide you.

Please do well not to skip any of the questions. There is no right or wrong answer, only respond according to how the items reflect your personal experiences.

**SECTION A. Instructions: Provide the following information about yourself as truthfully as you can. Please write in the spaces provided or tick the appropriate boxes.**

1) Age .....

2) Gender: Male  Female

3) Location: Obuasi  Accra

4) Educational level: JHS  SHS  5. Class.....

6) Religion: Christian  Muslim  Traditional  Other (Specify).....

7) Who do you live with? Both parents  Mother  Father  Other

8) My parents are Married  Separated  Divorced  Single  Deceased: Mum  Dad

9) a. Do you work or are you engaged in any economic activity Yes  No

10) Parents/Guardians Educational Level: None  Primary  JHS  SHS  Tertiary

## RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS

**SECTION B (1)**

**Instructions:** *In this section you are presented with a number of tables. Read the statements and decide the extent to which the statements apply to you.*

Below is a list of sentences that describe how people feel. People often worry about various things in their lives. Read each phrase carefully and decide on the following scale how they are about you for the past 3 months.

0=Not true    1=Somehow or sometimes true    2=Often true    3=Always true

<i>Statement</i>	0	1	2	3
	Not true	Sometimes true	Often true	Always true
1. I worry about other people liking me				
2. I am nervous				
3. I worry about being as good as other kids				
4. I worry about things working out for me				
5. I worry lot				
6. People tell me that I worry too much				
7. I worry about what's going to happen in the future				
8. I worry about how well I do things				
9. I worry about things that have already happened				
10. I have difficulty sleeping or staying asleep				
11. I am afraid something bad will happen				
12. I worry so much I can't think or concentrate				

*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS*

In the table below, rate the extent of your parent’s involvement in your life and your views about them concerning the statements below on the following scale:

1= Strongly disagree 2=Disagree 3=-Moderately disagree 4=Not sure,  
5=Moderately agree 6=Agree 7 =Strongly agree

	<i>Statement</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1.	My parent seems to know how I feel about things.							
2.	My parent tries to tell me how to run my life.							
3.	My parent finds time to talk with me.							
4.	My parent accepts me and likes me as I am.							
5	My parent, whenever possible, allows me to choose what to do.							
6	My parent doesn't seem to think of me often.							
7	My parent clearly conveys her love for me.							
8	My parent listens to my opinion or perspective when I've got a problem.							
9	My parent spends a lot of time with me.							
10	My parent makes me feel very special.							
11	My parent allows me to decide things for myself.							
12	My parent often seems too busy to attend to me.							
13	My parent is often disapproving and unaccepting of me.							
14	My parent insists upon my doing things her way.							
15	My parent is not very involved with my concerns.							
16	My parent is typically happy to see me.							
17	My parent is usually willing to consider things from my point of view.							
18	My parent puts time and energy into helping me.							
19	My parent helps me to choose my own direction.							
20	My parent seems to be disappointed in me a lot.							

*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS***SECTION B (2)**

How do you deal with problems or difficult situations in your life? Read the following statements carefully and indicate on a scale below the extent to which the statements apply to you.

1 = never    2 = sometimes    3 = many times    4 =almost all the time    5= always

	<i>Statement</i>	1	2	3	4	5
1	I talk to other people (Friends, older people etc.) to see what they would do if they had the same problem					
2	I work at solving what is causing the problem					
3	I talk to my parents/mother/father					
4	I pretend as if there is no problem					
5	I worry about my future					
6	I meet up with my friends and tell them about it					
7	I make a good impression on others who matter to me					
8	I hope for the best					
9	I just give up					
10	I cry it all out or scream					
11	I organize people facing the same problem and discuss ways to solve the problem					
12	I remember those who are worse off so my troubles don't seem so bad					
13	I ask a professional person for help (e.g. counselor, teacher, medical professional)					
14	I find a way to relax; for example, listen to music, read a book, play a musical instrument, watch television					
15	I let God take care of my worries					
16	I criticize myself					
17	I keep my feelings to myself					
18	I exercise or engage in other activities and sports					

*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS*

On the scale of 1-4, rate on the table below how you honestly feel about the statements.

1= not at all important                      3= pretty important  
2= a little important                      4= very important

	<i>Statement</i>	1	2	3	4
1.	I feel [God's] love for me directly				
2.	I feel [God's] love for me through others				
3.	I find comfort in religion and spirituality				
4.	I turn to my religion and spirituality for help				
5.	I feel inner peace and harmony				
6.	I feel thankful for my blessings				
7.	I feel a selfless caring for others				
8.	When I have done something to hurt someone, I ask them to forgive me				
9.	When I have done something to hurt someone, I ask GOD to forgive me				
10	When someone has hurt me, I try to forgive them.				
11	When someone has hurt me, I try to get even with them in some way				
12	When someone has hurt me, I hold resentment against them and keep it inside				
13	I know that [God, Allah] forgives me				
14	I find it hard to forgive myself for some of the things I have done wrong				
15	My religion and religious beliefs are important to me				
16	I often feel that no matter what I do now, I will never make up for some of the mistakes I have made in the past				
17	To be able to turn to prayer when you're facing a personal problem				
18	To be able to rely on religious teachings when you have a problem				
19	To rely on your religious beliefs as a guide for day-to-day living				
20	To believe in God				

## RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS

**SECTION B (3)**

Tick one answer to each statement that best applies to you concerning your friends

<i>Statement</i>	Agree	Maybe	Disagree
1. I sometimes go along with my friends just to keep them happy			
2. I would do something that I know is wrong just to be on my friends good side			
3. I think it's important to be yourself than to fit in with the crowd			
4. It's pretty hard for my friends to get me to change my mind			
5. I would break the law if my friends said they would			
6. I always give my opinion in front of my friends, even if I think they might make fun of me			
7. I take more risks when I with my friends than when I alone			
8. I act the same way when I am alone as I do when I with my friends			
9. I sometimes say things I don't really believe because I think It will make my friends respect me more			

How strongly you agree or disagree with the following statements about yourself?

	<i>Statement</i>	Strongly Agree 1	Somewhat Agree 2	Somewhat Disagree 3	Strongly Disagree 4
1	I feel that I am a person of value/worth, or at least on an equal plane with others				
2	I feel that I have a number of good qualities				
3	All in all, I'm inclined to feel that I am a failure				
4	I'm able to do things as well as most people				
5	I feel I do not have much to be proud of				
6	I take a positive attitude toward myself				
7	On the whole, I am satisfied with myself				
8	I certainly feel useless at times				
9	I wish I could have more respect for myself				
10	At times, I think I am no good at all				

.....*Thank you for participating*.....

*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS***Appendix VI: Sample Preliminary SPSS Output****Communalities**

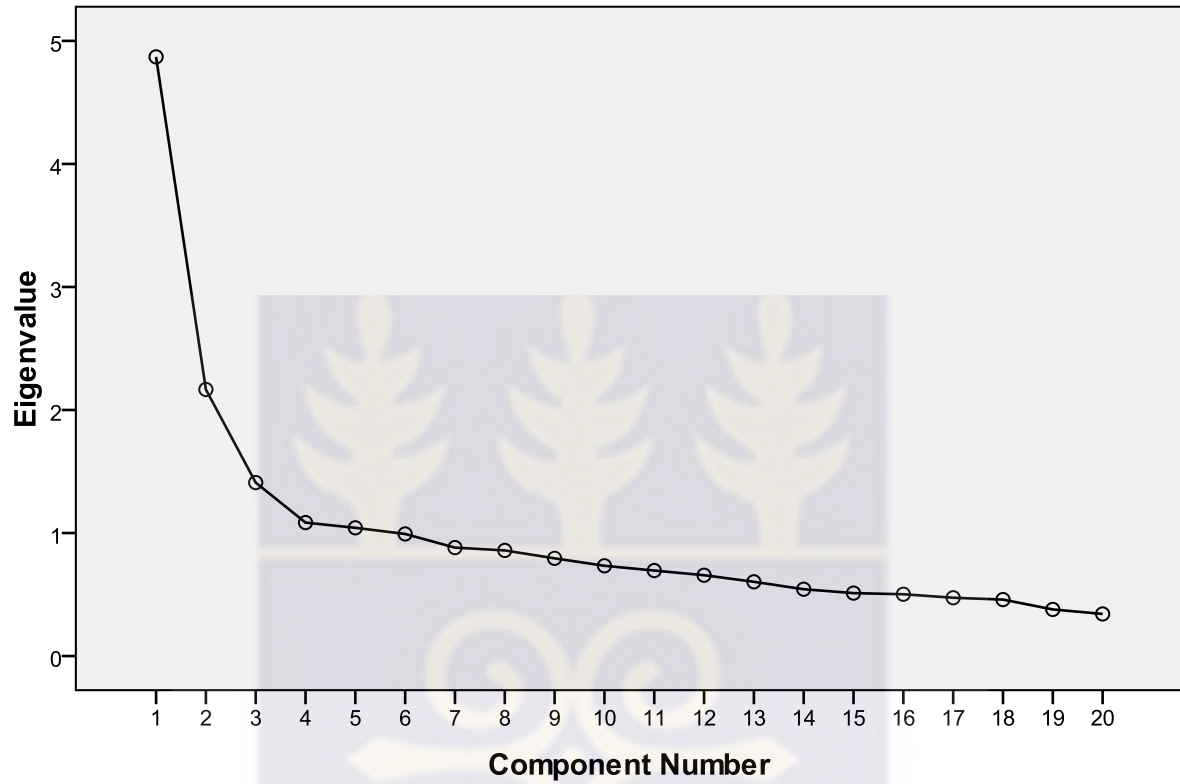
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B2	1.000	.439
B3	1.000	.553
B4	1.000	.502
B5	1.000	.528
B6	1.000	.259
B7	1.000	.592
B8	1.000	.548
B9	1.000	.679
B10	1.000	.613
B11	1.000	.592
B12	1.000	.629
B13	1.000	.635
B14	1.000	.513
B15	1.000	.483
B16	1.000	.551
B17	1.000	.594
B18	1.000	.443
B19	1.000	.551
B20	1.000	.472

Extraction Method:  
Principal Component  
Analysis.

INTEGRI PROCEDAMUS

RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS

**Scree Plot**

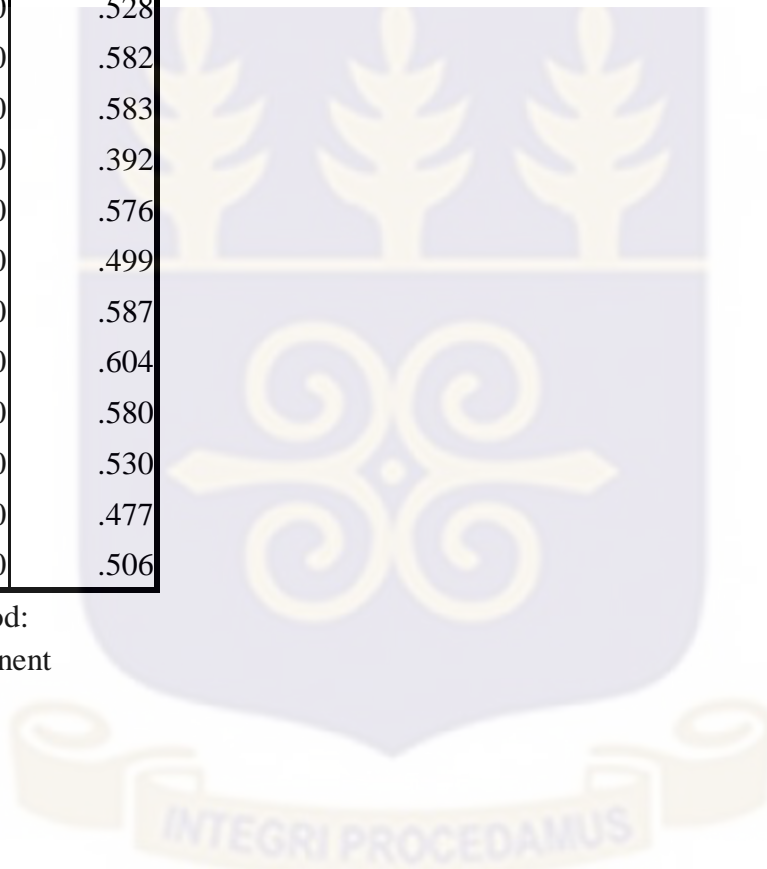


*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS***Communalities**

	Initial	Extraction
C1	1.000	.570
C2	1.000	.499
C3	1.000	.534
C4	1.000	.462
C5	1.000	.480
C6	1.000	.571
C7	1.000	.528
C8	1.000	.582
C9	1.000	.583
C10	1.000	.392
C11	1.000	.576
C12	1.000	.499
C13	1.000	.587
C14	1.000	.604
C15	1.000	.580
C16	1.000	.530
C17	1.000	.477
C18	1.000	.506

Extraction Method:

Principal Component  
Analysis.



*RISK AND PROTECTIVE FACTORS OF GAD SYMPTOMS AMONG ADOLESCENTS*

**Scree Plot**

