DECLARATION

I, David Kwame Kumador, hereby declare that this research work was conducted under the supervision of Dr. Vivian Tackie-Ofosu and Dr. Sheriffa Mahama. This work has never been submitted to any other institution by anyone for any award. All references cited in this work have been duly acknowledged and I take full responsibility for any shortcomings in relations to this work.

…….. ……

David Kwame Kumador Date
(10242793)

…… ……

Dr. Vivian Tackie-Ofosu Date
(Supervisor)

…… ……

Dr. Sheriffa Mahama Date
(Supervisor)

DEDICATION

This work is dedicated to Prof. Docea Fianu, Prof. Laetitia Hevi-Yiboe, Prof. Christina Nti, and Prof. Clara Opare-Obisaw who supported me in diverse ways to make my dream of pursuing this masters' degree come to pass. I also thank all the faculty and staff of the Department of Family and Consumer Sciences, School of Agriculture at the University of Ghana, Legon for their support and encouragement.

ACKNOWLEDGEMENT

I am indeed indebted to the Almighty God for His wisdom and grace throughout this work.

I am forever grateful to my supervisors, Dr. Vivian Tackie-Ofosu and Dr. Sheriffa Mahama who devoted their time and energy to supervise this work, especially for the constructive criticisms and tolerance in bringing out the best in me and enriching my knowledge and understanding of social science research and child development.

This thesis would not have been made possible without the support from the A.G. Leventis Foundation Award Scheme. I am very grateful to the College of Basic and Applied Sciences' Scholarship Committee for the timely award that supported me financially to complete this work.

ABSTRACT

Sibling relationship is known to influence psychosocial development and helps regulate emotional problems and risky behaviours in adolescence. However, research on sibling relationships and its influence on adolescence development, especially among Africans is limited. This current study focused on the nature of sibling relationships and how that influences adolescents' resilience, self-esteem, emotional problems and risky behaviours. To achieve this three specific objectives were set for the study and these were; to identify the family factors that influenced the nature of adolescent-sibling relationships, to determine if there are family type, gender, birth order and age variations in resilience, self-esteem, emotional problems and risky behaviours and to examine how and whether the nature of siblings relationships in terms of affection, conflict/rivalry, control and emotional distance/ hostility influence the resilience, self-esteem, emotional problems and risky behaviours of adolescents with siblings. A multistage sampling technique consisting of the purposive, simple random and equal probability systematic sampling methods was used to randomly sample 240 Junior High School (JHS) students aged between 10 and 17 years at Madina-Accra (N= 211, Mean (SD) age = 13.7(1.5) years, Males = 42.1%). A structured questionnaire with both open and ended questions and statements comprising of the respondents background characteristics, resilience, self-esteem, health risk behaviour, nature of adolescent-sibling relationships inventory, perceptions of parental differential treatment, and parental socioeconomic status. Respondents who perceived their siblings as being controlling were likely to cope better when faced with stressors whereas those who perceived the interactions as conflicting exhibited both emotional and behavioural problems. Respondents with emotionally distant or hostile siblings were more prone to

risky behaviours. Furthermore, the adolescents who perceived that they were treated fairly or better by their parents also perceived their sibling relationships to be positive whereas those who perceived the treatment as unfair saw their relationships with siblings to be conflictive, controlling or hostile. The study therefore underscored the importance of sibling relationships, which therefore need to be encouraged to foster positive psychosocial outcomes and minimize the occurrence of high-risk behaviours in adolescence.

TABLE OF CONTENT

CONTENTS **PAGE**

LIST OF TABLES

List of Tables **Page**

LIST OF FIGURES

List of Figures **Page**

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Sibling relationship forms one of the most lasting relationships in the lives of individuals. Its compensatory and transactional nature makes it salient in family socialization processes as they influence social and mental development and control risky behaviour in adolescence (Howe & Recchia, 2006; Cox, 2010; Feinberg et al, 2013). However, research on sibling relationships and its influence on adolescence development, especially among Africans, is mostly lacking compared to the battery of literature on parent-child relationships and other forms of family relationships. In this current study, the role that sibling relationships play in the psychological outcomes of adolescence is examined by identifying the different kinds or domains of sibling relationships and their importance for developing resilience, self-esteem, emotional problems and risky behaviours.

Majority of adolescents have at least one sibling with whom they interact with. However, these interactions are diverse in nature or characteristics and vary from one sibling set to another and among families. Furman and Buhrmester (1985, 1990) described these relationships to be either egalitarian or unbalanced in power and status, close or distant, affectionate or conflictual, and supportive or competitive and according to McCubbin et al. (1996), relationships are primarily based on how the members in a family, both individuals and as group, are socialized to enhance their survival and wellbeing. This means that it is not only essential to study the natures of sibling relationships but to examine the influence that these domains have on siblings' development outcomes.

Over the years, three classes of research have been identified in literature on sibling relationships with encouraging results. The first focused primarily on the effects of family constellation variables such as relative age of siblings, sibling spacing, nominal position, parental socioeconomic statuses and family size on the development of sibling relationships (e.g. Orthner et al. 2004; Oliva & Arranz, 2005; McHale et al., 2000; Whiteman et al., 2011; Milevsky et al., 2011; Wallace, 2012; Buist et al., 2013). The authors suggested that variations in the nature of sibling relationships may depend largely on individual sibling differences, parent-child interactions and the socioeconomic state of the family. However, examining the effects of the structural or constellation variables on sibling relationships is not enough to better understand the complexity of the relationships. For examples, differences in sibling relationships even though the same constellation variables existed could not be explained by such studies (Furman & Buhrmester, 1985). The second group of studies focused on the qualities or nature of the sibling relationship itself. They focused on the causes, promotion and moderation of aspects of the sibling relationships and determined the qualities that are present at each developmental stage of life (Furman & Buhrmester, 1985). The last and current trend of research have focused on the association between sibling relationships and child development outcomes under varying life conditions such as those with severe disabilities (O'laughlin, 2006; Begum & Blacher, 2011; Petalas et al., 2009; Sharpe & Rossiter, 2002), externalizing behaviour problems and depressive internalizing problems (Kramer & Kowal, 2005; Gass, Jenkins & Dunn, 2007; Kramer, 2010; Feinberg et al, 2013; Buist & Vermande, 2014;) and post-war traumatic stress symptoms (Okello et al., 2014).

Noted earlier, sibling relationships may be characterized by affection and support, conflict and rivalry, control or even hostility and emotional distance (Furman & Buhrmester, 1990; Oliva & Arranz, 2005; Howe & Recchia, 2006; Feinberg et al, 2013). Some research maintain that sibling conflicts, rivalry and competition correlates with positive adolescence development outcomes whereas others suggests that it is rather adolescent-sibling relationships sanctioned by warmth, closeness, affection and mutual support that predict positive outcomes of resilience and self-esteem, and control high risks behaviour. For instance, Buist and Vermande (2014) reported a positive association between sibling conflicts and, reported depressive symptoms, poor academic and social competence and low global self-esteem among adolescent children while Kramer (2010) suggested that sibling conflict and rivalry may be an important tool for developing resilience in adolescence. Bank, Barraston and Snyder (2004) and Criss and Shaw (2005) reported that positive sibling relationships promote healthy and adaptive functioning while negative interactions increase vulnerabilities and problem behaviours.

Furthermore, comparative studies on sibling relationships across the lifespan and in different cultures involving adolescents have been documented (Cicirelli, 1995; Buist et al, 2014). However, the influence of sibling relationships in adolescence among Africans has received little attention in the literature although. The existing literature are mostly based on African immigrants or African Americans who might have 'adjusted' family systems that do not correspond to those of Africans (Soli, McHale, & Feinberg, 2009). The family dynamics, exposure and experiences of Africans may vary from those in the diaspora and thus confound the findings which are generalized to all people of African descent. Also most of the studies on adolescent-sibling relationships involved sibling dyads – bother-

brother, sister-sister or brother-sister (Begum & Blacher, 2011). The context in Africa may be different. Sibling are considered collectively as one and therefore their interactions would be better understood if studies focus on individual's interactions with the rest of sibling set and not just with one of the siblings. This current study focuses on the role that the nature of adolescent-sibling relationships plays in the outcomes of resilience, self-esteem, emotional problems and risky behaviours in Ghanaian adolescents.

1.2 Statement of the problem

It has been widely documented that approximately 80% of adolescents have at least one sibling and that sibling relationships last longer than any other relationship in the lives of individuals. It plays an important role in the lives of families and usually functions to compensate for parental inadequacies especially in adolescence. Nonetheless, there is a lack of research consensus on how sibling relationships influence the psychological outcomes of resilience, self-esteem, reported emotional problems and risky behaviours of adolescents. Some researchers maintain that adolescent-sibling relationships characterized by conflicts, rivalry and emotional distance positively influence the psychological outcomes whereas others suggest that it is rather those relationships sanctioned by affection, closeness and support of siblings that influence adolescents positively. This current study responded to the two views in the context of Ghanaian adolescents by examining the nature of sibling relationships in terms of affection, conflict/rivalry, control and emotional distance and how those relate significantly with adolescents' resilience, self-esteem, emotional problems and risky behaviours.

1.3 Aim of the study

The aim of the study was to examine the nature of sibling relationships and how that influences adolescents' resilience, self-esteem, emotional problems and risky behaviours.

1.4 Objectives of the study

The specific objectives of the study were to:

1. Identify the family and personal factors that influenced adolescent-sibling relationships.
2. Determine if there are family type, gender, birth order and age variations in resilience, self-esteem, emotional problems and risky behaviours.
3. Examine how and whether the kinds of sibling relationships are related to the resilience, self-esteem, emotional problems and risky behaviours among adolescents.

1.5 Hypotheses

The following null hypotheses were tested based on literature:

Ho_1: Age, gender, sibling size, birth order, religious affiliations, parental SES and parent differential treatment (PDT) have no influence on adolescent-sibling relationships.

Ho_2: The kinds of adolescent-sibling relationships have no influence on respondents' resilience, self-esteem, emotional problems and risky behaviours.

1.6 Significance of the Study

The results of the study would the understanding of how the nature of sibling relationships, influence the adjustment of adolescents. It would also help to determine the extent to which sibling interactions help adolescents cope and adjust to life's stressful conditions. The study would serve as a basis for further research into how sibling relationships could be enhanced to promote the psychological adjustment of adolescents who may be going through various forms of crisis such as parental divorce, parental death or having significant others with terminal diseases such as HIV/AIDS in Ghana.

Findings from this study could be helpful to family counselling and related agencies who work to promote family functioning. This study would inform them on how the nature of sibling relationship is salient and could be strengthened to foster positive psychological and social outcomes in adolescents and minimize the occurrence of high risk behaviours.

CHAPTER TWO

2.0 LITERATURE REVIEW

The literature was reviewed under the following headings:

- Theoretical perspectives on sibling relationships
- Family constellations and sibling relationships
- Concept of sibling relationships
- Sibling relationships and adolescents' psychosocial outcomes
- Summary of literature reviewed and conceptual framework developed for the study

2.1 Theoretical perspectives on sibling relationships

2.1.1 *Attachment theory*

Drawing on attachment theory (Bowlby, 1969), positive relationships provide the resources that enhance an individual's ability to negotiate future challenges and adversities. Consistent close contact characterized by the emotional responsiveness that most familial relationships provide fosters the development of social competence and a sense of acceptance in adolescents. This foundation of warmth and sense of belonging help adolescents become less vulnerable, more resilient and build positive self-esteem in the face of stressful conditions.

2.1.2 Ecological systems theory

The ecological systems perspective suggests that the child, as an individual, is nested in a complex network of interconnected systems (Bronfenbrenner, 1986; Bronfenbrenner & Morris, 2006). This perspective argues that other sources, beyond the parenting and the

economic environment of the child, contribute to children's development outcomes and that family as a system provides critical social and emotional regulators in its environment such as parent-child interactions and sibling relationships. These regulators interact with adolescents' personal characteristics and control social and emotional competence and the emergence of problem behaviours in individuals.

2.1.3 Family systems theory

The family is seen as an organized system that functions as a whole. According to Minuchin (1974), the family system maintains itself by resisting change beyond a certain dimension prescribed by the family. This helps the family to maintain prescribed patterns. This system is composed of many subsystems including the sibling systems. Within the sibling subsystem, each sibling commands some level of power and learns differentiated skills required of his/her birth or nominal position and/or based on the relationship s/he has with the parents. The first born is usually charged by this system to propagate the family's culture to the young siblings. As such the relationship between this first born and the younger sibling may be conflictual as those younger sibling try to resist such influence and control over them.

2.2 Family constellations and sibling relationships

The family has been widely defined as a basic unit of society consisting of parents and their children or a group of people with a common ancestry, whether they are living together or not (Nukunya, 2003). Beyond this elementary description of the family, there is no universally accepted definition of what a family is and the social understanding of

what a family entails varies from one culture to another (Munro and Munro, 2003). Nonetheless, what unifies the varying family definitions is the fact that the group may consists of two or more of these persons; a husband, wife/wives, children, dependents and extended relatives (Nukunya, 2003; Anyakoha and Eluwa, 2009).

A family can also be described as a unit of intimate and interdependent individuals who share some values and/or goals, and have commitment to one another and as a result provide nurturing environment that influences the development of its members. According to Meunier et al. (2011), family in which there is love, adequate attention and emotional support for children promotes positive interactions among the children, regulates their social and emotional behaviours and, moderates the emergence and frequency of behaviour problems.

2.2.1 Changes in the nature of modern families

In the past few decades, there has been major changes in the structure of the nuclear family. According to the International Encyclopaedia of Marriage and Family, IEMF (2003), about one-third of all families in the world are headed by single mothers. More single-parent families are emerging due to divorce, spousal death or decision to remain single. In Canada, there are about 2.1 million male headed families and 9.8 million female headed families (Canadian Census, 2011). In the United States of America, approximately 84% of single-parent families are headed by women (IEMF, 2003). Similarly, most single-parent families or households are headed by females in Ghana. The Ghana Statistical Service's (2014) report on the Ghana Living Standards Survey round 6 indicated that 19.4% of Ghanaian families are headed by women compared to 2.7% headed by their male

counterparts. These structural changes in the nuclear family has influenced the nature of relationships that exist therein and dictates how behaviours are regularized. In the wake of these rapid social, cultural and economic changes, Kusi-Appouh (2010) maintained that family and kinship [relationships] in most African states still remain indispensable in adolescence development and this calls for re-evaluation of the role that siblings play in adolescents' psychosocial development through family functions and socialization.

2.2.2 Number of siblings

The term siblings refer to brothers and sisters of the same parents. However, changes in modern family structure have given credence to persons who share one biological parent and to those who are unrelated paternally or maternally but are referred as such due to their ties of consanguinity. In Ghana cousins may be referred to as siblings especially when they are raised together and have closer age gaps. Siblings are those with whom an individual closely shares genetic, family, social class and historical background and to whom the individual is tied for a lifetime by a network of interlocking family relationships (White, 2001).

Research indicates that high levels of family cohesion and large number of siblings significantly predict positive sibling relationships and that compensate for parental inadequacies in case of stress, deprivation or conflicts (Whiteman et al., 2011).

Children in larger families show better social-emotional adjustments than their only-child counterparts (Fahey, Keilthy & Polek, 2012). Study by Hasnain and his colleague (2012) of 100 students in their 10^{th}-12^{th} grades in Delhi, India yet found no significant difference in self-esteem between adolescents with and without siblings, although they stated that

previous research showed only-child adolescents to be more intelligent, mature, and sensitive socially, and had higher positive self-esteem than their counterparts. Fahey, Keilthy & Polek (2012) found out that mothers with larger families have a lower risk of depression and have positive influences on their children's psychological outcomes. The number of siblings is therefore a key determinant of the quality of family functions and relationships.

2.2.3 Birth order effects

Birth order or nominal position is the rank of siblings by age. Studies on birth order vary widely in quality and are inconsistent in their conclusions. Birth order is associated with confounding factors such as demographic characteristics that make the direct measurement of its influence on personality and family relationships very confusing (Sulloway, 1996). Ernst & Angst (1983) reported in their extensive review of literature on birth order effects that birth order in between-family studies was related with income, academic achievement and parenting styles. However, when the reviewers narrowed their analyses to studies that controlled for effects of family size, very minimal birth order effects on development outcomes were documented. In addition, Branje and his colleagues (2004) argued that birth order effects on personality and family systems was insignificant in the absence of some confounding variables.

Beyond these limitation, birth order gives meaning to individual experiences and defines their unique situations in the family systems (Adler, 1964). Cultural lore and a body of researchers perceive birth order to be significant in adolescents' development and in their interactions with parents and siblings; firstborn children are expected to be conscientious,

parent-oriented and rule-bound whereas later-born children are agreeable and open minded as a result of their unconscious attempts to distinguish themselves and secure a place in the family hierarchy (Sulloway, 1996). Nukunya (2003) explained that each individual as a family member requires and acquires a recognized status that carries with it specific rights and obligations determined and upheld by custom, law and ethics and that this system of claims and obligations are attained through birth order, among others.

Alfred Adler (1964) was the first to suggest that birth order has a profound and lasting influence on ones' personality and that it influences ones perception of friendship, love and work. He proposed that factors such as relative age differences, number of siblings and the changing circumstances of parents over time determined the influence of birth order on personality. Lamb and Sutton-Smith (1982) later expounded Adler's proposal and argued that sibling relationship, which often last an entire lifetime, is continuous and offers individuals the opportunity to adjust to the competing demands of its socialization tendencies in every family systems. Based on this assertion, the authors suggested that any influence of birth order on sibling interactions may be eliminated, reinforced or altered by the experiences that the individual encounters later in life. For instance, the addition of a second and third child etc. in the nuclear family alters the experiences and social development of the first born child and the quality of interaction s/he shares with each of the siblings. Also the first born child living with a step family in which the male spouse already have an older child, may not assume the roles assigned to first born children. In such family system, the relationships between the "step-siblings" might be that of conflict and rivalry.

Furthermore, the gender and personality of the firstborn is more likely to influence the relationship with later-born adolescent children and their behaviours unilaterally (Dunn, 1984; Lamb & Sutton-Smith, 1982).

2.2.4 Socioeconomic status effects on sibling relationships

According to Orthner et al. (2004), families with low incomes are sometimes burdened with stress and conflict probably in an attempt to making difficult financial choices in the contexts of limited resources. This creates an atmosphere of competition and rivalry among siblings, altering their relationships as well. It is argued that in moderate to high income families, on the other hand, they would have enough financial resources to meet adequately the needs of their members and to a larger extent, minimize competition and build healthy sibling relationships.

Not all low income families' interactions are characterized by rivalry and conflicts. As cited in Orthner et al. (2004), Edin and Lein's (1997) interviews with 379 low-income single mothers in USA concluded that poor families may develop optimal ways of coping and adopting creative strategies against the effects and stigma of poverty. For example, the parents of such families strive to live in their own homes minimize cost, and engage their children in developmentally appropriate activities that foster positive relationships among their children, and help them avoid violence and crime as well as stay in school.

Furthermore, children in single-parent headed families are more likely to experience health-related problems as a result of the decline in the families' standard of living (Orthner et al., 2004). However, they tend to adjust and recover later in life when conditions improve (Masten, 2014).

Also studies have drawn a positive correlation between socioeconomic status (SES) and adolescents' psychological outcomes. Adolescents with high SES have slightly higher levels of self-esteem (Robins et al., 2002). This suggests that adolescents in wealthy families are likely to have experiences that make them capable of meeting life's challenges and opportunities to build stronger relationships with significant others. They focus on themselves as individuals nested in a system of interactions and thrive to get the best of them.

Nonetheless, this may not be entirely true. The influence of the socioeconomic status of families alone on adolescents' development may be difficult to document in light of various contradicting factors. There are poor families with stronger emotional bonds than those of wealthy families. For instance, housing influences the development of children however, a poor single mother and trader who does not live in a better housing facility with the children may still have enough time to interact with the children and create a happy home compared to a wealthy intact family with busy parents who leave their children in the care of housemaids and nannies.

2.2.5 Gender differences in sibling relationships

Gender has been widely documented as one of the variables that influence sibling relationships. Considering gender based differences in the meaning and importance attached to the nature of adolescent-sibling relationships, several research suggests that sibling relationships are more important for girls' psychosocial adjustment than for boys (e.g. Oliva & Arranz, 2005). Females' social relationships have consequences for the development of resilience, self-esteem and health behaviour. Females are therefore, more

likely to contribute positively to their relationships with the siblings; avoid conflicts and be more affectionate and supportive (Boakye, 2009).

2.2.6 Parental differential treatment and sibling relationships

Parenting has been documented across family relations literature to influence adolescent-sibling relationships. The quality of the relationship between each adolescent and the parent(s) and/or between parents affects the nature of interactions among siblings (Feinberg et al, 2013; Milevsky et al., 2011; Whiteman et al., 2011; McHale et al., 2000; Oliva and Arranz, 2005). Emotionally secure parent-child relationships are thought to lead to close and trusting relationships with others and create the impetus for positive self-esteem in adolescence. The quality of such relationships may be influenced by parents' rearing styles (Whiteman et al, 2012).

According to Oliva and Arranz (2005), the quality of sibling relationships depends, to a larger extent, on the way parents relate to their children. Whiteman et al. (2011) added to the discussion by indicating that adolescents who have positive relationships with their parents tend to replicate such relationships with their siblings whereas those adolescents who are insecurely related with their parents have higher incidences of conflicts and hostility in the interactions with their siblings. Studies have shown a positive association between authoritative parenting style and quality of sibling relationships (eg. Milevsky et al., 2011). Adolescent-parent relationships characterized by acceptance and support is widely documented to influence sibling relationships positively, whereas harsh and authoritarian parenting is linked to a more conflictual sibling relationships (Milevsky et al., 2011; McHale et al., 2000). A study on parenting styles and its influence on

adolescence in Ghana by Sankah (2007) suggested that children with authoritarian parents had low self-esteem characterized by signs of stress, anxiety, withdrawal, rebellion and unhappiness. The researcher linked these negative attitudes to the demanding rules, excessive punishment and strict orders from parents and guardians. Adolescents with strict parents are likely to have more problems at school, use drugs and engage in risky behaviours (Feinberg et al, 2013). In a different study on 4,899 adolescents from the Wave 1 of the UK Household Longitudinal study conducted between January 2009 and December 2010, Tippett & Dieter (2015) established that harsh parenting increased the risk of sibling rivalry.

One area of parenting that is of significance to the development of sibling relationship is children's perception of parental differential treatment of one child over the other. Parental differential treatment (PDT) of one child over the other(s) is linked to conflicts and rivalry among siblings as the other(s) begin to evaluate themselves based on how they measure up against the preferred child, especially when they perceive that child as like themselves (Whiteman et al., 2011; McHale et al., 2000). A study by Kowal & Kramer (1997) involving 11 -13 years old adolescents from Caucasian families found that children who perceived parental differential treatment of themselves and their siblings as fair generally had more positive assessment of their sibling relationships. The same study suggested that sibling conflicts and rivalry was the result of children's perception of parental partiality towards them and their siblings.

Parenting of siblings involves management of sibling relations and conflicts. Positive relationships among siblings have been reported to exist where parents fairly provide for the physical and emotional needs of each of their adolescent children. This kind of

parenting has been reported to consistently influence children's self-esteem and perceptions of life satisfaction even during and after parental divorce (Feinberg et al., 2013; Oliva and Arranz, 2005). Parenting styles therefore have different outcomes for adolescents' development and the relationships they form with others, especially with their siblings.

Factors such as children's personal characteristics, parental divorce, separation and death influence parent-child relationships. According to McHale & Crouter (2003), parents often cited their children's personal characteristics, such as their temperaments and behaviours, as a motivation for treating their children differently. Also, Oliva and Arranz (2005) studied 513 adolescents and reported that changes in adolescents' family relationships influenced their psychosocial outcomes. Other studies indicate that parental divorce leads to feelings of loneliness, insecurity, rejection and incompetence. Amato and Afifi (2006) explained that children with parents in conflicted marriages may be unable to escape from their parents' marital problems. Furthermore, it been documented (Fahey et al, 2012) that mothers who are depressed or have marital issues are likely to pass on the conflict to their children. The circumstance surrounding the child is further explained by the balance theory, which points out that holding positive feeling for two individuals who hold negative feelings toward one another results in a psychological dilemma (Newcomb, Tumer & Converse, 1965) and affect the outcomes of other social relationships.

2.3 Concept of sibling relationships

Human development basically results from the interactions of dynamic family systems at various levels. These systems ensure that individual family members are reciprocally

influenced by one another by regulating and setting the precedence for acceptable behaviours within the family and society. One of the systems that is likely to be salient in regulating adolescents' behaviours is sibling relationships (Cox & Parley, 2003).

Siblings play useful roles in family relationships and in the adjustment of its members. The relationships of siblings can be one of love and hate, of competition and support and of envy and admiration. Siblings and their interactions form an integral part of most children's social worlds and the emotional ties they share could even be stronger than those between parents and their children. Through interactions, siblings acquire many skills, both social and cognitive, that inform their social development. Research by Sroufe et al. (2005) suggests that sibling relationship plays unique developmental functions that can substitute but cannot be substituted by parent-child relationships. It functions like and unlike parent-child and peer relationships (Cox, 2010) and is cross-culturally accepted to be the most enduring life-long relationships in individuals' lives. Sibling relationships resemble parent-child relationships in that they involve emotional ties but have age gaps that resemble those between peers and provide the avenue for social learning, such as managing emotional conflicts and practicing leadership (Burton, 2007). These relationships usually function to compensate for parental inadequacies during adolescence as children use their siblings as a secure base from which to explore or as a source of comfort in stressful circumstances. In times of stress, adolescents benefit from a great deal of support and have fewer problems from good sibling relationships, even if parental support is deficient (McNerney & Usner, 2001).

Furthermore sibling relationships provide intergenerational experiences that enhance individuals' social, emotional and cognitive competences (Cox, 2010). These are reflected

in the individual's level of tolerance of negative effects, identity formation and general social understanding. Siblings may influence one another positively or negatively. Kusi-Appouh (2010) found out that in Ghana and Uganda, older siblings were more likely to pressure their younger adolescent brothers and sisters to either engage in risky sexual or deviant behaviours or to participate in initiation ceremonies in attempt to making them more socially accepted or protected from premarital sex and teenage pregnancies. Earlier studies by Karim (2002) and Diop-sidibe (2005) in Ghana and Cote D'Ivoire respectively reported by Kusi-Appouh (2010), showed that older siblings who engaged in early sexual practices and had teenage pregnancies were likely to model such experiences in their younger adolescent girls.

The nature of relationships among siblings is complex in its characteristics and can be either egalitarian or unbalanced in power and status, close or distant, affectionate or conflictual, and supportive or competitive (Furman & Buhrmester, 1985; 1990). They vary from one sibling pair to another within the same family and even among families based on how the members in the family, both individuals and as group, are socialized to enhance their survival and wellbeing (McCubbin et al., 1996). Furman and Buhrmester (1985) proposed four main variables to theorize their model of the quality or nature of sibling relationships; the sibling relationship itself, parent-child relationships, the individual genetic differences and the family constellation variables. The authors described the sibling relationship variable to include the domains of warmth/closeness, relative status /power, conflict and rivalry. The second variable, parent-child relationship, consisted of the quality of interaction between parents and their children and how sibling relationships

are managed by parents. Individual differences in cognition, social behaviour and personality accounted for the third variable and finally the family constellation variables included the number, relative age and gender of siblings and, family socioeconomic status among others.

Sibling relationships in adolescence can be frustrating, stressful and intimidating during adolescence and are characterized by emotions, conflicts and rivalry and/or nurturance and social support (Steinberg and Morris, 2001). During adolescence, these relationships become pronounced as individuals begin to evaluate themselves, carve identities for themselves while they question social and family norms and set rules for themselves contrary to parental expectations. Their learned behaviour affects the people around often causing anxieties and discomfort in their parents and siblings who must learn to adjust (Steinberg, 2001). When the siblings of these adolescents fail to adjust, conflicts ensue and dominate the relationship. Brody et al. (1994), posited that as individuals transition from childhood to early adolescence, conflicts with their siblings intensifies. In a study on 85 adolescent students in Michigan, USA, McNerney and Usner (2014) reported that brothers and sisters aged between 10 – 15 years were the most competitive and rivalrous. They explained that those adolescents were mostly insecure and vulnerable. The way they valued themselves were threatened and therefore were more likely to compete aggressively for parental attention and resources. However, sibling relationships are not entirely conflictual across adolescence. As individuals move to middle and late adolescence, the high levels of conflict diminishes and give way to a more supportive, warm, assertive and democratic relationship characterized by inter-sibling help and social support (Sternberg & Morris, 2001).

2.3.1 Influence of siblings on adolescents

Adolescence is a developmental stage of life between childhood and adulthood marked by intense and rapid physical, cognitive and psychosocial changes (Berkeley, 2003) and individuals are developmentally prone to engage in high risk behaviours (DeChesney, 2005). According to Steinberg (2001), most individuals go through adolescence without developing significant problematic psychosocial behaviours. However, it is also a unique stage for enhancing personality and regulating behaviour through family interactions and functioning (Feinberg et al., 2013). Adolescence has been documented as a period where individuals explore and discover who they are and their place in society as they manage feedback and carve identities for themselves (Steinberg & Morris, 2001; Erikson, 1968). Steinberg and Morris (2001) maintained that contemporary studies show that the concept of self-exploration and identity formation occurs mostly in late adolescence towards emerging adulthood.

In adolescence, individuals use their siblings, especially their older siblings, as references to model their behaviour (Branje et al., 2004). Through sibling relationships adolescents learn norms and develop understanding of social risks and their implications (Pomery, 2005). Siblings play important role in regulating behaviours in adolescents. Their interactions influence the occurrence of certain behaviours, both socially acceptable and unacceptable. A longitudinal study of 380 Mexican-origin siblings from 190 families in the United States of America by Whiteman et al. (2014) on the influence that siblings had in adolescents' deviant and sexual risk behaviours maintained that older siblings played important roles in the socialization of younger adolescents. In tandem with social learning

theory, the authors maintained that adolescents acquire attitudes, skills and behaviours through the observation and interaction with significant others.

Through modelling and social reinforcement, older siblings transmit norms and expectations of their families on health risk behaviours such as deviant behaviours, substance use and sexual behaviours. Kusi-Appouh (2010) analyzed data from the Protect the Next Generation (PNG) study conducted by the Guttmacher Institute in Ghana, Malawi and Uganda in 2004 using in-depth interviews (IDIs). He used the data on a rather smaller sample of 102 adolescents from Ghana and Uganda. Nonetheless, the sample was drawn from adolescents with diverse social and economic backgrounds. The sample consisted of adolescents between the ages of 12 and 19, from both rural and urban communities who were in or out of school. The IDIs used to solicit data from adolescents from two African countries with seemingly varied cultural and political orientations further authenticated the findings of the study. Based on the analysis, Kusi Appouh (2010) concluded that adolescents depended on their siblings for first-hand information on the prevention of sexually transmitted diseases and teenage pregnancies and that those adolescents were more comfortable sharing their romantic relationships with siblings rather than with their parents. The author also reported that older siblings were more likely to pressure their younger siblings to either engage in risky sexual behaviours or to participate in initiation ceremonies that would make them socially accepted and protected from premarital sex and pregnancies.

The findings emphasized siblings influence on the development of positive and negative social behaviours in adolescents based on the experiences of the older siblings. However, the kinds of sibling interactions that reinforced or minimized certain behaviour patterns

among adolescents were not documented. For instance, it was not clear the kind of interaction that influenced adolescents to model their older siblings. Anecdotal findings also suggest that adolescents may not only model their older siblings but their younger siblings as well based on a number of factors, ranging from academic to social competence.

2.4 Sibling relationships and adolescents' psychosocial outcomes

Adolescents are influenced by their siblings too. The interactions among siblings regulate adolescents' behaviours and influence their psychological wellbeing. A study by Buist et al. (2014) on 1,670 Dutch children attending 51 different Dutch Schools found out that adolescents whose relationships with the siblings were characterized by conflicts reported having more internalizing and externalizing problems, poorer academic and social competence and low global self-esteem. The authors concluded that sibling conflicts have a negative effect on adolescence development. A similar study on African American adolescents reported that adolescents with high family conflicts reported greater mental health problems later in life such anxiety, depressive symptoms and violent behaviours (Chloe, Stoddard & Zimmerman, 2014). What was not clarified in this study was the specific kind of conflict – parent-child or among siblings – that was salient for the negative health outcomes.

Contrary to general assertion, not all sibling conflicts lead to negative outcomes in adolescence. Kramer (2010) suggests that most skills relevant to development and build up in contexts of conflicts and of positive interactions. He therefore suggested that eliminating conflicts among siblings completely may not be an appropriate goal for development in adolescents. Also, in less than two decades ago, Brody (1998) reviewed

literature on the causes and consequences of sibling relationship quality and concluded that sibling relationships that comprised of a balance of both pro-social and conflicted interactions created experiences that were most likely to nurture adolescents' social, and cognitive development.

2.4.1 Sibling relationships influences in emotional problems and risky behaviour development

Classical psychoanalytic conflict theory (Bowen, 1976) describes emotional and behaviour problems as the emergence of repressed impulses resulting from an individual's attempt to cope with unconscious conflicts and anxiety. These impulses are often suppressed through the interactions with others. According to Campbell (1995), emotional and behaviour problems are the most common outcomes of childhood maladjustment. They involve uninhibited behaviours and related expressions of under socialization in which negative emotions are directed against others and manifested in anger, aggression or frustration (Roeser, Eccles & Strobel, 1998). Burke, Pardini & Loeber (2008) cautioned that the frequency of their manifestation changes as children develop and therefore must be studied from a developmental perspective.

According to Nichols & Schwartz (1995), these problems are the outcomes of emotional reaction to the pressure to conform to family norms and values or by the disruption of an attached relationship that is important for the individual's functioning. Siblings who are pressed through their interactions with siblings and significant others to live up to the ideals of the family may develop emotional and behaviour problems. Also, individuals with controlling or emotionally distant siblings are more likely than not to develop emotional

problems. Another way emotional and behaviour problems occur is when the individual plays the role of the third person in two siblings who are occasionally fighting or competing with each other (Nichols & Schwartz, 1995). This individual becomes emotional involved, sometimes takes sides and bears the burden of the two siblings. The exact pathway of this assumption may be difficult to examine due to the complexity of the processes involved. However, it stands to reason that although an individual might not be directly involved in conflicting or other negative relationships, s/he may develop anxiety and blame himself or herself for not being able to end conflict among siblings or between the parent(s) and the sibling.

Emotional problems are marked by depression, anxieties, substance use and withdrawal (Perle et al., 2013) whereas symptoms of risky behaviours are aggression, violence, deviancy and criminal ideations (Jianghong, 2004). Emotional problems and risky behaviours are opposite outcomes of the same coin – they may be triggered by the same stressors. The outcome that may emerge when an individual is not able to negotiate the effects of the stressors depends largely on the gender, personality and earlier experiences of the individual. Males and females react differently to the same stressor because of the different paths through which they are socialized. Males are more likely to be more expressive and aggressive and to engage in high risk behaviours as a way of dealing with frustrations and failures in line with the pattern of their socialization whereas females on the other hand are more prone to internalizing their emotions (Boakye, 2009).

Psychoanalysts suggest that emotional and behaviour problems should not be focused on because they represent the tip of the "intrapsychic iceberg" but rather, the focus should be on the context within which the problems occur (Kerr & Bowen, 1988). Eliminating the

stimulus or stressor will automatically reduce the frequency of the problems or eliminate it completely. By extension, promoting positive interactions among siblings would alter the development of problems. On the other hand, psychosocial theorists argue that behaviour problems are the forces that shape development and discovering their influence and contexts provide interventions for improving social interactions and developing positive psychological outcomes that negotiate the development of future emotional and behaviour problems (Erikson, 1968; Haley, 1981). Linking these two conflicting theories may be useful in regulating behaviours in adolescents. For instance, though family conflict is reported to influence emotional and behavioural problems (Chloe, Stoddard & Zimmerman, 2014; Formoso, Gonzales & Aiken, 2000), interventions must not only look at eliminating the conditions that cause the conflict but how the outcomes inform future conflicts.

According to Nichols & Schwartz (1995), the strategic and systematic models of the development of behaviour disorders outlines three basic pathways through which emotional and behaviour problems occur; cybernetic, structural and functional. In both the cybernetic and structural pathways, challenges and difficulties are turned into chronic problems when the individual attempts to find misguided solutions to the challenges or when there is pronounced inadequacies in family processes and relationships. These problem pathways are easily seen in authoritarian, permissive and/or uninvolved parental and sibling relationships. The authors explained, using the structural family perspectives that emotional disorders or problems occur when family structures are not attuned adequately to meet and address maturational or situational challenges. These families have rigid boundaries that fail to mobilize support to its members when needed and are the

members are emotionally distant from each other. The functional pathway of emotional problem development suggests that problems occurs when individuals try to over protect or control one another indirectly. With controlling/over indulgent families and siblings, as in what the authors termed as enmeshed families, boundaries are diffused and family members overact and/or become very intrusive in the lives of others. This hinders the development of mature forms of behaviour in adolescents and interfere with their abilities to negotiate and solve their own problems and as a result develop adverse emotional behaviours or problems (Nichols & Schwartz, 1995). Also the quality of parent-child interactions have been suggested to be a strong correlate of emotional and behaviour problems. Meunier et al. (2011) reported that children with controlling and less supportive parents exhibit higher emotional and behaviour problems. However, considering the fact that the child is nested in a complex network of interconnected systems (Bronfenbrenner & Morris, 2006), other factors even within the family may as well account for the development of emotional and behaviour problems.

2.4.2 Sibling relationship influences in resilience and self-esteem development

2.4.2.1 Resilience development

Resilience in adolescence can be defined as the resources that an individual possesses to cope and adapt to and to negotiate future stressful life conditions. Ingersoll & Orr (1989) documented that resilient adolescents were those individuals who engaged in and exhibited low emotional and behaviour risks even though they had been predicted to have high risks. Moreover, in comparison, they were still more likely to demonstrate troublesome behaviours than their normal peers.

Resilience defines a dynamic process involving personal strengths and capabilities as well as external resources such as healthy family environment and the presence other social support systems that reinforce efficient coping and adaptive adjustment. Resilience is therefore a multidimensional construct that varies with context, time, age, social support systems available, nature of family environment, and cultural origins as well as individual abilities (Masten, 2014). Lundman et al. (2007) found a positive relationship between resilience and academic achievement of 127 adolescents in Pakistan and also learnt that resilience correlated positively with age and that males were more likely to be resilient than females. It is also widely documented that adolescents who are exposed to stressful life conditions may either remain psychologically healthy and well-adjusted or become vulnerable based on their experiences and dose gradient of the stressors (Masten, 2014). Research further suggests that stressful life conditions are not always destructive and that most individuals and families faced with extremely difficult situations, such as the death of the breadwinner, parental job loss, divorce and poverty, are able to bounce back from such adversities and function normally. Familial relationships and processes are thought to be very significant in establishing patterns of family functioning that enhance individual's coping and adaptation to such conditions (McCubbin et al., 1996). Families that promote social competence and positive interactions provide adolescents with the opportunities to develop resilience (Peterson & Bush, 2014). Resilient adolescents are believed to have inner strength that makes it possible for them to acquire needed resources in the face of adversity. These resources help them redefine their situations, overcome the stressors they face and develop optimally. Close attachment relationships have been described as one of the familial resources that influence resilience in adolescents (Masten,

2001, 2007, 2014). According to Newman & Newman (2006), resilient adolescents have at least a supportive and loving relationship with their family members and significant others as well as strong religious beliefs. Adolescents' degree of resilience and also sensitivity to family relationships create an intervention pathway for enhancing adolescents' recovery and adjustment and, for regulating risky behaviours even under conditions that would ideally weaken the family and its individuals and make them dysfunctional (Feinberg et al., 2013; Buist et al., 2013; Meunier et al., 2011; Whiteman et al., 2011).

The nature of adolescent-sibling relationships is thought to mediate adolescents' ability to cope, adapt and recover adequately from trauma or stressful events. In modern literature, resilience is regarded in as a *process* rather than an outcome that provide the necessary emotional vitamins for influencing the outcomes of self-esteem and health behaviour (Luthar 2000, Cicchetti & Becker, 2000).

2.4.2.2 Self-esteem development

One of the most widespread theories that explains self-esteem is the Hierarchy of needs or motivation proposed by Abraham Maslow (1943). The theory was developed on the basis that individuals' needs occur at different levels and are interdependent. He maintained that physiological needs are basic for survival and must be met first before other needs could be successfully met. In line with this, self-esteem develops when an individual's need for food, sleep, warmth, shelter and, safety against environmental threats are adequately catered for and, s/he feels accepted by the social group, such as the family, s/he belongs to. The family as a social dynamic system play a key role in the development of self-

esteem. Self-esteem is therefore a reflection of individuals' thoughts and feelings about themselves based on their daily experiences and interactions with their significant others such as parents, siblings and peers. However, self-esteem goes beyond situational ups and downs. It develops and changes throughout life, especially during adolescence, as individuals build an internal image of themselves through various experiences (Robins et al., 2002). The importance of relationships in self-esteem development in adolescents cannot be overemphasized.

Adolescents explore the psychosocial aspects of themselves by evaluating their strengths, weaknesses and fears and, managing feedbacks from their interactions with others. Positive feedback influence high self-esteem, low vulnerability to stressful life conditions and a sense of personal control (Adams et al., 1994). Self-esteem refers to a confidence and satisfaction in oneself. Morris Rosenberg's (1965) landmark definition of self-esteem as a favourable or unfavourable attitude toward the self, laid the foundation for rigorous empirical research on self-esteem especially in adolescence. Building up on Rosenberg's (1965) description, self-esteem has been broadly defined by contemporary researchers to be to an individual's sense of his or her value or worth, and the extent to which the person values, approves, appreciates, prizes, or likes himself or herself. Adams and his colleagues (1994) cautioned that self-esteem does not mean feelings of superiority, perfection, competence or efficacy but it refers, instead, to a sense of self-acceptance, a personal liking for one's self, and a form of proper respect for oneself. Individuals identify themselves early in life and this is one of the most important concepts that an individual ever forms. As children learn to describe aspects of themselves, such as their physical attributes,

abilities and preferences, they also begin to evaluate them. However, it is during adolescence that self-esteem becomes integral to the identity of individuals.

Self-esteem is a construct that develops primarily through contact with others (Atindanbila, Doku & Awuah-Peasah, 2012). Some earlier researchers have argued that how others see an individual is not necessarily important to developing self-esteem in that individual (eg. Katz, 1995). However, research from collectivist interdependent societies may suggest otherwise. There are evidence to suggest strong association between self-esteem and acceptance by others. Searcy (2007) emphasized the importance of adolescents' social environment in the development of self-esteem. He documented that the type of people with whom an individual associates e.g. family members, peers, social groups etc., the activities the individual participates in and, what the individual hears about himself or herself influence his or her self-esteem. Feedbacks from rewarding relationships help improve the individual's self-confidence. A more positive sibling relationship enhances adolescents' self-esteem. A study by Yeh and Lempers (2004) from a 3-wave data collected from fathers, mothers and target adolescent children in 374 families on the influence of sibling relationships on adolescence development across early and late adolescence reported that adolescents who perceived their sibling relationships more positively had higher self-esteem and were associated with less loneliness, depression, and substance use and fewer delinquent behaviours.

2.5 Summary of literature reviewed and conceptual framework developed for the study

2.5.1 Summary of literature reviewed

Relevant literature was reviewed on the theoretical underpinnings of sibling relationships, the concept of sibling relationships itself, the family constellations that influence the nature

of sibling relationships. The relationships between the nature of sibling relationships and adolescents' psychosocial outcomes such as resilience, self-esteem, emotional risks and risky behaviours were detailed. Finally, a framework linking all the study variables described above was conceptualized to guide the research process.

Attachment theory, ecological systems theory and family systems theory were used to explain the construction and relevance of sibling relationships in adolescents' psychosocial outcomes. These theories collectively suggest that positive, consistent close contact with significant others, especially parents and siblings, fosters the development of positive relationships that enhance the development of social competence and reduces vulnerability during adolescence.

The nature of families and what defines them are constantly changing. The constant structural changes, especially in the nuclear family settings, are influencing and redefining the nature of relationships that exist therein and dictates how behaviours are regularized. The number and birth order of siblings, the gender and the economic wellbeing of adolescents have been linked to their social and emotional adjustments. Although some authors may disagree, adolescents with a lot of siblings may be more socially competent compared to those who have just one or none. Adolescents who are firstborns may be more conscientious, parent-oriented and rule-bound and may constantly be in conflict with younger siblings who may not possess similar orientations. Furthermore, later-born and last-born adolescents may be influenced positively and negatively by older siblings.

The way that parents relate to each individual child also have consequences for the nature of relationships that ensues among the children. Adolescents who perceive that they are

fairly treated by the parents in relation to their siblings tend to relate more affectionately and support their siblings and vice versa.

Sibling relationships may consist of one of love and hate, of competition and support, and of envy and admiration and form an integral part of most children's social worlds. The emotional ties they share could even be stronger than those between parents and their children. Through interactions, individuals acquire many skills, both social and cognitive, that inform their social development. During early-to –middle adolescence, the nature of these relationships become more conflictual as the adolescents begin carve their identities, question and redefine their social and family relationships. As they approach late adolescence, the high levels of conflict diminishes and give way to a more supportive, warm, assertive and democratic relationship characterized by inter-sibling help and social support.

Adolescents who have conflictual sibling relationships often develop either emotional problems, risky behaviours, low self-esteem and, poor academic and social competence. Contrary to this assertion, some human developmentalists hold the view that through sibling conflicts and verbal exchanges, skills relevant to development and building resilience to future challenges are enhanced. Therefore family interventions should not be aimed at eliminating sibling conflicts entirely but should comprise a balance of both positive and conflictual interactions that would nurture adolescents' social, emotional and cognitive development.

Finally, the review may not truly represent Ghanaian adolescents and their sibling relationships since most of the studies were of European or American origin. The paucity

of research on adolescent-sibling relationships in Ghana suggest a neglected source of psychological stability among Ghanaian adolescents.

With this review, the researcher set out to identify the family and individual factors that influenced adolescent-sibling relationships and to examine how the nature of sibling relationships are related to the resilience, self-esteem, emotional problems and risky behaviours among Ghanaian adolescents.

Based on the literature and theories reviewed on sibling relationships, the following framework was proposed (Figure 1).

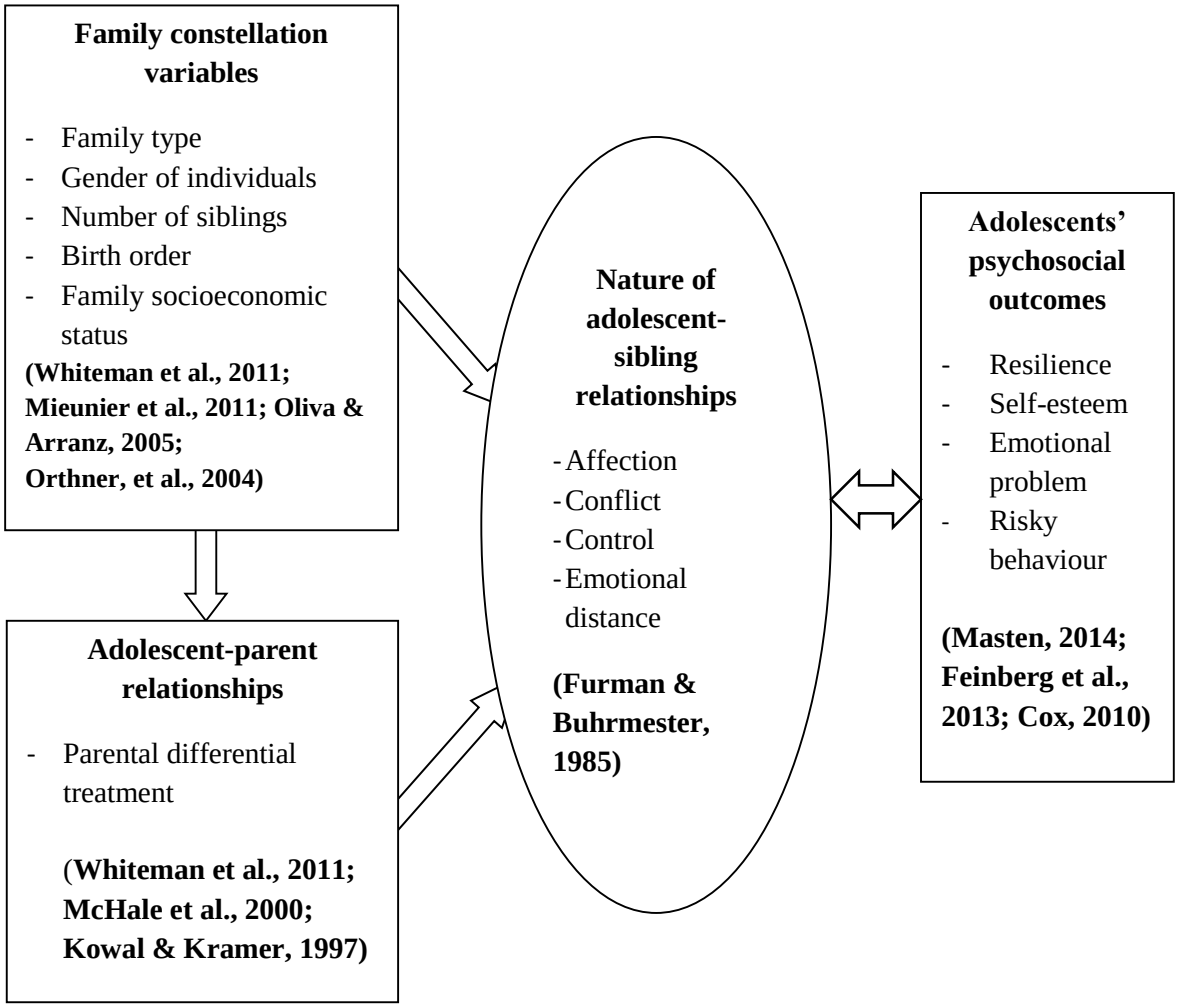

Figure 1. *Conceptual framework of study variables based on literature*

It has been documented that family and individual characteristics of adolescents such as birth order, gender, number of siblings and the family's socioeconomic environment influence the interactions they have with their siblings. The relationships that exist between adolescents and their siblings are also influenced by the nature of adolescent-parent relationships, measured as parental differential treatment and explained by how the adolescents are treated by the parents or guardians compared to their siblings.

The kind of adolescent-sibling relationships on the other hand, also influences resilience, self-esteem, emotional problems and risky behaviours in the adolescents and vice versa.

Most of the factors documented here are bidirectional in nature. For example, parental differential treatment may influence and be influenced by the nature of sibling relationships that pertains to a family. Also the psychosocial outcomes may influence the nature of sibling relationships and vice versa.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

A cross-sectional study design was employed. This survey design was used because it allowed a small proportion of the target population to be used for the study. The design is also appropriate for describing relationships among factors that influence the resilience, the self-esteem and health behaviour in adolescents within any family context at any point in time.

3.2 Study area

The study was conducted in four selected Junior High Schools (JHS) at Madina in the Greater Accra Region of Ghana. Madina is the administrative capital of the La-Nkwantanang-Madina District and it is inhabited by people with different ethnic and varying socio-economic backgrounds. The cosmopolitan nature of the town made it suitable for the study. Also Madina has a number of private and public schools from which the researcher had access to adolescents from diverse backgrounds.

3.3 Target population

The target population for the study comprised all adolescents in private and public Junior High Schools, who were between the ages of 10 and 18 years, had at least one sibling and resided at Madina in the Greater Accra Region of Ghana during the period of the data collection. Adolescents who were in form three were excluded from the study since they

were preparing for their Basic Education Certificate Examination (BECE) and were not readily available to participate in the study.

3.4 Sample and sampling procedure

3.4.1 Sample size

A power analysis calculation was performed to determine the minimum sample size that would be required to significantly assess the study variables. The SPSS Sample Power 3.0 analysis of a moderate effect size (0.05), power of 0.92, an alpha of 0.05 with standard error of 0.14 yielded a projected sample of 200 study participants. This sample size was the minimum predicted to assess significant relationships among the study variables. In order to obtain a convenient sample size not less than 200 after data collection and data cleaning, the initial sample size was increased to 240. Twenty-nine (29) questionnaires with inconsistent responses were rejected prior to the data analysis. Therefore the actual sample size used for the study analysis was 211; 97 JHS form one students and 114 JHS from two students.

3.4.2 Sampling procedure

Sampling provides the researcher the opportunity to select a few respondents out of a population, whose responses reflect those of the whole population. In other words it helps the researcher to select a small group of individuals whose responses can be statistically generalized to the entire population. To obtain a representative sample for the study, multistage sampling techniques consisting of the purposive, simple random and equal

probability systematic sampling methods were employed to select the study area, schools and students respectively.

Purposive sampling, also known as judgemental or subjective sampling, relies on the discretion of the researcher when selecting the units or samples to be studied. The ultimate goal of this technique is to focus on particular characteristics of a population that are of interest to the researcher without making generalizations to the entire population.

Simple random sampling is used when the researcher knows little about the population and an unbiased sample size is required (Investopedia, 2015). In simple random sampling, every unit in the population has an equal chance of being selected (Moore & McCabe, 2006).

Equal probability systematic sampling method is the most common form of systematic sampling that involves the selection of elements or sample from an ordered sampling frame (Black, 2004).

The purposive sampling method was used to select the study area, which was Madina in the La-Nkwantanang-Madina district of the Greater Accra Region. Afterwards, a list of all JHS in Madina was obtained and the names of the schools were written on pieces of paper and put in a box. Four (4) schools were then randomly selected from the list of schools for the study. Selected schools that refused to participate in the study were replaced via the same method. The selected schools that agreed to participate in the study were Sowa Din '2' Memorial JHS, Hannah School Complex, La-Nkwantanang 8 & 9 JHS and Madina Islamic School.

In the next stage, equal probability systematic sampling technique was used to select the students from each form (JHS 1 & 2). Within each school, an entire class was selected from each form. However, where a form had more than one class, a class was randomly selected for the study. After a class was chosen, students who had at least one sibling and were between the ages of 10 and 18 years were selected for the study. The fraction method of the systematic sampling was employed to determine the number of students in each school and form that was required for the study. This method allowed the researcher to draw a sample from a sampling frame using the equation: N/n, where N is the number of units (students) required from the target population and n is the number of units (schools) that will be selected for the study (Sarantakos, 1993). In this study, N and n was 240 and 4 respectively. This led to the selection of 60 students from each of the selected schools for the study. In each school, equal number of students (30 students) from each form (forms 1 and 2) were purposively chosen for uniformity of samples across the levels. Within each selected class from form one and two, the same fraction method of the systematic sampling was employed to sample students from those who met the selection criteria. In each class the sampling frame, N, was all the students who met the selection criteria and n (30 students) was the number of students required from each class. A sampling interval (k), which was the ratio of the number of students who met the selection criteria to the required sample size, was computed.

$$K = \frac{\textit{class population after selection criteria (N)}}{\textit{required sample size(n)}}$$

A number between zero (0) and k was randomly selected to be the starting point for the selection. For example, in a class where 56 students (N) met the initial selection criteria and n as determined was 30, k = 46/30 = 1.87, approximately 2 was computed. A whole

number between 0 and 2, say 1, became the starting point for selecting the students through head count and all students with numbers that resulted from adding k to this random number were selected for the study (i.e. 1st,3rd,5th,7th,9th.....nth student). To avoid bias, the students were not allowed to change their regular sitting positions.

3.5 Procedure for data collection

An introductory letter obtained from the Head of the department of Family and Consumer Sciences (FACS), University of Ghana was sent to the heads of the schools to seek their approval to carry out the study in the selected schools. The heads then informed the students' parents of the study. Subject to the approval, the selected schools were contacted to seek students' consent and arrange for dates to conduct the study.

On the dates agreed upon for the study, the students were briefed again on the purpose of the study and on their rights as participants of the study. The students who agreed to participate in the study after satisfying the initial selection criteria were given the questionnaire to provide responses to the statements and questions therein.

Class time was used to administer the questionnaire. Even though the participants answered on their own, the researcher read aloud each statement or question in the questionnaire. The researcher also provided assistance and explained questions that needed further clarifications where appropriate.

3.6 Instrument for data collection

A structured questionnaire with both closed and opened ended questions was used to collect data on the demographic characteristics, resiliency, self-esteem, health behaviour,

nature of adolescent-sibling and parent-adolescent relationships and students' past stressful life events. The study measures included adolescents' personal and family characteristics (demographic questions), parental socioeconomic status, adolescent-parent relationship, self-esteem (Rosenberg Self-Esteem Scale), resilience (Resilience Scale), high risk behaviours (Health Behaviour Questionnaire), and nature of adolescent-sibling relationships inventory.

3.5.1 Demographic questions

Information on demographic (personal) variables was necessary to describe the sample and bring out the characteristics of the population, while controlling for extraneous variables (Ahern, 2007). The questionnaire therefore assessed the age, gender, region of origin, birth order, religion and number of siblings of respondents. Income, level of education and occupation of parents of the respondents were also assessed.

Parental socioeconomic status (SES) variable was generated from the data by computing the means for parents' level of education and class of occupation. The occupational class template was obtained from the Ghana Living Standard Survey Round 6 (GLSS 6) report. Education, occupational class and income are commonly used to measure an individual or a family's socioeconomic status although they measure different aspects of the social phenomenon and tap into different causal mechanisms (Geyer et al., 2006). In this current study, parental income was not included in the analysis because of the high item non-response rate.

3.5.2 Perceptions of parental differential treatment

The respondents' perception of how they were treated by the parents compared to their siblings was assessed. This was assessed by combining three questions from the nature of sibling relationships questionnaire (Furman and Buhrmester, 1985; Jennings, 1998) that solicited information on how the adolescent perceived he or she was treated by the mother, father or guardian compared to the siblings. In this study, the respondents were asked to respond to the question "Who usually gets treated better by your parent(s) or guardian, you or your siblings?" by selecting one of the statement below.

[] My siblings almost always get treated better

[] My siblings often get treated better

[] We get treated about the same

[] I often get treated better

[] I almost always get treated better

3.5.3 Self-esteem scale

Self-esteem of the adolescents was assessed using the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965). The 10-item scale assessed an individual's global evaluation of his/her worthiness as an individual (Rosenberg, 1965) such as "I feel that I am a person of worth, at least on an equal basis with others" and "I feel I do not have much to be proud of." Responses range on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree). Items 2, 5, 6, 8, 9 were reverse scored. The 10 items were sub grouped, standardized and summed into two factors (positive and negative self-esteem) with the sum score ranging from 5 to 20 for each factor. RSES has been used in Ghana with Cronbach's alpha of 0.86

(MacGodswill, 2003). In this current study, the Cronbach's alpha scores were .42, .56 and .30 for the global self-esteem score, positive self-esteem score and negative self-esteem score respectively.

3.5.4 Resilience scale

Resilience scale is a measure of internal resources and of the positive contribution of what one brings to a stressful life event (Wagnild &Young, 1993). It is documented reliability and validity and applicability in a variety of ages and settings makes the Resilience Scale the most credible instrument to study resiliency in adolescents and although the scale was initially developed for adult populations, it has been standardized to be used in other populations including children and adolescents (Ahern, 2007).

The Resilience Scale consisting of 14 items, RS-14 (Wagnild, 2009a) was used to assess the adolescents' resilience. This instrument used a seven-point scale format in which each item had a positive and negative attribute at either end of the scale continuum, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree). This short version was developed to enhanced participation and reduce burden on participants (Losoi et al., 2013). The internal consistency of RS-14 is reported to be excellent (α= .93) and it correlates strongly (α= .97) with the original Resilience Scale (Wagnild, 2009a). The internal consistency score for this current study was .72.

3.5.5 Health behaviour scale

Adolescents' health behaviour was assessed using the Health Behaviour Questionnaire (HBQ) developed by Ingersoll and Orr (1989). It assesses behaviours and feelings during

the past 12 months on a 4-point Likert scale ranging from 1 (never) to 5 (daily). The original questionnaire consisted of 32 items that indicated the extent to which participants engaged in health-related behaviours or experienced certain feelings (Ahern, 2007). The items in the questionnaire were developed from the Rosenberg Self-Esteem Inventory (Rosenberg, 1965) and demographic questions that related to abuse, feelings and behaviours (Ahern, 2007). In this current study, the demographic questions were not used and also, the item on teenage pregnancy was omitted due to ethical concerns.

Two subscales, Risky behaviour (HBQ BR) and Emotional problems (HBQ ER), were reported to have been derived from the items on the questionnaire with the responses to "I attend religious services" and "I do voluntary work" not included in either of the subscale scores but in the total scale score. According to Ahern (2007), the authors of the scale recommended the use of the subscales scores rather than the global scale for research on health risky behaviour and that the higher the scores in each subscale the greater the indicator of risk.

HBQ has been used by Ahern (2007) on American college students with internal consistency Cronbach's alpha values of .80, .88 and .77 (n=166) for the total scale, emotional risk and behavioural risk subscales respectively. The instrument scores have been standardized to have a mean of 50 and a standard deviation of 10 (Ingersoll and Orr, 1989).

In this current study, factor analysis of the items using varimax with Kaizer normalization method revealed two main components – the emotional problems and risky behaviour subscales with Cronbach's alpha scores .74 and .63 respectively. The total scale had Cronbach's α= .72.

3.5.6 Nature of sibling relationships questionnaire

Perception on the nature of sibling relationships was assessed using a modified version of the sibling relationship questionnaire (Furman & Buhrmester, 1985; Jennings, 1998). The original questionnaire consisted of 48 items such as "How much do both you and your siblings do nice things for each other?" and "How much does this sibling tell you what to do" with responses ranging on a 5-point scale from 1 (Not at all) to 5 (Extremely much). The questions that addressed how adolescents perceived their relationships with the parents were removed, merged and asked separately under the parental differential treatment section.

In this current study, principal component analysis using the varimax with Kaizer normalization method was used to extract four major components or subscales from the responses on the nature of adolescents-sibling relationships; affection, conflict, control and emotional distance subscales with Cronbach's alpha scores of .87, .72, .71 and .60 respectively. The Cronbach's alpha score for the scale was .84.

3.6 Pre-test

The questionnaire was pre-tested using fifty (50) adolescents in a selected private school in the Greater Accra Region. The pre-test will be conducted to examine the reliability and validity of the study instruments and to perform power analysis for sample size as well as to evaluate the data collection procedure. After the pre-test, the nature of sibling relationship questionnaire was reworded. This was because the respondents had difficulty quantifying the relationships they shared with their siblings and they constantly called the researcher for clarifications.

3.7 Data analysis and presentation

The data was hand-coded, edited, cleaned and analysed using the Statistical Package for the Social Sciences (SPSS) version 21.0 software to generate frequencies and percentage distributions, means, ranges and standard deviations where appropriate.

Data editing was done during and after data collection. This was done to rule out questionnaires that had less that about 80% of the questions or statements not responded to ensure that there were minimal inconsistencies in responses.

After the data had been entered, cleaning was done to detect and correct information that were entered wrongly.

Descriptive data was extracted and presented using tables and figures. Relationships among study variables were assessed using Bivariate correlations (Pearson r coefficients for continues data and Spearman Rho for ordinal data). Independent t-samples test were ran to assess differences in gender, age groups, religion and birth order relating to adolescents' resilience, self-esteem and emotional and risky behaviour.

3.8 Ethical considerations

Ethical considerations for the population were considered. A copy of the research proposal and data collection instruments were presented to the Ethics Committee for Humanities (ECH), University of Ghana, Legon for ethical clearance subject to the ethics guidelines of the University of Ghana, Legon. After a thorough review and suggested corrections made in the proposal document, participants' consent form and study instruments, approval was given to the researcher to conduct the study. The approval letter bearing the research protocol code ECH 031/14-15 has been attached (APPENDIX A).

Ethics in social and behavioural sciences research involves the responsibilities that researchers bear over the research subjects. This involves the preservation of confidentiality, privacy and safety of the subjects. Ethics are context-specific and define what is morally appropriate and the laid down procedure for investigating certain issues that may be "sensitive" to the population under study (Newman, 2000).

'Consent to participate in the research' document that consisted of the general information about the study, possible benefits and risks associated with participating in the study, confidentiality and anonymity of the participants and their responses, compensation and information concerning withdrawal from the study and persons to contact for additional information or to report abuse was given to the heads of the selected schools for approval. The information on the consent form was reviewed and approved by ECH review board. Copy of the participants' protocol consent form has been attached (Appendix B).

3.9 Limitations of the study

The study was carried out in only four selected JHS at Madina in The Greater Accra Region of Ghana due to time and financial constraints on the part of the researcher and therefore, generalizations were limited to adolescent-students at Madina as the study did not include adolescents who were not in school. Also the accuracy of the 12-months recall of respondents' health behaviour could not verified from their medical history.

Relying on one adolescent's responses on the interactions with siblings does not allow consideration of interdependence of these relationships. It would have been useful to compare responses from a sibling set to make accurate judgement of their relationships and influence on each respondent. The researcher had to rely only on the responses of the

adolescents under study to understand the interconnectedness of sibling relationships and the development of adolescents' psychosocial outcomes due to time and financial constraints.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

This chapter outlines the results of the study. It focuses on the presentation, interpretation and analysis of the responses of the study participants. Responses from a total of two hundred and eleven (211) adolescent-students in Madina-Accra who participated in the study were analysed after the data was cleaned to remove possible data entry errors and incomplete responses.

The chapter is divided into three sections. Section A presents the socio-demographic and personal characteristics of the respondents. In Section B, the significant correlations among study variables are discussed and in Section C, the results of the analyses of the hypotheses are presented.

4.1 SECTION A: Demographic characteristics of the respondents

This section provides the socio-demographic and personal characteristics of the respondents. The characteristics considered in this study were age, gender, level of education, ethnic backgrounds, number of siblings, birth order, religions affiliations, and parental level of education and occupation of the respondents.

4.1.1 Age of respondents

The ages of the respondents ranged between 10 and 17 years. The ages of the respondents were further categorized into three groups; 10 – 12 years (21.4%), 13 – 15 years (64.3%) and 16 years and above (14.3%) and are presented in Table 1. As it was observed, majority

(64.3%) of the respondents were aged between 13 and 15years. The mean age for the respondents was approximately 14 years (M=13.7, *SD*= 1.5).

Table 1
Distribution of age of respondents

Age groups (years)	**N**	**%**
10 – 12	45	21.4
13 – 15	135	64.3
16 & above	30	14.3

4.1.2 Gender distribution of respondents.

From Figure 2, majority (57.9%, n= 123) of the respondents in the sample were females and the remaining (42.1%). This may suggest that more girls are presently encouraged to remain in school to at least the basic education level and a reflection of the success of the implementation of the girl-child education policy in Ghana.

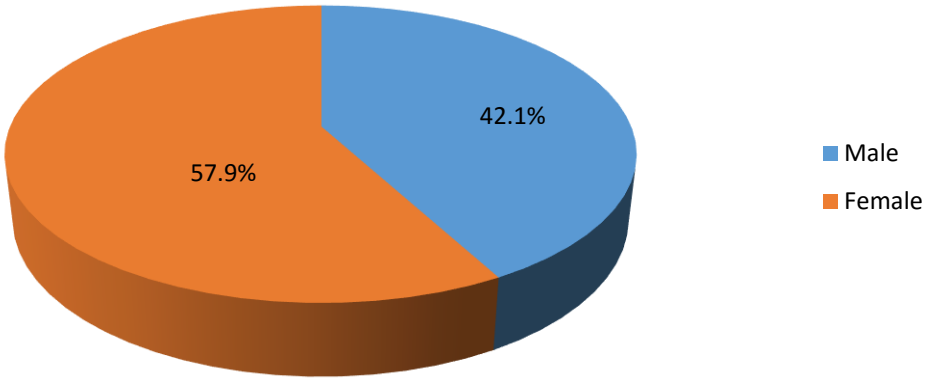

Figure 2. Distribution of gender of respondents

4.1.4 Ethnic background of respondents

The cultural and ethnic background of the respondents was assessed using their region of origin in Ghana. There are ten legislative regions in Ghana and each region was defined based on the peculiar characteristics that the people in the defined area share. In a descending order from left to right the regions of origin of the respondents is presented in Figure 3.

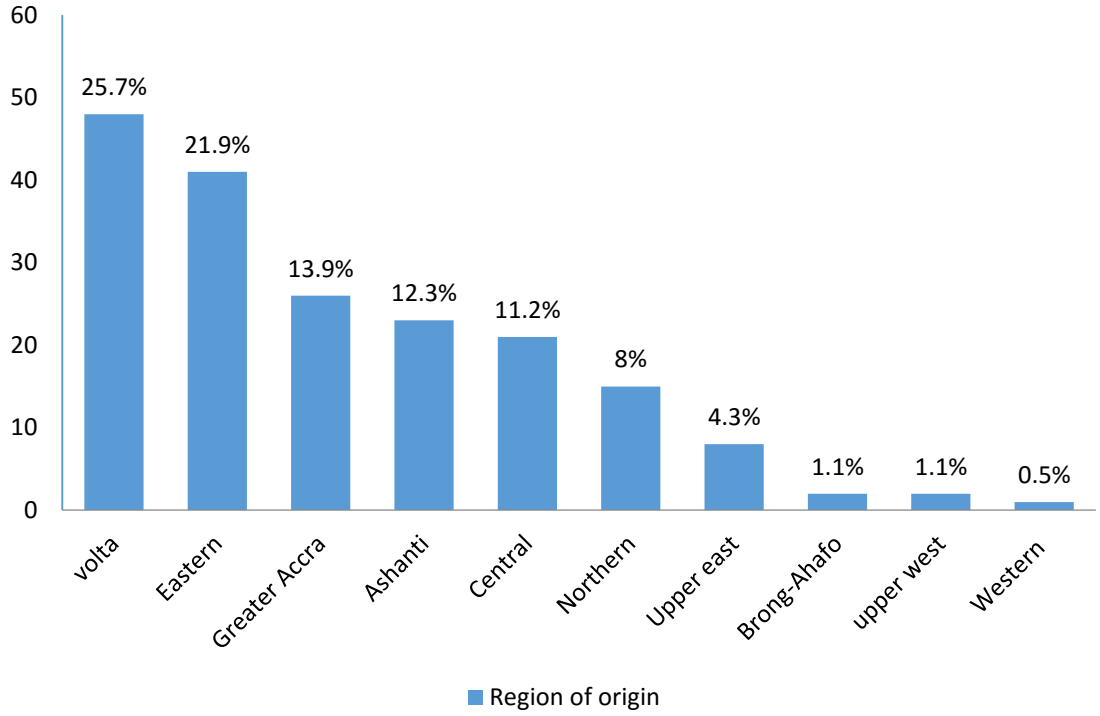

Figure 3. Respondents' region of origin in Ghana

From Figure 3, respondents belonged to at least one region of origin giving a country-wide representation of adolescents in the study. A little above a quarter of the respondents (25.7%, n=48) hailed from the Volta region of Ghana, followed by those from the Eastern Region (21.9%, n=41), Greater Accra Region (13.9%, n=26) and Ashanti Region (12.3%, n=23). The last three Regions with the least number of respondents were Brong Ahafo (1%, n=2), Upper West (0.5%, n=1) and Western Region (0.5%, n=1). Since Madina is

situated in the Greater Accra Region, it was expected that the majority of the respondents would be Gas but in this sample the respondents were overrepresented by those from the Volta and Eastern regions of Ghana. These results also reinforce Madina as a multi-ethnic township with persons from various regions and ethnic backgrounds in Ghana. It further confirms Boakye's (2009) assertion that Accra is comparatively the most representative of the diverse cultural experiences in the various parts of the Ghana. Majority of the respondents were Akans (47%) and this is in line with the Ghana Living Survey Round 6 (GLSS6) report (2014) that families of the Akan ethnic group are predominant in the Greater Accra, Eastern, Ashanti, Central, Western and Brong Ahafo regions of Ghana.

4.1.5 Number of siblings of respondents

During the survey, respondents were asked to indicate the number of siblings they had. The number of siblings of the respondents ranged from 1 to 10. The data was normally distributed with the mean number of siblings being 4.00 (*SD*= 1.88, Skew = .76). From the results in Table 2, nearly half (47.9%, n=101) of the respondents had between 1-3 siblings, 40.8% (n=86) had 4 – 6 siblings and 11.3% (n=24) had between 7 – 10 siblings.

Table 2

Number of siblings of respondents

No. of siblings	N	%
1 – 3	101	**47.9**
4 – 7	99	**46.9**
8 - 10	11	**5.2**
Total	**211**	**100.0**

4.1.6 Birth order of the respondents

The birth order or nominal positions of the respondents among their siblings were assessed. From the data collected, 198 out of 211 respondents provided information on their birth order. One-third of the respondents were either first borns (30%, n=60), followed by last borns (29.9%, n=58) and second borns (25.8%, n=51). About 15.2% (n=30) of the respondents occupied the third position among their siblings and 0.51% (n=1) occupied any other position apart from the first, second, third and last positions. A summary of the birth order of the respondents is presented in Figure 4.

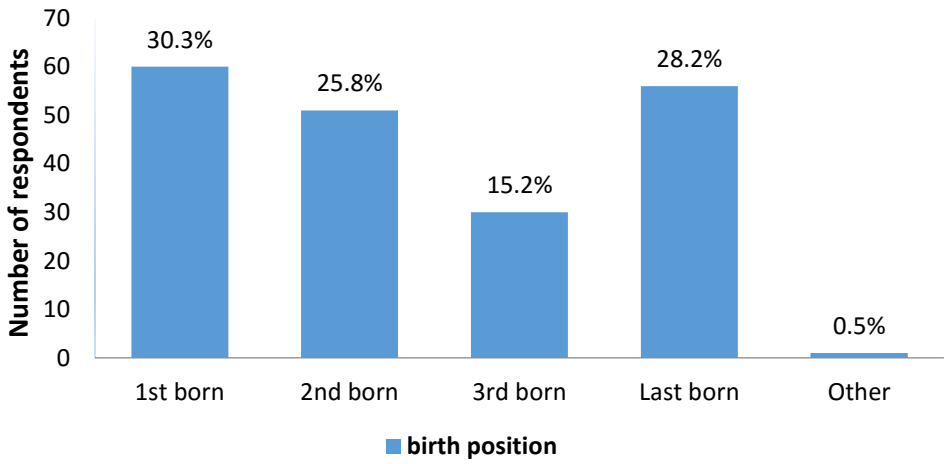

Figure 4. Birth order of the respondents

4.1.7 Religious affiliation of respondents

Table 3 presents the religious orientation of the study respondents. Three religious groups were identified during the data analysis; Christians, Muslims and African Traditionalists. Majority of the respondents were Christians (64.5%, n=136) followed by Muslims (35.5%, N=75).

Table 3

Distribution of respondents' religious affiliations

Religion	**N**	**%**
Christian	136	64.5
Muslim	75	53.3
Total	211	100

4.1.8 Respondents' parental education

In this study, the level of education and class of occupation of the respondents' parents and guardians were assessed. Generally, more of the fathers (92.6%, n=187) had had at least some basic education than their female counterparts (80.8%, n=168). More mothers (10.1%, n=21) of the respondents had attended training colleges (teacher training and nursing) than the fathers (9.4%, n=19). A little above 7% of the respondents' fathers had no formal education as compared to their mothers (19.2%). Level of education of parents is thought to be very salient to adolescence development (Oliva & Arranz, 2005). The better educated parents provide stimulating experiences that create enabling environment that promote adolescents' physical, mental and socio-motional development.

Table 4

Respondents' parental levels of education

	Father	Mother
Level of Education	N (%)	N (%)
Don't know	9(4.3)	3(1.4)
No formal education	15 (7.1)	40 (19.0)
JHS	54 (25.6)	56 (26.5)
SHS	41 (19.4)	50 (23.7)
Training College	19 (9.0)	21 (10.0)
Polytechnic	15 (7.1)	6 (2.9)
University	58 (27.5)	35 (16.6)
TOTAL	211	211

4.1.9 Respondents' parental occupation

Occupation status of the respondents' parents was assessed separately for their fathers and mothers. The classes were adopted from the Ghana Living Standards Survey Round 6 Report (2013). From the current study, occupations that were grouped under the *craft and related trade* category were traders, masons, carpenters, wielders, painters, seamstresses, drivers, hairdressers and tailors. *Skilled agriculture and fishery workers* consisted mainly of farmers and fishermen. *Services and sales workers* consisted of security men and women, marketers, salespersons, business men and women and entrepreneurs. Secretaries

and receptionists were classed under *clerical support workers*. *Technicians and associate professionals* were mostly factory workers and engineers. Those classed under *professionals* were police, soldiers, teachers, nurses, lawyers, social workers and bankers. *Managers* of all kinds were categorized separately

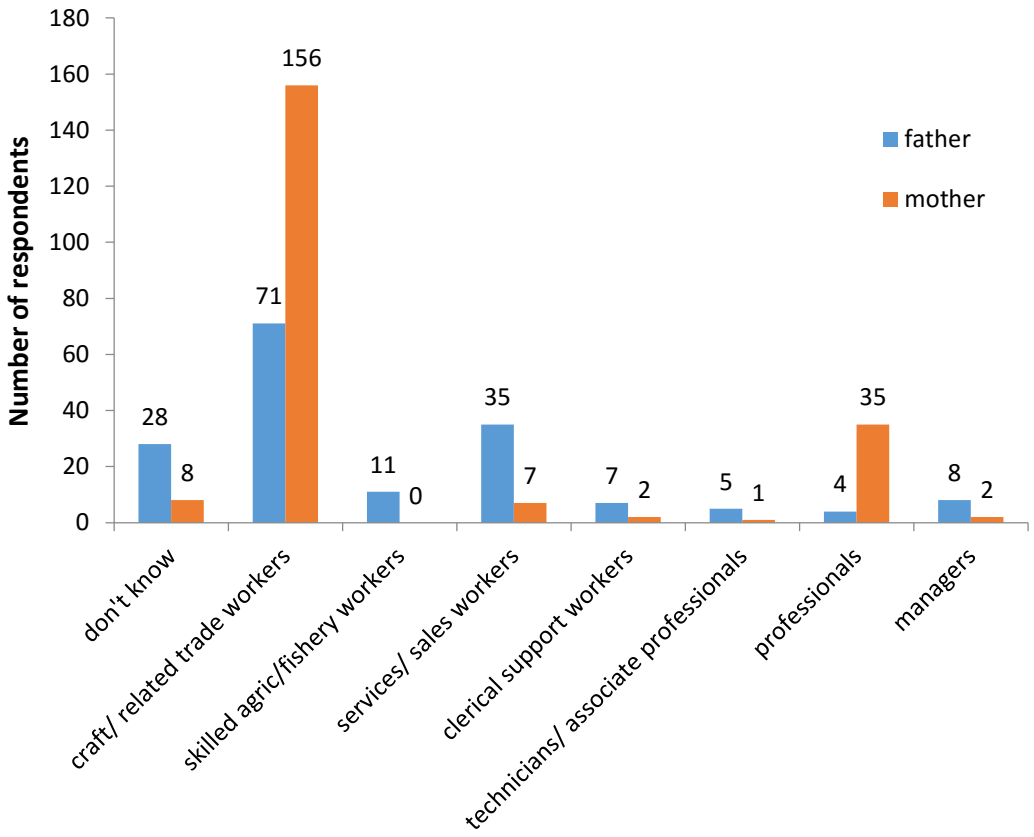

Figure 5. Respondents' parental occupational classes

From Table 4, females were highly represented in the *craft and related trade workers* category. They accounted for twice the number of males (n =156). Also they were five times more male parents (n=35) in the services and sales categories than female parents (n=7). Finally, in the professionals categories, female parents were about nine times more represented (n=35) than their male counterparts (n=4). This finding suggests that more females are taking up employment in sectors that were thought to be male dominated.

However, this suggestion must be cautiously considered due the inclusion of nurses – who are predominantly women – in this category.

4.1.10 Types of families of respondents

Two main family types were identified in this study as reported by the respondents; the intact and the divorced families. The intact families comprised the mother, father, the adolescent child and the sibling(s) with a family size of at least 4 who were living under the same roof at the time of the study. The divorced family consisted of the mother or father, the adolescent child and sibling(s) at the time of the study. In Table 5, the distributions of the two family types are presented. From the results, about 1 in every 7 respondents lived with a single parent as a result of divorce. This high percentage of respondents with single parents corresponds with the GLSS 6 Child Labour Report that 26.8% of Ghanaian children in Accra live with a single parent (Ghana Statistical Service, 2013).

Table 5

Types of families of respondents

Family types	N	%
Divorced	29	13.7
Intact	181	85.8
Total	211	100.0

4.1.11 Distribution of respondents' resilience

From the results of the analysis, most of the respondents (68.2%) scored high suggesting the abilities to negotiate successfully with stressful life conditions. A little above one-third (31.8%) of the respondents reported low resilience indicating that they were less likely to successfully cope and adapt to major stressors that might occur in their lives. They were likely to be traumatised when faced with situations such as parental divorce or death of significant people in their lives or even persistent sibling conflicts. The results are presented in Table 6.

Table 6

Respondents' perceived resilience to stressful conditions

Category	Range	N	%
Low	14 – 64	67	31.8
Moderate	65 – 81	105	49.8
High	82 – 98	39	18.4
Total		211	100

Note. *Mean (SD) = 70.2(15.6)*

4.1.12 Distribution of respondents' self-esteem

From the analysis, Majority of the sample population (80.6%) had moderate self-esteem while 9.9% respondents reported having low self-esteem, and 9.5% had high self-esteem. The results are presented in Table 7.

Table 7

Respondents' self-esteem

Category	Range	N	%
Low	6 – 14	21	9.9
Moderate	15 – 25	170	80.6
High	26 – 29	20	9.5
Total		211	100

Note. *Mean (SD) = 20.2(4.38)*

4.1.13 Distribution of respondents' reported emotional and behaviour risks

In this section, the emotional problems and risky behaviours reported by the respondents were categorized as low, moderate or high based on how often they experienced them and are presented as Table 8. The results indicate that the adolescents were more likely to experience emotional problems than would engage in risky behaviours. About 31% had moderate-to-high emotional problems compared to the 1% whose risky behaviours were moderate. This indicates that the adolescents were more likely to have much control over their external behaviours such as engaging in sexual activities, using drugs and alcohol and running away from home. They were more prone to problems which they had little control over such as being stressed or nervous, having head and stomach aches and making friends.

Table 8

Classification of respondents' emotional problems and risky behaviours

		Emotional problems*		Risky behaviours**	
Category	Range	N	%	N	%
Low	0 – 11	146	69.0	209	99.0
Moderate	12 – 22	54	25.8	2	1.0
High	24 – 44	11	5.2	0	0
Total		211	100	211	100

Note: **Mean (SD)= 19.6(7.5); ** Mean (SD)= 9.1(2.6)*

4.1.14 Means and Standard Deviations of adolescents' psychosocial outcomes

Under this section, the means and standard deviations variations in the psychosocial outcomes as determined by respondents' personal and family characteristics were computed. The results are summarized in Table 9.

Table 9

Means and standard deviations of resilience, self-esteem, emotional problems and risky behaviours

Family variables		Adolescents' psychosocial outcomes			
		Resilience	Self-esteem	Emotional Problems	Risky behaviours
Overall Means(SD)		**70.2(15.6)**	**20.2(4.4)**	**19.6(7.5)**	**9.1(2.6)**
Family type	Divorced	74.5(21.7)	20.2(4.5)	18.3(5.9)	8.8(1.8)
	Intact	69.5(14.4)	20.1(4.4)	19.8(7.7)	9.2(2.7)
Gender	Male	71.6(14.9)	20.3(3.9)	18.6(7.5)	9.6(3.4)
	Female	69.2(16.0)	20.2(4.7)	20.5(7.5)	8.8(1.8)
Birth order	First born	71.3(15.9)	20.2(4.3)	20.1(8.2)	9.5(3.5)
	Later born	70.7(13.1)	20.9(4.1)	19.0(7.1)	9.2(2.3)
	Last born	69.8(19.3)	19.6(4.5)	20.2(7.8)	8.7(1.7)
Age groups (years)	10 – 12	71.4(14.4)	21.0(4.3)	19.8(2.2)	9.2(2.2)
	13 – 15	68.9(14.9)	20.1(4.4)	19.8(7.6)	8.9(2.0)
	16+	74.2(19.3)	19.3(4.4)	18.5(7.3)	9.9(4.7)
Sibling size	1 – 3	69.9(14.5)	20.5(4.4)	19.9(7.7)	9.1(2.7)

	4 – 7	70.2(16.4)	20.1(4.3)	19.4(7.4)	9.2(2.6)
	8 – 10	72.2(17.7)	18.7(4.9)	19.6(6.9)	8.7(2.6)
Religion	Christian	70.5(16.6)	20.3(4.4)	19.3(7.6)	9.2(2.9)
	Muslim	69.4(13.5)	19.9(4.5)	20.3(7.5)	8.8(1.8)

Note. *Standard deviations are in parenthesis*

The results in Table 9 indicate that adolescents from divorced families were comparatively a little more resilient, and were less likely to have emotional problems and/or engage in risky behaviour compared to the counterparts in intact families. This finding contradicts a study conducted about a decade ago by Orthner et al. (2004) that children in single-parent headed families were more likely to experience health-related problems as a result of the decline in the families' standard of living compared to their peers in intact families. However, the same finding could mean that those adolescents with single parents had or were recovering from the negative effects of parental divorce and therefore were well resourced to cope and adapt to future stressors. According to Masten (2014), adolescents who have had traumatic experiences tend to adjust and recover later in life when conditions improve. Furthermore, resilient individuals are believed to exhibit less emotional and behaviour symptomology (Nichols & Schwartz, 1995).

Comparatively, the male respondents were likely to be more resilient and exhibited lower emotional problems but were also more likely to have engaged in risky behaviours than the females.

There were no observed major variations among the age groups of the respondents regarding the ability to cope and adapt to stressful life conditions. The means for the age groups were not far apart however, the mean score for 13-15 year-olds was 1.4 points lower

than that of the 10-12year-olds and also a little lower than the overall average score for resilience for the sample. The mean score for the 16^{+} year-old respondents were slightly higher than the average score for the sample. This seems to suggest that adolescents' ability to cope and adapt to stressful life conditions declines after age 12 and rises around age 16. The relatively lower resilience score for the 13-15 year-old adolescents may be as a result of, among others, the anxiety caused by the interplay between the rapid maturational and physical changes, and intense attempts to develop desired personalities amidst pressures from parents, older siblings, teachers and other significant individuals to meet social, cultural and academic expectations. Adolescents in this age group might be faced with strenuous challenges that might have depleted the perceived internal resources they depended on to cope and/or adapt to stressors. By age 16 they might have resolved most of the challenges and be in the position to negotiate future challenges. A longitudinal survey however, would be required to confirm this observed trend in this sample. This assertion is supported by Erikson's (1968) psychosocial theory on the stages of development that maintains that adolescents build desired traits appropriate for their age, such as self-confidence and ability to negotiate challenges, when they successfully resolve issues or challenges pertaining to their development.

Considering birth order effects on adolescents' psychosocial outcomes, respondents who were first borns were much more resilient but were more prone to emotional problems compared to the later born adolescents. The last born adolescents engaged less in risky behaviours compared to the other borns.

A decline in self-esteem of the adolescents with increasing age was observed (Table 9). This probably indicates that as the adolescents grew older, the feedback they received from

others and their overall evaluation of their competences weakened their perceptions of who they were and how important others perceived or looked up to them. According to Robins et al. (2002), very young children perceive highly of themselves and their abilities and so have what the authors called "inflated self-esteem". However, as they grew older and came across various experiences, they re-evaluated their self-worth and this informed later on their self-esteem. Robins et al. (2002) also argued that self-esteem declines sharply at about age 10 up to age 18 where it begins to rise again. Adolescence is considered the stage of discovery for individuals where they assess their worth based on their capabilities and functionality within their peers and siblings and what is expected of them. The overwhelming nature of these expectations sometimes depletes their internal energies and makes them feel incapable. The respondents with low self-esteem focused more on their failures such as feeling useless worthless based on certain undesirable experiences and outcomes, and not being able to command respect and be popular among his peers and siblings.

Sibling size seemed to have influences on adolescents' development outcomes (Table 9). Those adolescents who had 8-10 siblings were more likely to be resilient, demonstrated less emotional problems and engaged less in activities that were considered to be detrimental to their psychological health and development than their counterparts with lesser number of siblings. This finding agrees with a report by Whiteman et al. (2011). According to Whiteman et al. (2011), in larger sibling families with more than three children, sibling relationships compensate for parental inadequacies in case of stress, deprivation or conflicts, making those children mentally and socially more competent compared to their peers with fewer siblings. They had more siblings to depend on when

they faced challenges. Morever, the adolescents with more siblings were likely to be resilient probably because they built mastery over their emotions and depended on their internal resources as they competed and occasionally fought for parental attention and other family resources.

Generally self-esteem scores declined as the number of siblings increased. This indicates that the negative interactions that resulted from the competition, rivalry and conflicts over limited family resources as a result of the high sibling size, influenced the self-esteem of the adolescents negatively.

Finally, the adolescents who were Christians were more resilient, had high self-esteem and experienced relatively less emotional problems compared to their Muslim counterparts. Besides, the same group of adolescents were also more likely to participate in risky behaviours.

SECTION B: Correlations among study variables

In this section using Figure 1 as a guide, the results of the analyses on the relationships among the study variables are presented and discussed. Bivariate correlations using Pearson-Moment Product (r) coefficient were run to observe significant relationships among the study variables and are presented in Appendix D. The associations among the statistically significant correlates were moderate (ranging from .14 to .91) and are discussed below.

4.2 Family Constellation Variables and the Nature of Sibling Relationship

4.2.1 Age of the respondents

Age of the respondents was positively associated with the number of siblings that the respondents had ($r=.21$, $p< .01$). This suggests that older respondents were more likely to have more siblings than younger respondents. Posthoc analysis using Gabriel's test revealed significant mean differences between those aged 16 years and above and the rest of the groups (13- 15 years; M= 1.16, $p=.003$ and 10-12 years; M = 1.48, $p= .002$). There was no significant mean difference in sibling number between those aged 10-12 years and 13-15 years. This indicates that respondents who were 16 years and above had more siblings.

Age of the respondents also correlated negatively with their parental socioeconomic status ($r= -.18$, $p< .01$). This suggests that younger adolescents were more likely to have parents with high jobs and education.

Age correlated with the emotional distance domain of the adolescent-sibling relationship (r=.18, p< .01). A one-way analysis of variance (ANOVA) confirmed significant differences in age relating to the respondents' perceptions on having ambivalent sibling relationships ($F(2)= 3.91$, $p=.021$). It suggests that older respondents perceived their siblings to be more emotionally distant or hostile than did the younger respondents. To test where the differences actually lie, Gabriel's post hoc analysis was conducted. The results revealed significant mean differences between respondents who were 16 years and older and those who were 10-12 years old and also between 13-15 years olds and 10-12 years olds. No difference was found between those ≥16 years and 13-15 years. This implies that it was after age 12 that the adolescents began to perceive their siblings as hostile or uninvolved in their lives.

4.2.2 Gender of the respondents

Gender of the respondents was positively linked to emotional problems (r= .16, p<.05). Females were more prone to emotional problems than males. To confirm this, an Independent-Samples *t*-test was ran to examine gender differences relating to the emotional problem development. From the analysis, male and female distributions were significantly normal for the purpose of conducting a *t*-test (ie. Skewness < 2.0 and Kurtosis < 9.0; Schmider *et al.,* 2010). Additionally, the assumption of equality of variances was tested and satisfied using Levene's *F* test, $F(208) = .000$, p = .997. Since the *p*-value was greater than .05, the equal variances assumed for the t-test scores were used. The Independent-Samples *t*-test was associated with a statistically significant effect, $t (208) = -2.42$, $p= .016$. Thus, females were statistically associated with greater emotional problems

than males. Females were more likely than males to show internalizing problems such as difficulty sleeping, feeling lonely, sad, or disappointed and, having head or stomach aches. Gender was also inversely associated with risky behaviour in adolescents ($r = -.15$, $p < .05$). An Independent-Samples *t*-test revealed that boys were significantly associated with greater externalizing behaviours such as smoking, alcohol abuse, and engaging in risky activities than females. Literature suggests that males and females are socialized along different pathways that have influences on their developmental outcomes. In Ghana, males are socialized for aggression whereas females are taught attachment (Boakye, 2009). Boys are more likely to engage in risky behaviours whereas females tend to internalize their emotions and as a result, report more on emotional symptoms such as feeling depressed, sad and lonely or having head and stomach aches.

These findings run contrary to Ahern's (2007) argument that females were more likely to engage in risky behaviours and have less emotional problems compared to their male counterparts. The cultural backgrounds and mean age of the samples of the two studies could be the underlying factors that can account for the difference in the two findings. Ahern (2007) sampled 18 to 20 years old college students compared to the 10 to 17 years old High School students in this present study. Thus, the dynamics in behaviours of emerging adults may vary from typical adolescents (10 – 18 year olds). According to CDC (2006) health risk behaviours such as smoking, drinking alcohol and unsafe sex practices are more likely to occur in older adolescents.

4.2.3 Number of siblings of respondents

Number of siblings of respondents was salient for the religious affiliations of the respondents (r= .19, p< .01). An Independent-Samples *t*-test was conducted on the two religious affiliations (Christians and Muslims) to examine significant differences in the number of siblings they had. The results revealed a significant difference in sibling size for the two groups ($F(208) = .191$, p= .66; $t(208) = -3.39$, p = .001). The means for the two groups were then compared (Christians – M= 3.8, SD = 2.07; Muslims – M = 4.9, SD= 2.65). This may be linked to the polygamous nature of Muslim marriages that allows a man to marry and have several children to different women. The children of these families see themselves as siblings though they may not be maternally affiliated.

4.2.5 Birth order of respondents

From the analysis, the birth order or nominal positions of the respondents among their siblings was positively related with the overall sibling relationships that they shared (r= .20, p< .01), the sibling affection (r= .16, p< .05) and sibling control aspect of the relationship(r= .26, p< .001). This shows that the kind of interactions the adolescents had with the siblings, i.e. whether it was affectionate and supportive or controlling might have depended on the position that the adolescents occupied among their siblings.

4.2.6 Religious Affiliations of respondents

Religion was positively associated with affectionate sibling relationship (r = .17, p< .05) and sibling relationships characterized by emotional distance (r= 26, p< .001). An independent-samples t-test score showed significant differences for both affectionate

sibling relationship ($F(207) = 1.97$, p= .16; $t(207) = -2.83$, p = .005) and Emotionally distant sibling relationship ($F(207) = 2.98$, p= .09; $t(207) = -4.30$, p = .000) for the Christians and Muslims.

Recorded mean differences suggests that the Muslim respondents perceived their siblings to be a little more affectionate, caring and supportive than the Christians respondents (Muslims, *M*=3.4, *SD*= .75, N= 73; Christians, *M*=3.0, *SD*= .79, N= 136). Nonetheless, the same Muslims reported highly that their siblings did not care about them or about what happened to them (Muslims, *M*=3.5, *SD*= 1.30, N= 73; Christians, *M*=2.6, *SD*= 1.42, N= 136).

4.2.7 Parental socioeconomic status (SES) of respondents

The results showed that SES was related positively with sibling affection (r= .21, p< .01) and the global sibling relationship (r= .19, p< .01) indicating that the adolescents who had higher or better SES interacted more affectionately with their siblings.

SES was also associated with risky behaviour (r= .16, p< .05) suggesting that the respondents whose families were better economically, as measured by their parents' level of education and occupation, were also likely to engage in risky behaviours compared with their peers with lower economic and social backgrounds. Those adolescents were likely to engage in sexual activities, running away from home and school and other activities that caused them to be arrested or expelled from school. This finding contradicts what Pike and his colleagues (1996) suggested that socioeconomic status have less influence on adolescents' psychosocial outcomes.

4.2.8 Perceptions of parental differential treatment (PDT)

From the results, respondents' perception of whether their parents treated them differently from their siblings was positively related with all of the kinds of sibling interactions they shared; sibling affection (r = .20, p< .01), sibling conflict (r = .21, p< .01), sibling control (r = .26, p<.001), sibling emotional distance (r =. 25, p< .001) and the overall sibling relationship (r =.29, p< .001).

PDT was also positively associated with resilience (r= .14, p< .01). This indicates that the respondents who perceived the way they were treated by their parents as fair were more likely to be resilient. They were likely to consider the relationships they shared with the parents as a resource that help them negotiate stressful life conditions and cope and adapt to those conditions successfully.

4.2.9 Relationship between the kinds of adolescent-sibling relationships and psychosocial outcomes.

In this section, the relationship between the kinds of adolescent-sibling relationships (affection, conflict, control and emotional distance) and adolescent psychological outcomes of resilience, self-esteem, emotional problems and risky behaviour are discussed. The significant correlations are discussed below. The results are presented in Appendix D.

4.2.9.1 Sibling affection

Sibling affection was associated with the birth order (r=.16, p< .05) as well as the religious affiliations of the respondents (r=. 17, p< .05). The results show that later born respondents

i.e. second, third, fourth and last borns perceived their siblings to be more affectionate and supportive compared to first born respondents. As discussed earlier in section 4.2.6, the Muslim respondents perceived their siblings to be a little more affectionate and supportive than their Christian peers.

Affectionate sibling relationship was positively correlated with the other domains of the adolescent-sibling relationships except sibling conflict. Sibling affection however was associated significantly with adolescence resilience ($r= .19$, $p<.01$). This suggests that affectionate, supportive and caring sibling relationships play a significant role in the resilience of adolescents and that respondents who perceived their siblings to be affectionate and supportive were more likely to be resilient and were better equipped to cope and adapt to stressful conditions.

4.2.9.2 Sibling conflict

Conflictual sibling relationship was positively associated with the other domains of the adolescent-sibling relationships except the sibling affection domain. The results also show statistically significant relationship between sibling conflict and reported emotional problems ($r= .18$, $p< .05$) and risky behaviour ($r= .18$, $p< .01$) of the respondents. This indicates that fights, competitions and rivalry among siblings may account for a significant variance in adolescents' emotional problems development and the tendency to engage in risky behaviours such as smoking, drinking alcohol and running away from school or home.

Moreover, conflict was negatively correlated with their self-esteem ($r= -.14$, $p< .05$). This suggests that respondents who perceived their sibling relationships to be less conflictual

were more likely to have higher self-esteem whereas those who frequently fought with their siblings had lower self-esteem.

Sibling conflict was not significantly associated with adolescence resilience in this sample. Although the relationship was positive, it was weak and not significant. This result goes contrary to literature that suggests that conflictual relationships might enhance positive adolescence developmental outcomes (Kramer, 2010).

4.2.9.3 Sibling control

This domain examined the perception of respondents on the extent to which they perceived their siblings to be controlling and demanding. Sibling control was positively associated with all the other domains of the adolescent-sibling relationships. This indicates that the nature of sibling control influenced and was influenced by the other nature of sibling relationships and accounted for a significant variance in the global nature of the adolescent-sibling relationships ($r = .60$, $p < .001$).

It was also positively correlated with adolescence resilience ($r = .25$, $p < .001$).

4.2.9.4 Sibling emotional distance

The results (Appendix D) show that sibling emotional distance was positively associated with all the other kinds of the adolescent-sibling relationships

Some respondents perceived their siblings to be emotionally distant, thus those siblings did not care what happened to them and were usually hostile or uninvolved in things that concerned them. The results suggests that those respondents were prone to developing emotional problems ($r = .18$, $p < .01$).

4.2.9.5 Resilience, Self-esteem, Emotional problems and Risky behaviour

The analysis show that the respondents who were resilient were more likely to have higher self-esteem ($r = .34$, $p < .001$). Furthermore, those with higher self-esteem were less likely to engage in risky behaviours ($r = -.17$, $p < .05$).

Although not statistically significant, self-esteem was weakly and negatively related with emotional problem ($r = -.06$, $p > .05$) indicating that as respondents' self-esteem rose, they became less prone to developing emotional problems. A similar trend was observed for resilience and risky behaviour ($r = -.12$, $p > .05$).

This finding contradicts a similar study in Slovakia by Veselka et al. (2009). The authors studied the association of self-esteem and resilience with smoking and cannabis use among 3694 adolescents (mean age, 14.5 years) from elementary schools and concluded that adolescents who were psychosocially competent were likely to smoke and use cannabis and that resilience served as a protective factor in some aspects and in others, it increased smoking and substance abuse.

4.3 SECTION C: Testing of hypotheses

The following hypotheses were based on literature. The regression analyses were conducted to test the general model that certain independent variables accounted for variance in a dependent variable after controlling for the effects of some other independent variables (control variables). All the variables were normally distributed. Normal distribution of errors, multicollinearity, linearity and independent errors showed no violation of the assumptions for conducting regression analyses.

4.3.1 Hypothesis one

Ho_1: Age, gender, sibling size, birth order, family type, religious affiliation, parental SES and parent differential treatment (PDT) have no influence on adolescent-sibling relationships.

This hypothesis was analysed using simple linear regression model. The results showed a significant prediction for the model, $F(189)= 4.28$; $R^2= .159$, $p= .000$. However, only birth order, parental SES and PDT significantly predicted the nature of adolescent sibling relationships (Table 10).

Table 10

Summary of linear regression analysis for hypothesis one

Model	Variables	B	SE of B	Standardized coefficients (Beta)
1	(Constant)	2.15	.46	
	Age	-.03	.03	-.07
	Gender	.08	.09	.07

Sibling size	.03	.03	.08
Birth order	.09	.04	.17*
Religion	.07	.09	.06
Family type	.01	.04	.02
Parental SES	.10	.04	.19**
PDT	.11	.03	.27***

Note. *p< .05, **p< .01, ***p< .001 (2-tailed)

The analysis revealed that the birth order of the respondents, socioeconomic status of their parents measured by the occupation and level of education and how they were treated by their parents compared to their siblings were important factors that determined the nature of their adolescent-sibling relationships.

In ranking, respondents' perceptions on their parents' differential treatment among the siblings highly predicted how they interacted with their siblings (β=3.94, p= .000) followed by the socioeconomic statuses of their parents (β=2.67, p= .008) and then the position they occupy among their siblings (β=2.51, p= .013).

The finding that birth order influenced the kind of relationships the adolescents had with their siblings suggests that the place and roles of the adolescents among their siblings was important in determining the kind of interactions they had with the siblings. This finding runs contrary to Branje et al.'s (2004) assertion that birth order of siblings in traditional nuclear family systems, have insignificant influence on family relationships and studying it is a waste of time. Preliminary results (Appendix D) showed a positive correlation of

adolescents' birth order with sibling affection (r= .16, p< .05) and sibling control (r= .26, p< .001) indicating that the later-born adolescents perceived the relationship with the siblings as cordial, affectionate and supportive but at the same time controlling and demanding. This implies that the older siblings of the adolescents were sometimes affectionate and other times controlling depending on the situation and what probably was needed to be done at that particular time. Kusi-Appouh (2010) found that in Ghana and Uganda, older siblings were more likely to influence their younger adolescent brothers and sisters. They convince them to engage in risky sexual behaviours or to participate in socially accepted activities such as initiation ceremonies. The older siblings were successful in getting their younger siblings to their expectations by alternating the kind of interactions that made it possible for them to do so. Furthermore, the older siblings might offer such kind gestures as a way of showing their love and affection and support to their younger siblings. But at the same time the younger siblings might have perceived such gestures as controlling and demanding. The findings on birth order also supports the family systems theory (Minuchin, 1974) and explains that older siblings, as part of the family system, help maintain prescribed patterns in the family.

From the correlation analysis, SES was found to be a positive correlate of sibling affection (r= .21, p< .01). This indicates that SES is important for the development of affection, support and a sense of belonging among siblings. Since the direction of the relationship was positive it suggests that adolescents of families with higher SES had greater access to financial and social resources as well as parental support system that was enough to minimize competition and conflicts and provide opportunities to improve on their

interactions such as spending more time and doing things together, sharing secrets and building trust.

As noted earlier, the adolescents' perceptions of their parents' differential treatment influenced the kind of relationship they had with their siblings. This indicates that the way in which the adolescents perceived their relationships with their parents in relation to that of their parent-sibling relationships could have been an influential factor in the way the respondents perceived and rated the relationships with their siblings. Those who perceived that they were treated fairly or better by their parents also perceived their sibling relationships to be positive whereas those who perceived the treatment as unfair saw their relationships with siblings to be conflictive, controlling or emotionally distant. This finding is in line with Kowal & Kramer's (1997) position that [adolescents] who perceived their parents differential treatment of themselves and their siblings as fair generally had more positive assessment of their sibling relationships. The results also confirms McHale et al.'s (2000) assertion that parental differential treatment is linked with negative sibling behaviour and that individuals who perceived that they were unfairly treated by their parents developed certain level of hostility and rivalry towards their siblings or see their siblings as controlling and uncaring. To better understand this finding, Steinberg (2001) suggested that different members of the family have different perspectives of parental relationships and are differentially affected by it. This may explain the reason why parental differential treatment was related with the reported conflictual, controlling and ambivalent sibling relationships in this study.

4.3.2 Hypothesis Two

Ho_2: Sibling affection, conflict, control and emotional distance have no influence on adolescents' psychosocial outcomes of resilience, self-esteem, emotional problems and risky behaviours.

Hypothesis two was tested using hierarchical regression analyses. In the hierarchical regression models, all the confounding factors in the study relating to a specific outcome were entered as control for that outcome. Also the nature of sibling relationship (affection, conflict, control, emotional distance) that correlated significantly with any psychosocial outcome in the earlier correlation analyses (Appendix D) was entered to examine its effect size or the quantum of influence it had on the outcome. In cases where there were more than one variable, the nature of sibling relationship with the strongest correlation was entered first.

This hypothesis was analysed in four parts based on the four psychosocial outcomes that were studied; resilience, self-esteem, emotional problems and risky behaviours.

Ho_{2a}: Sibling affection and conflict have no influence on adolescents' resilience.

Earlier analysis showed that resilience related positively with affection ($r=.19$, $p< .01$) and control ($r= r=.25$, $p< .001$). Therefore affection and control were entered to determine their individual effect sizes on resilience development.

In step 1 of the Hierarchical regression, Age, gender, sibling size, birth order, family type, religious affiliation, SES, PDT, self-esteem, emotional problems and risky behaviours were entered as control variables. The results showed that there was a significant *R* square, $F(174)= 3.031$; $R^2 = .161$, $p = .001$.

In step 2, sibling control was entered. The results revealed a significant R squared change, $F(173)= 14.231$; $R^2 = .225$; $\Delta R^2 = .064$, $p = .000$, indicating that sibling control explained 6.4% variance of resilience.

In step 3, affection was entered. The results revealed no significant R squared change, $F(172)= .187$; $R^2 = .225$; $\Delta R^2 = .001$, $p = .666$.

In the final model, self-esteem and sibling control were statistically significant with resilience. Self-esteem recorded a higher Beta value ($\beta = .35$, $p = .000$) than sibling control ($\beta = .26$, $p = .000$). The results are summarized in Table 11.

Table 11

Summary of hierarchical regression analysis of sibling relationships effects on resilience

Model	Variables		SE of B	Standardized coefficients (Beta)
Step 1	Constant	**2.62**	**.89**	
	Age	.04	.05	.07
	Gender	-.17	.14	-.09
	Sibling size	.04	.04	.07
	Birth order	-.06	.06	.08
	Religion	.05	.15	.02
	Family type	-.03	.05	-.03
	Parental SES	.02	.06	.02
	PDT	.08	.05	.13
	Emotional problems	.15	.09	.12
	Risky behaviour	-.26	.17	-.11

	Self-esteem	.82	.17	.34***
Step 2	Constant	2.442	.86	
	Age	.04	.04	.06
	Gender	-.18	.14	-.09
	Sibling size	.04	.04	.07
	Birth order	-.12	.06	-.15
	Religion	.02	.14	.01
	Family type	-.03	.07	-.03
	Parental SES	-.01	.06	-.02
	PDT	.03	.05	.05
	Emotional problems	.13	.09	.10
	Risky behaviour	-.22	.17	-.10
	Self-esteem	.86	.17	.35***
	Sibling control	.24	.06	.28***
Step 3	(Constant)	2.37	.87	
	Age	.04	.04	.06
	Gender	-.19	.14	-.09
	Sibling size	.04	.04	.07
	Birth order	-.12	.07	-.02
	Religion	.02	.14	.01
	Family type	-.03	.07	-.03
	Parental SES	-.02	.06	-.02
	PDT	.03	.05	.05
	Emotional problems	.13	.09	.10
	Risky behaviour	-.23	.17	-.10

	Self-esteem	.84	.17	.35***
	Sibling control	.22	.07	.26***
	Sibling affection	.04	.10	.04

Note. ***p<.001

H_{O2b}: Sibling conflicts have no influence on adolescents' self-esteem.

Preliminary correlation analysis indicated a significant negative relationship between self-esteem and sibling conflict (r= -.14, p< .05). Therefore in this regression model, conflict was entered to determine its effect size on self-esteem.

In step 1 of the Hierarchical regression model, age, gender, sibling size, birth order, family type, religious affiliation, SES, PDT, resilience, emotional problems and risky behaviours were entered as control variables. The results showed that there was a significant *R* square, $F(174)= 4.102$; $R^2 = .206$, $p = .000$.

In step 2, sibling conflict was entered. The results revealed a significant R squared change, $F(173)= 4.109$; $R^2 = .224$; $\Delta R^2 = .018$, $p = .044$. This implies that sibling conflict explained 1.8% variance of self-esteem.

In the final model, resilience and sibling conflict were statistically significant with self-esteem. Resilience showed a higher Beta value ($\beta = .34$, $p<.001$) than sibling control ($\beta = -.14$, $p<.05$). The results are summarized in Table 12.

Table 12

Summary of hierarchical regression analysis of sibling relationship effects on self-esteem

Model	Variables	B	SE of B	Standardized coefficients (Beta)
Step 1	(Constant)	2.24	.33	
	Age	-.04	.02	-.17*
	Gender	.05	.06	.07
	Sibling size	-.03	.02	-.11
	Birth order	-.02	.03	-.07
	Religion	.06	.06	.07
	Family type	.05	.03	.12
	Parental SES	-.02	.03	-.05
	PDT	-.00	.02	-.01
	Emotional problems	-.07	.04	-.14
	Risky behaviour	-.07	.07	-.07
	Resilience	.13	.03	.32***
Step 2	(Constant)	2.33	.33	
	Age	-.05	.02	-.18*
	Gender	.06	.06	.07
	Sibling size	-.02	.02	-.10
	Birth order	-.02	.03	-.06
	Religion	.04	.06	.05
	Family type	.05	.03	.13
	Parental SES	-.02	.02	-.06
	PDT	.01	.02	.02
	Emotional problems	-.05	.04	-.11

	Risky behaviour	-.04	.07	-.04
	Resilience	.14	.03	.34***
	Sibling conflict	-.07	.04	-.15*

Note. *p< .05, ***p<.001(2-tailed)

H_{O2c}: Sibling conflict and emotional distance have no influence on adolescents' emotional problems.

Preliminary correlation analysis showed that emotional problem correlated positively with sibling conflict (r=.18, p< .05) and sibling emotional distance (r =.18, p< .01). In this regression model analysis, conflict was entered to determine its effect size on adolescents' emotional problems.

In step 1 of the hierarchical regression model, age, gender, sibling size, birth order, family type, religious affiliation, SES, PDT, resilience, self-esteem and risky behaviours were entered as control variables. The results showed that there was a significant *R* squared, $F(174)= 1.873$, $R^2 = .106$, $p = .046$.

In step 2, sibling conflict variable was entered and there was a significant *R* squared change in the model, $F(173)= 5.800$, $R^2 = .135$, $\Delta R^2 = .029$, $p = .017$. This indicates that sibling relationships characterized by conflict explained 2.9% variance in the occurrence of adolescents' emotional problems.

In the final step, sibling emotional distance was entered. The results showed significant *R* squared change, $F(172)= .4.208$, $R^2 = .156$, $\Delta R^2 = .021$, $p = .042$ and explained 2.1% variance in emotional problem development.

In the final model, gender (β= .16, $p<.05$), sibling conflict (β= .16, $p<.05$), and sibling emotional distance (β= .16, $p<.05$) were statistically significant with adolescent emotional problems. The results of the hierarchical regression analysis are summarized in Table 13.

Table 13

Summary of hierarchical regression analysis of sibling relationship effects in emotional problems

Model	Variables	B	SE of B	Standardized coefficients (Beta)
Step 1	(Constant)	**1.69**	**.76**	
	Age	-.01	.04	-.02
	Gender	.298	.12	.18*
	Sibling size	-..07	.04	-.15
	Birth order	.02	.05	**.03**
	Religion	.21	.12	.13
	Family type	.07	.06	.09
	Parental SES	-.02	.04	**-.05**
	PDT	-.03	.04	-.05
	Resilience	.11	.06	.13
	Self-esteem	-.31	.16	-.15
	Risky behaviour	.33	.15	.17*
Step 2	(Constant)	1.27	.77	
	Age	.00	.04	.00
	Gender	.28	.12	.17*
	Sibling size	-.07	.04	-.16

	Birth order	.01	.05	.02
	Religion	.25	.122	.15*
	Family type	.06	.06	.07
	Parental SES	-.01	.05	-.01
	PDT	-.05	.04	-.09
	Resilience	.08	.06	.1
	Self-esteem	-.24	.16	-.12
	Risky behaviour	.25	.15	.13
	Sibling conflict	.18	.07	.19*
Step 3	(Constant)	1.42	.77	
	Age	-.05	.04	-.03
	Gender	.26	.12	.16*
	Sibling size	-.06	.04	-.14
	Birth order	.01	.05	.01
	Religion	.18	.13	.11
	Family type	.07	.06	.09
	Parental SES	-.00	.04	-.00
	PDT	-.07	.04	-.12
	Resilience	.08	.06	.10
	Self-esteem	-.25	.16	-.12
	Risky behaviour	.22	.15	.12
	Sibling conflict	.15	.07	.16*
	Sibling emotional distance	.09	.05	.16*

Note. *p< .05 (2-tailed)

H_{O2d}: Sibling conflicts have no influence on adolescents' risky behaviours.

Preliminary correlation analysis showed that risky behaviour correlated positively with sibling conflict (r=.18, p< .01). In this regression model analysis, conflict was entered to determine its effect size on adolescents' risky behaviours.

In step 1 of the hierarchical regression model, age, gender, sibling size, birth order, family type, religious affiliation, SES, PDT, resilience, self-esteem and emotional problems were entered as control variables. The results showed that there was a significant *R* squared, $F(174)= 2.333$; $R^2 = .129$, $p = .011$.

In step 2, sibling conflict variable was entered and there was a significant *R* squared change in the model, $F(173)= 6.944$, $R^2 = .162$, $\Delta R^2 = .034$, $p = .009$. This indicates that sibling relationships characterized by conflict explained 3.4% variance in the occurrence of adolescents' risky behaviours.

In the final model, gender ($\beta= -.16$, $p<.05$), parental SES ($\beta= .20$, $p<.01$) and sibling conflict ($\beta= .16$, $p<.01$) were statistically significant with adolescent risky behaviours. The results of the hierarchical regression analysis are summarized in Table 14.

Table 14

Summary of hierarchical regression analysis of sibling relationship effects on risky problems

Model	Variables	B	SE of B	Standardized coefficients (Beta)
Step 1	Constant	**1.02**	**.39**	
	Age	.08	.02	.07
	Gender	-.14	.062	-.16*
	Sibling size	.03	.02	.13

	Birth order	-.01	.03	-.02
	Religion	-.04	.06	-.05
	Family type	.01	.03	.03
	Parental SES	.07	.03	.20**
	PDT	-.01	.02	-.03
	Emotional problems	.09	.04	.17*
	Resilience	-.05	.03	-.11
	Self-esteem	-.08	.08	-.08
Step 2	Constant	.78	.39	
	Age	.02	.02	.09
	Gender	-.13	.06	-.16*
	Sibling size	.02	.02	.11
	Birth order	-.01	.03	-.03
	Religion	-.01	.06	-.02
	Family type	.01	.03	.01
	Parental SES	.07	.03	.20**
	PDT	-.02	.02	-.07
	Emotional problems	.06	.04	.12
	Resilience	-.06	.04	-.14
	Self-esteem	-.04	.08	-.04
	Sibling conflict	.10	.04	.20**

Note. *p< .05, **p< .01 (2-tailed)

From the analyses of hypothesis two, it was observed that different kinds of sibling relationships influenced different psychosocial outcomes in adolescence. Although sibling affection was positively related with resilience, the regression analysis showed no significant influence of affection on resilience development. Feeling controlled by siblings explained 6.4% of the factors that influenced resilience development in adolescence. This suggests that sibling control played a significant role in the respondents' resilience development. Thus, adolescents whose relationships with their siblings were controlling, demanding or overly intrusive were more likely to build resilience to cope and adapt successfully in the face of adversities.

In addition, sibling conflicts influenced self-esteem, risky behaviour and emotional problems development among school-going adolescents. Those adolescents who constantly fought and/or competed with their siblings were prone to developing low self-esteem and emotional problems and were also likely to engage in risky behaviours. This finding is contrary to literature that suggests that negative sibling relationships enhance positive adolescence developmental outcomes (Kramer, 2010). It rather supports the attachment theory that posits that positive relationships fosters the development of social competence and makes individuals less vulnerable to risks. According to Bowlby (1969), positive relationships provide resources that enhance individuals' ability to negotiate future challenges and adversities.

Finally, adolescents who had emotionally distant or hostile siblings were likely to develop emotional problems.

It was observed that the scores on the outcomes presented, especially for emotional problems and risky behaviours, were quite low probably because of the self-report nature

of the study and participants wanting to present a positive face (Stoeber, 2001). Brener et al. (2003) reported that the cogency of retrospective self-reports on health risk behaviours among adolescents can be manipulated and compromised since it is sometimes difficult to recall and report sensitive behaviours. Adolescents tend to either underreport or over exaggerate the occurrence of those behaviours based on cognitive and situational factors; what society defines as desirable or undesirable and the environmental conditions surrounding the data collection process. However in a large meta review of studies on adolescents, Brenner and her colleagues (2003) concluded that cognitive and situational factors did indeed affect self-report of health risk behaviours, however, the factors did not threaten the validity of the self-reports.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Sibling relationship is documented to influence psychosocial development and helps regulate emotional problems and risky behaviours in adolescence. However, research on sibling relationships and its influence on adolescence development, especially among Africans is limited. Also literature on the influence of sibling relationships on adolescents' psychosocial outcomes is divided. A section of the literature maintains that affectionate and supportive sibling relationships inform adolescents' positive outcomes whereas others suggest that conflict and other negative interactions influence the development of positive outcomes. These two views were investigated in this current study.

A cross-sectional quantitative research design was used to examine the role that sibling relationships played in the psychosocial outcomes of resilience, self-esteem, emotional problems and risky behaviours of systematically sampled Junior High School students aged between 10 and 17 years at Madina, a suburb of the Greater Accra Region of Ghana (N= 211, Mean (SD) age = 13.7(1.5) years, Males= 42.1%). The objectives of the study were to identify the family and personal factors that influenced adolescent-sibling relationships, determine if there are family type, gender, birth order and age variations in resilience, self-esteem, emotional problems and risky behaviours and to examine how and whether the kinds of siblings relationships are related to the resilience, self-esteem, emotional problems and risky behaviours of adolescents with siblings. A structured questionnaire with both open and ended questions and statements comprising of the respondents background characteristics, resilience, self-esteem, health risk behaviour, kind

of adolescent-sibling relationships, perceived parental differential treatment, and parental socioeconomic status were used in the study. The responses were hand-coded and analysed using the statistical Package for Social Sciences (SPSS version 21) to generate frequencies, percentage, means, and relationships among study variables. The Pearson Moment-Product Coefficient (r) was ran to examine the significant relationships among all study variables. Linear regression analysis was conducted to determine the respondents background characteristics that significantly influenced the kind of interactions that existed among the respondents and their siblings. Hierarchical regression analysis was ran to assess the kind of adolescent-sibling relationship that influenced the development of resilience, self-esteem, emotional problems and risky behaviours.

The results of the study showed that 13.7% of the respondents lived with a single parent as a result of divorce. Majority of the respondents showed very-low to moderately low resilience to stressful life conditions (55.4%) and moderate self-esteem (80.6%). Resilient respondents were more likely to also have high self-esteem. Notwithstanding, a decline in self-esteem with increasing age was observed. The older respondents perceived their siblings to be more emotionally distant. Generally, the respondents reported low to moderate emotional problems (94.8%) and engaged less in risky behaviours (99.0%). The male respondents were little more resilient, reported fewer emotional problems but were more prone to risky behaviours compared to the females. Furthermore, first born respondents showed relatively greater resilience but exhibited emotional problems more frequently than the later born respondents. However, last borns reported engaging more in risky behaviours compared to the others. The respondents had between one (1) and ten (10) siblings and the number of siblings that a respondent had seemed to have had an

influence on the respondents' psychosocial outcomes. Those respondents who had at least three (3) siblings were, on average, more resilient, reported fewer emotional problems and engaged less in risky behaviours but showed low self-esteem.

5.1.1 Key findings

The birth order, parental socioeconomic status of the respondents and how they perceived the relationship with the parents compared to the one between the parents and the siblings significantly influenced the kind of relationships the respondents shared with their siblings. The way in which the adolescents perceived their relationships with their parents in relation to that of their parent-sibling relationships could have been an influential factor in the way the respondents perceived and rated the relationships with their siblings. Those who perceived that they were treated fairly or better by their parents also perceived their sibling relationships to be positive whereas those who perceived the treatment as unfair saw their relationships with siblings to be conflictive, controlling or emotionally distant.

Although sibling affection correlated positively with resilience and self-esteem development among the adolescents, regression analyses showed no significant influence of sibling affection on resilience or self-esteem. Sibling control influenced and explained 6.4% of the variance in resilience development indicating that adolescents who had controlling [older] siblings were more likely to be resilient. Sibling conflict influenced the development of self-esteem, emotional problems and risky behaviour, suggesting that the adolescents who regularly fought or competed with their siblings for family resources developed low self-esteem and were probably predisposed them to emotional problems and risky behaviours.

Sibling conflicts influenced both the development of risky behaviour and emotional problems among the adolescents whereas those with emotionally distant or hostile siblings reported more emotional problems.

5.2 Conclusion

From the findings of the study, it is concluded that resilient adolescents may develop positive self-esteem and vice-versa and that self-esteem declines in adolescence from about age 10 up to age 16 when it begins to rise. Adolescent males are more likely to be resilient and exhibit less emotional problems but more prone to risky behaviours than the females. Adolescents with more siblings may possess higher self-esteem and are likely to be more resilient.

Adolescents who perceived that they were treated fairly or better by their parents perceived their sibling relationships to be positive whereas those who perceived the treatment as unfair rated the relationships with their siblings to be conflictive, controlling or emotionally distant.

The view held by most researchers that positive (affectionate and supportive) sibling interactions influenced positive psychological outcomes was not supported in study with the reason being that although sibling affection was positively related with resilience, regression analysis showed that affection did not significantly influence resilience. Negative aspects of the adolescent-sibling relationships such as having controlling and overly intrusive siblings may be influential in resilience development among adolescents and therefore the assumption that negative interactions could promote positive psychosocial outcomes in adolescents was partially supported. However, this particular conclusion must be interpreted with caution. Although the researcher documented sibling control as a negative effect, it is possible that the adolescents perceived it as a good interaction mechanism that helped shape their behaviour, especially for those adolescents with older siblings. Nevertheless, aspects of sibling interactions i.e. sibling conflict and

hostility or emotional distance, have been well documented across literature to influence adolescents maladjustment and lead to negative psychosocial outcomes.

In this study, conflict was found to influence the development of emotional problems and risky behaviour whereas emotional distance influenced emotional problems among the adolescents.

5.3 Recommendations

Based on the findings of this study, the following recommendations were made:

1. The study findings, among others, showed that parental socioeconomic status and the nature of parent-child relationships influenced sibling interactions, hence it is recommended that specialized adult education programmes should be instituted for parents and prospective parents on ways to enhance positive interactions with and among their children regardless of the socioeconomic status. Extension programmes on focused on parenting and family relations, and on the development and management of family resources should be intensified among urban families.
2. The study showed that sibling conflict and emotional distance influenced emotional problems and risky behaviours, therefore counsellors at the basic school level could be educated to highlight and utilize sibling relationships in interventions programmes aimed at children with deviant behaviours and depressive conditions. The kind of interactions that the adolescent share with the siblings may partly explain the outcome of behaviours and therefore identifying the factors that influence such interactions and improving on them may be an intervention pathway to addressing deviant behaviours and controlling emotional problems.
3. Based on the findings that conflictual sibling relationship is important for developing risky behaviour and emotional problems, further research could be done to examine the nature and degrees of sibling conflicts that influence resilience, emotional problems and risky behaviours. Sibling conflicts may escalate to hitting one another or exchanging blows. However, most of the conflicts may consist of verbal abuses and exchanges. Therefore these subthemes of sibling conflicts could

be examined to identify which of them influence emotional problems or risky behaviours in adolescence.

4. Further studies could also be done to investigate how sibling control influences the development of resilience in adolescence. It would also be important to examine whether it is possible for younger siblings to control their older adolescents and the circumstances under which this may be salient.
5. Future studies can differentiate between maternal and paternal siblings to account for those from polygamous families and our general complicated family structure and the influence this may have on adolescents' psychosocial development.

REFERENCES

1. Adams, G. R., Gullotta, T. P. & Trom-Adams, C. M. (1994). *Adolescent life experiences* (3rd Ed.). California: Pacific Groove, Brooks/Cole publishing Company
2. Adler, A. (1964). *Individual Psychology of Alfred Adler*. HarperCollins.
3. Ahern, N. R. (2007). Resiliency in Adolescent College Students. Unpublished dissertation submitted to the School of Nursing, University of Central Florida, Orlando, Florida, USA.
4. Amato, R. P. & Afifi, T. D. (2006). Feeling caught between parents: Adult children's relations with parents and subjective well-being. *Journal of Marriage and Family, 68* (1), 222 – 235.
5. Anyakoha, U. E., & Eluwa, M. A. (2000). *Home Management for Schools and Colleges*. Onitsha, Nigeria. Africana-FEP Publishing Ltd.
6. Atindanbila, S., Asare Doku, W. & Awuah-Peasah, D. (2012). Effects of parenting on the self-esteem of adolescents: A study of Labadi Presbyterian Secondary School (Ghana). *Research on Humanities and social sciences, 2* (11), 13 – 18.
7. Bank, L., Burraston, B. & Snyder, J. (2004). Sibling conflict and ineffective parenting as predictor of adolescent boys antisocial behaviour and peer difficulties: Addictive and international effect. *Journal of research on Adolescence, 14*, 99 – 125.
8. Berkley, E. (2003). One year changes in activity and inactivity among 10-15 years old boys and girls: Relationship to change in body mass index. *Pediatrics, 111*, 836 – 843.

9. Begum, G. & Blacher, J. (2011). Sibling relationship of adolescents with and without intellectual disabilities. *Research in Developmental Disabilities, 32,* 1580 – 1588.
10. Black, K. (2004). *Business Statistics for contemporary decision making* (4th Ed.). Wiley Students Edition for India. Wiley, India.
11. Boakye, K. E. (2009). Attitudes toward Rape and victims of rape: A test of the feminist theory in Ghana. *Journal of Interpersonal Violence, 24,* 1633 – 1653.
12. Bowen, M. (1976). Theory in the practice of psychotherapy. In: Guerin, P.J. (Ed). *Family therapy*. NY: Gardner.
13. Bowlby, J. (1969). *Attachment and loss: Vol. 1*. New York: Basic Books.
14. Branje, S. J. T., van lieshout, C. F. M., van Aken, M. A. G. & Haselager, G .J. T. (2004). Perceived support in sibling relationships and adolescents adjustment. *Journal of Child Psychology and Psychiatry, 45* (8), 1385 – 1396.
15. Brody, G. H. (1998). Sibling relationship quality: its causes and consequences. *Annual Review of Psychology, 49,* 1 – 24.
16. Brody, G. H, Stoneman, Z. & McCoy, J. (1994). Forecasting sibling relationships in early adolescence from child temperaments and family processes in middle childhood. *Child Development, 65,* 771 – 784.
17. Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22,* 723 – 742.
18. Bronfenbrenner, U. & Morris, P. A. (2006). The bioecological model of human development. In: Lerner, R. M. (Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development*. Hoboken, NJ: Wiley.

19. Buhrmester, D. & Furman, W. (1990). Perceptions of sibling relationship during middle childhood and adolescence. *Child Development, 61,* 1387-1396.
20. Buhrmester, D. & Furman, W. (1987). The development of companionship and intimacy. *Child Development, 58,* 1101 – 1113.
21. Buist, K. L., Dekovic, M. & Prinzie, P. (2013). Sibling relationship and the psychopathology of children and adolescents: a meta-analysis. *Clinical Psychology Review, 33,* 97 – 106.
22. Buist, K. L. & Vermande, M. (2014). Sibling Relationship patterns and their associations with child competence and problem behaviour. *Journal of Family Psychology, 28*(4), 529 – 537.
23. Burke, J., Pardini, D., & Loeber, R. (2008). Reciprocal relationships between parenting behaviour and disruptive psychopathology from childhood through adolescence. *Journal of abnormal Child Psychology, 36,* 679 – 692.
24. Burton, L. M. (2007). Childhood adultification in economically disadvantaged families: An ethnographic perspective. *Family Relations, 56,* 329 – 345.
25. Campbell, S. B. (1995). Behaviour problems in preschool children: a review of recent research. *Journal of Child Psychology and Psychiatry, 36,* 113 – 149.
26. Cicirelli, V. G. (1995). *Sibling relationship across the lifespan*. Chapter 6: Sibling relationships in cross-cultural perspective. Plenum Press: NY.
27. Conger, K. J. & Little, W. M. (2010). Sibling relationships during the transition to adulthood. *Child Development Perspectives, 4,* 87 – 94.

28. Conger, R. D., Conger, K. J. (2002). Resilience in Midwestern families: Selected findings for the first decade of a prospective longitudinal study. *Journal of Marriage and Family, 64*, 361 – 373.
29. Conger, R. D., Conger, K. J. & Martin, M. J. (2010). Socioeconomic status, Family processes and Individual Development. *Journal of Marriage and Family, 72* (3), 685 – 704.
30. Cox, J. M. (2010). Family systems and sibling relationships. Child development *Perspectives, 4* (2), 95 – 96.
31. Cox, M. J., & Paley, B. (1997). Families as systems. *Annual Review of Psychology, 48*, 243 – 267.
32. Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current Directions in Psychological Science, 12*, 193 – 196.
33. Criss, M. M. & Shaw, D. S. (2005). Sibling relationships as contexts for delinquency training in low-income families. *Journal of Family Psychology, 19*, 592 – 600.
34. DeChesnay, M. (2005). Vulnerable populations: Vulnerable people. In de Chesnay (Ed.), *Caring for the vulnerable: Perspectives in nursing theory, practice, and research.* p. 3 – 12). Sudbury, MA: Jones and Bartlett.
35. Diop-Sidebe, N. (2005). Siblings' premarital childbearing and the timing of first sex in three major cities of Cote D'Ivoire. International family Planning Perspectives, 31 (2). 54 – 62.
36. Dunn, J. (1984). *Studying parents, children and changes in the family*. Washington DC: ERIC Clearinghouse.

37. East, P. (2009). Adolescents' relationships with siblings. In Lerner and Steinberg (Eds). *Handbook of adolescent Psychology, Vol. 2*, p.43 – 73. New York: Wiley.
38. Edin, K., & Lein, L. (1997). Making ends meet: How single mothers survive welfare and low-wage work. New York: Russell Sage Foundation. In**:** Orthner, D.K., Jones-Sanpei, H. & Williamson, S. (2004). The Resilience and Strengths of Low-Income Families. *Family Relations, 53* (2), 159 – 167.
39. Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
40. Ernst, C. & Angst, J. (1983). *Birth order: its influence on personality*. Berlin and New York: Springer-Verlag.
41. Fahey, T., Keilthy, P. & Polek, E. (2012). *Family relationships and family well-being: a study of the families of nine year-olds in Ireland.* Dublin: University College Dublin and the family Support Agency.
42. Feinberg, M. E., Solmeyer, A. R., Hostetler, M. L., Sakuma, K., Jones, D. & McHale, S. M. (2013). Sibling Are Special: Initial Test of a New Approach for Preventing Youth Behavior Problems. *Journal of Adolescent Health, 53,* 166 – 173.
43. Formoso, D., Gonzales, N. & Aiken L. (2000). Family conflict and children's internalizing and externalizing behaviour: Protective factors. *American Journal of Community Psychology, 28* (2), 175 – 199.
44. Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research, 12*(2), 65-76. In Ahern, N.R. (2007). Resiliency in Adolescent College Students.

Unpublished dissertation submitted to the School of Nursing, University of Central Florida, Orlando, Florida, USA.

45. Furman, W. & Buhrmester, D. (1985). Children's Perceptions of the Qualities of Sibling Relationships. *Child Development, 56* (2), 448 – 461.
46. Gass, K., Jenkins, J. & Dunn, J. (2007). Are sibling relationships protective? A longitudinal study. *Journal of Psychology and Psychiatry, 48* (2), 167 – 175.
47. Geyer, S., Hemstrom, O., Peter, R. & Vagero, D. (2006). Education, income and occupational class cannot be used interchangeably in social epidemiology. Empirical evidence against a common practice. *Journal of epidemiology and community health, 60* (9), 804 – 810.
48. Ghana Statistical Service (2014). Ghana Living Standards Survey Round 6 (GLSS 6) Report.
49. Hasnain, N. & Adlakla, P. (2012). Self-esteem, social maturity and well-being among adolescents with and without siblings. *Journal of Humanities and Social Sciences, 1* (5).
50. Howe, N. & Recchia, H. (2006). Sibling relations and their impact on children's development. In Tremblay, R.E., Barr, R.G., Peters, R.D., (Eds.). *Encyclopedia on Early Childhood development,* 1 – 8. Montreal, Quebec: Centre of Excellence for early Childhood development.
51. Ingersoll, G. M., & Orr, D. P. (1989). Behavioural and emotional risk in early adolescents. *Journal of Early Adolescents, 9* (4), 396 – 408.
52. International Encyclopedia of Marriage and Family (2003). Single-parent families. www.encyclopedia.com. Retrieved on 7/4/2015

53. Investopedia (2015). Simple random sample. www.investopedia.com. Retrieved on 7/4/2015.

54. Jennings, M. (1998). Siblings' perspective of their divorce experiences and the quality of the sibling relationships. Unpublished dissertation, Concordia University, Montreal, Quebec, Canada.

55. Jianghong, L. (2004). Childhood externalizing behaviour: theory and implications. *Journal of Child adolescent Psychiatry Nurse, 17* (3), 93 – 103.

56. Karim, A. M. (2002). *Reproductive health risk and protective factors among youth in Ghana.* Pathfinder International: FOCUS on young adults. Washington, DC.

57. Katz, L. G. (1995). *Talks with teachers of young children: A collection*. Norwood, NJ: Ablex Publishing Corporation.

58. Kerr, M. & Bowen, M. (1988). *Family evaluation*. New York: Norton.

59. Kramer, L. (2010). The essential ingredients of successful sibling relationships: An emerging framework for advancing theory and practice. *Child Development Perspectives, 4*, 80 – 86.

60. Kowal, A., & Kramer, L. (1997). Children's Understanding of Parental Differential Treatment. *Child Development, 68* (1), 113 – 126.

61. Kusi-Appouh, D. (2010). Sibling influence on adolescent sexual and reproductive health in Ghana and Uganda. *PAA 2010 Extended Abstract.* Cornell University.

62. Lamb, M. E. & Sutton-Smith, B. (1982). Sibling relationships: their nature and significance of the lifespan. Lawrence Erlbaum Associates: USA.

63. Losoi, H., Turunen, S., Waljas, M., Helminen, M., Ohman, J., Julkunen, J. & Rosti-Otajarvi, E. (2013). Psychometric properties of the Finnish version of the

Resilience Scale and its short version. *Methodological Articles – Psychology, Community & Health, 2* (1), 1 – 10.

64. Lundman, B., Strandberg, G., Eisemann, M., Gustafson, Y. & Brulin, C. (2007). Psychometric properties of the Swedish version of the resilience scale. *Scandinavian Journal of caring Sciences, 21* (2), 229 – 237.
65. Luthar, S. S., Cicchetti, D. & Becker, B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Development, 71* (3), 543 – 562.
66. MacGodswill, D. S. (2003). The correlates of Self-Esteem and Assertiveness among University of Ghana Students. Unpublished Undergraduate Research project submitted to the Department of Psychology, University of Ghana, Legon.
67. Maslow, A. H. (1943). Theory of human motivation. Psychological Review, 50 (4), 370 – 387.
68. Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child development, 85* (1), 6 – 20.
69. Masten, A. S. (2007). Resilience in developing systems: progress and promise as the fourth wave rises. *Development and Psychopathology, 19*, 921 – 930.
70. Masten, A. S. (2001). Ordinary magic: resilience processes in development. *American Psychologist, 56*, 227 – 238.
71. McCubbin, H. I., Thompson, I. & McCubbin, M. A. (1996). *Family Assessment: Resiliency, Coping and Adaptation. Inventory for Research and Practice*. University of Wisconsin Publishers, Madison, Wisconsin, USA.

72. McGuire, S. & Shanahan, L. (2010). Sibling experiences in diverse family contexts. *Child Development Perspectives, 4*, 72 – 79.

73. McHale, S. M., & Crouter, A. C. (2003). How do children exact an impact on family life? In: Crouter, A. C. & Booth, A. (Eds.). Children's influence on family dynamics: the neglected side of family relationships. Mahwah. NJ: Erlbaum.

74. McHale, S. M., Updegraff, K. A., Jackson-Newsom, J., Tucker, C. J. & Crouter, A. C. (2000). When does parents' differential treatment have negative implications for siblings? *Social Development*, 9, 149 – 172.

75. McNerney, A. & Usner, J. (2001). *Sibling Rivalry in Degree and Dimensions across the Lifespan*. Myers.

76. Meunier, J. C., Roskam, I., Stievenart, M., van de Moortele, G., Browne, D. T. & Kumar, A. (2011). Externalizing behaviour trajectories: The role of parenting, sibling relationships and child personality. *Journal of Applied Developmental Psychology, 32*, 20 – 33.

77. Milevsky, A., Schlechter, M. J. & Machlev, M. (2011). Effects of parenting style and involvement in sibling conflict on adolescent sibling relationships. *Journal of Social and Personal Relationships, 000(00)*, 1 – 19.

78. Minuchin, S. (1974). *Families and family therapy*. Cambridge, MA: Harvard University Press.

79. Moore, D. & McCabe, G. P. (2006). Introduction to the practice of statistics (5^{th} Ed.). NY: Freeman.

80. Munro, B. & Munro, G. (2003). Family, definition of. In: J.J. Ponzetti Jr. (Ed.). *International Encyclopedia of Marriage and Family* (2^{nd} Ed.). Vol. 2. p. 549 – 555.

81. Newman, L. W. (2000). *Social research methods: Qualitative Approaches.* Allyn and Bacon. USA.

82. Newman, B. M & Newman, P. R. (2006). *Development through life: a psychosocial approach.* Massachsetts: Thompson wadsworth.

83. Nukunya, G. K. (2003). *Tradition and change in Ghana: an introduction to sociology*. Ghana Universities Press.

84. Nichols, M. P. & Schwartz, R. C. (1995). *Family therapy: concepts and methods (3rd Ed.).* USA: Allyn and Bacon.

85. Okello, J., Nakimuli-Mpungu, E., Musisi, S., Broekkaert, E. & Derlugn, I. (2014). The association between attachment and mental health symptoms among school-going adolescents in Northern Uganda: the moderating role of war-related trauma. *PLOS One,* 9 (3).

86. O'laughlin, K. C. (2006). The Quality of the Sibling Relationship of Children Diagnosed with Autism. *PCOM Psychology Dissertations*, Paper 152.

87. Oliva, A. & Arranz, E. (2005). Sibling Relationships during Adolescence. *European Journal of Developmental Psychology, 2* (3), 253 – 270.

88. Orthner, D.K., Jones-Sanpei, H. & Williamson, S. (2004). The Resilience and Strengths of Low-Income Families. *Family Relations, 53* (2), 159 – 167.

89. Perle, J. G., Levine, A. B., Odland, A. P., Ketterer, J. L., Cannon, M. A. & Marker, C. D. (2013). The association between internalizing symptomology and risky behaviours. *Journal of Child and Adolescent Substance Abuse, 22* (1), 1 – 24.

90. Petalas, M. A, Hastings, R. P, Nash, S., Lloyd, T. & Dowey A. (2009). Emotional and behavioural adjustment in sibling of children with intellectual disability with and without autism. Autism, 13 (5), 283 – 471.

91. Peterson, G. W. & Bush, K. R. (2014). Families and Adolescent Development. *Handbook of Adolescent Behavioural Problems, 1*, 45 – 69.

92. Pike, A., Hetherington, E. M., Reiss, D. & Plomin, R. (1996). Using MZ differences in the search for non-shared environmental effects. *Journal of Child Psychology and Psychiatry, 37* (6), 695 – 704.

93. Pomery, E. A. (2005). Families and risk: prospective analyses of familial and social influences on adolescent substance use. *Journal of Family Psychology, 19* (4), 560 – 570.

94. Poortman, A. & Voorpostel, M. (2009). Parental Divorce and Sibling Relationships: A Research Note. *Journal of family Issues, 30* (1), 74 – 91.

95. Rimm, S. (2002). *The effects of sibling competition*. Educational Assessment Service.

96. Robins, R. W., Trzesniewski, K. H., Potter, J. & Gosling, S. D. (2002). Global self-esteem across the lifespan. Psychology and aging, 7 (3), 423 – 434.

97. Roeser, R., Eccles, J. & Strobel, K. (1998). Linking the study of schooling and mental health: selected issues and empirical illustrations at the level of the individual. *Educational Psychologist, 33*, 153 – 176.

98. Rosenberg, M. (1965). *Society and adolescent self-image*. NJ: Princeton University Press.

99. Sarantakos, S. (1993). *Social Research*. Macmillan Press Ltd. London.

100. Sankah E. (2007). *Relationship between Parenting Styles, Adolescents Self-Esteem, Emotional State and Assertiveness*. Unpublished dissertation submitted to the University of Ghana.

101. Schmider, E., Ziegler, M., Danay, E., Beyer, L., & Buhner, M. (2010). Is it really robust? Reinvestigating the robustness of ANOVA. *Methodology, 6* (4), 147 – 151.

102. Sharpe, D. & Rossiter, L. (2002). Siblings of children with chronic illness: A meta-analysis. *Journal of Pediatric psychology, 27* (8), 699 – 710.

103. Solloway, F. J. (1996). *Born to rebel: birth order, family dynamics and creative lives*. New York: Pantheon.

104. Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person*. New York: Guilford.

105. Statistics Canada (2011). Canadian census 2011 report. Retrieved on 18/5/2015. www12.statcan.gc.ca/census.

106. Steinberg, L. (2001). We know some things: parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11* (1), 1 – 9.

107. Steinberg, L. & Morris, A. S. (2001). Adolescent Development. *Annual Review of Psychology, 52*, 83 – 110.

108. Tippett, N. & Dieter, W. (2015). Aggression between siblings: Associations with the Home Environment and peer bullying. *Aggressive Behaviour, 41*, 14 – 24.

109. Van der Geest, S. (2013). *Kinship as Friendship: Brothers and Sisters in Kwahu, Ghana. The Anthropology of Sibling Relations: Share parentage, Experience, and Exchange*. London: Palgrave.

110. Veselka, Z., Geckova, A. M., Orosova, O., Gajdosova, B., Van Dijk, J. P. & Reijneveld, S. A. (2009). Self-esteem and resilience: the connection with risky behaviour among adolescents. *Addictive behaviours, 34*, 287 – 291.

111. Waldinger, R. J., Vaillant, G. E. & Orav, E. J. (2007). Childhood sibling relationships as a predictor of major depression in adulthood: a 30-year prospective study. *American Journal of Psychiatry, 16* (6), 949 – 954.

112. Wagnild, G. M. (2009a). *The Resilience Scale User's Guide for the US English version of The Resilience Scale and The 14-Item Resilience Scale (RS-14)*. Worden, MT: The Resilience Center.

113. Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1* (2), 165 – 178.

114. Walker, W. (2005). The strengths and weaknesses of research designs involving quantitative measures. *Journal of Research in Nursing, 10* (5), 571 – 582.

115. Wallace, E. (2012). *The Sibling Relationship: Friendship or Rivalry?* Unpublished Masters Dissertation, Dublin, Dublin Institute of Technology.

116. White, L. (2001). Sibling relationships over the life course: A panel analysis. *Journal of Marriage and Family, 63*, 555 – 568.

117. Whiteman, S. D., Matlale S.M. & Soli A. (2011). Theoretical Perspectives on Sibling Relationships. *Journal Family Theory Review, 3* (2), 124 – 139.

118. Williamson, S. (2004). The Resilience and Strengths of Low-Income Families. *Family Relations, 53* (2), 159 – 167.

119. Yeh, H & Lempers, J.D. (2004). Perceived sibling relationships and adolescent development. *Journal of Youth and Adolescence, 33* (2), 133 – 147.

APPENDICES

Appendix A

ETHICS APPROVAL FOR THE STUDY

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No.....

19th January 2015

Mr. David Kumador
Department of Family and Consumer Sciences
University of Ghana
Legon

Dear Mr. Kumador,

ECH 031/14-15: THE ROLE OF SIBLING RELATIONSHIP IN ADOLESCENTS' PSYCHOLOGICAL ADJUSTMENT

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:	17/07/15
On Agenda for:	Initial Submission
Date of Submission::	23/10/14
ECH Action:	Approved
Reporting:	Quarterly

UG/ISSER/ECH VALID UNTIL 17 JUL 2015 APPROVED DOCUMENT

Please accept my congratulations.

Yours Sincerely,

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

PROTOCOL CONSENT FORM

UNIVERSITY OF GHANA

Official Use only Protocol number

OFFICE OF RESEARCH, INNOVATION AND DEVELOPMENT

Ethics Committee for Humanities (ECH)

PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study:	The role of sibling relationships in adolescents' psychological adjustment
Principal Investigator:	DAVID KWAME KUMADOR
Certified Protocol Number	ECH 031/14-15

Section B– CONSENT TO PARTICIPATE IN RESEARCH

General Information about Research

Dear participant,

I am conducting a study on sibling relationships and how that affects you and other adolescents emotionally. Your sibling(s) refers to your brother(s) or sister(s). This study will help me and other scientists learn more about sibling relationships and their importance to adolescents in Ghana. I therefore would like you to provide me with some information about yourself and your siblings. It will take about 30 minutes to answer the questions.

The questions are self–explanatory. This means that they have been stated in such a way that you can easily read and understand and provide the rights answers to each of them. Some of the questions will require you to write some basic information about yourself and your family (SECTION A). The rest will require you to first read the INSTRUCTIONS which are stated first and then proceed to provide your answers by ticking under the appropriate response by the questions or statements in each section (SECTIONS B – F). I will be personally available to assist should you encounter any challenges.

Please bear in mind that you have the right to refuse to answer any question or respond to any statement you feel uncomfortable with.

Benefits/Risk of the study

There are no anticipated risks to you for participating in this study. However, as a benefit for participating in this study, you will learn more about yourself, your siblings and your

family. Your answers, together with others, will help family scientists and researchers to come up with programmes and textbooks that will help educate the public on issues concerning adolescents and their relationships.

Confidentiality

You will remain anonymous. This means that the information you provide will be kept private to the extent of law and that only people directly involved in this study may inspect the records for academic purposes.

The result of this study may be published. However, the information from you will be combined with those from your colleagues in the publication so there will be no way to identify you personally in any published result of this study. To ensure this, please DO NOT WRITE YOUR NAME on the paper.

Compensation

There will be no compensation for participating in the study.

Withdrawal from Study

Participation in this study is voluntary and you may decide to withdraw at any time without any penalty or punishment. You will not be affected in any way if you decide not to take part in this study or should you take part and later stop participating.

Your decision to participate or not to participate will be respected and you will not be disgraced in any way for your decision.

Contact for Additional Information

Please if you have any further questions concerning this study, do not hesitate to contact me or any of my supervisors on the details below.

1. **David Kwame Kumador (STUDENT INVESTIGATOR)**
   Department of Family and Consumer Sciences
   University of Ghana, Legon
   PHONE: 0277280693/0242074999

2. **Dr. Vivian Tackie-Ofosu (SUPERVISOR)**
   Department of Family and Consumer Sciences
   University of Ghana, Legon
   PHONE: 0244506608

3. **Dr. Sheriffa Mahama (SUPERVISOR)**
   Department of Family and Consumer Sciences
   University of Ghana, Legon
   PHONE: 0244563757

Section C- VOLUNTEER AGREEMENT

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

_____

Name of Volunteer

_____ _____

Signature or mark of volunteer Date

If volunteers cannot read the form themselves, a witness must sign here:

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

_____

Name of witness

_____ _____

Signature of witness 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(s).

_____

Name of Person who Obtained Consent

_____ _____

Signature of Person Who Obtained Consent Date

Appendix C

Questionnaire for participating students

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF STUDENTS

Kindly respond to the following questions

1. How old are you? _____

2. What is your Gender? □ Male □ Female

3. Where do you come from?_____ _____

(Name of town) (Region)

4. What is your level of education?

Junior High School (□Form 1 □Form 2)

5. What is your parent(s) highest educational level completed

Father	Mother
Don't know □	Don't know □
Never went to school □	Never went to school □
Junior High School □	Junior High School □
Senior High School □	Senior High School □
Training College/ Nursing College □	Training College/ Nursing College □
Polytechnic □	Polytechnic □
University □	University □

6. How much did you think your parents earn monthly:

□ don't know □ less than GH₵500 □ GH₵500 - GH₵1,000 □ GH₵1,001-GH₵2,000

□ GH₵2,001 - GH₵3,000

7. What work does your mother do? .....

What work does your father do? .....

8. With whom do you live? Tick as many as applicable

□ alone

□ brother(s)

□ sister(s)

□ mother

□ father

□ guardian

□ friend

9. If you indicated in question 8 that you live with mother or father, indicate below whether your parents are divorced or not

□ Divorced

□ Not divorced

10. I have .....brothers and .....sisters

11. What is your place among your brothers and sisters?

□ First born

□ Second born

□ Third born

□ Last born

□ Other, please specify _____

12. I am a: (specify denomination):

□ Christian _____

□ Muslim _____

□ Traditional African

□don't know

SECTION B:

ROSENBERG SELF-ESTEEM SCALE (Rosenberg, 1965)

Instructions: These statements are meant to identify how you feel about yourself. Please indicate to what extent you agree that each statement describes you by ticking under the appropriate description

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

	1	2	3	4
1. I feel that I am a person of worth, at least on an equal basis with others.				
2. I feel that I have a number of good qualities				
3. All in all, I am inclined to feel that I am a failure				
4. I am able to do things as well as most other 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 wish I could have more respect for myself.				
9. I certainly feel useless				
10. At times I think I am no good at all.				

SECTION C

RESILIENCE SCALE (RS-14; Wagnild, 2009a)

Instructions: Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Tick under the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, tick "1". If you are neutral, tick "4", and if you strongly agree, tick "7", etc.

1. Strongly disagree
2. Moderately disagree
3. Disagree
4. Neither disagree nor agree
5. Agree
6. Moderately agree
7. Strongly agree

	1	2	3	4	5	6	7
1. I usually manage one way or another							
2. I feel proud that I have accomplished things in life.							

3. I usually take things in step (one at a time).							
4. I am friends with myself							
5. I feel that I can handle many things at a time.							
6. I am determined.							
7. I can get through difficult times because I've experienced difficulty before.							
8. I have self-discipline							
9. I keep interested in things							
10. I can usually find something to laugh about.							
11. My belief in myself gets me through hard times.							
12. In an emergency, I'm someone people can generally rely on.							
13. My life has meaning							
14. When I'm in a difficult situation, I can usually find my way out of it.							

SECTION D:

HEALTH BEHAVIOUR QUESTIONNAIRE (Ingersoll & Orr, 1989)

Instructions: Please indicate how often, if at all, you have done these activities in the past 12 months by checking the appropriate box.

[1] Never

[2] Less than a month

[3] Monthly

[4] Weekly

[5] Daily

During the past 12 months.....	**1**	**2**	**3**	**4**	**5**
1. I have difficulty sleeping					
2. I have difficulty making friends					
3. I have thought about dropping out of school.					
4. I have driven a car or motorbike/cycle after I have used alcohol or drugs.					
5. I have driven a car or motorbike/cycle in a way that many adults would not like					
6. I have played slot machines, poker machines, or other gambling machines					
7. I feel lonely					
8. I feel sad					
9. I drink alcohol (wine, beer etc).					
10. I attend religious services					

11. I consider harming myself physically.					
12. I have headaches					
13. I have stomach aches					
14. I feel stressed up.					
15. I feel nervous					
16. I feel disappointed by people					
17. I do volunteer work					
18. I was arrested or picked up by the police.					
19. I have run away from home before					
20. I have ever been suspended/Expelled from school (kicked out)					
21. I have attempted suicide					

SECTION E:

NATURE OF SIBLING RELATIONSHIP QUESTIONNAIRE

(Furman & Buhrmester, 1985; Jennings, 1998)

Instructions: A **sibling** is another word for **brother** or **sister**. Please provide responses to the following questions about you and your sibling(s) by ticking the response that best answers each question. There are no right or wrong answers

[1] Not at all

[2] Not too much

[3] Somewhat

[4] Very much

[5] Extremely much

Questions	1	2	3	4	5
1. How much do both -you and your siblings do nice things for each other?					
2. How much do you show this sibling how to do things he or she doesn't know how to do?					
3. How much does this sibling show you how to do things you don't know how to do'?					
4. How much do you tell this sibling what to do?					
5. How much does this sibling tell you what to do?					
6. How much do you and this sibling care about each other?					
7. How much do you and this sibling go places and do things together?					
8. How much do you and this sibling insult and call each other names?					
9. How much do you and this sibling like the same things?					

10. How much do you and this sibling tell each other everything?					
11. How much do you and this sibling try to outdo or beat each other at things?					
12. How much do you admire and respect this sibling?					
13. How much does this sibling admire and respect you?					
14. How much do you and this sibling disagree and quarrel with each other?					
15. How much do you and this sibling cooperate with each other?					
16. How much do you help this sibling with things he or she can't do by him or herself?					
17. How much does this sibling help you with things you can't do by yourself?					
18. How much do you make this sibling do things?					
19. How much does this sibling make you do things?					
20. How much do you and this sibling love each other?					
21. How much do you and this sibling play around and have Fun with each other?					
22. How much are you and this sibling close to each other?					
23. How much do you and this sibling have in common?					
24. How much do you and this sibling share secrets and private feelings?					
25. How much do you and this sibling compete with each other?					
26. How much do you look up to and feel proud of this sibling?					
27. How much does this sibling look up to and feel proud of you?					
28. How much do you and this sibling get mad at and get in arguments with each other?					
29. How much do both you and this sibling share with each other?					

30. How much do you teach this sibling things that s/he don't know?					
31. How much does this sibling teach you things that you don't know?					
32. How much do you order this sibling around?					
33. How much does this sibling order you around?					
34. How much is there a strong feeling of affection and love between you and this sibling?					
35. How much more free-time do you and this sibling spend together?					
36. How much do you and this sibling bug and pick on each other in *many* ways?					
37. How much are you and this sibling alike?					
38. How much do you and this sibling tell each other things you don't want other people to know?					
39. How much do you and this sibling try to do things better than each other?					
40. How much do you think highly of this sibling?					
41. How much does this sibling think highly of you?					
42. How much do you and this sibling argue with each other?					

SECTION F

PERCEPTION OF PARENTAL DIFFERENTIAL TREATMENT

(Furman & Buhrmester, 1985; Jennings, 1998)

Please provide response to the following question about you and your sibling(s) by ticking the response that best answers each statement. There are no right or wrong answers

Who usually gets treated better by your parent(s) or guardian, you or your siblings?"

- ☐ My siblings almost always get treated better
- ☐ My siblings often get treated better
- ☐ We get treated about the same
- ☐ I often get treated better
- ☐ I almost always get treated better

APPENDIX D

Pearson r coefficient correlations among study variables

Study variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Age (1)	1															
Gender (2)	-.08	1														
Sibling size (3)	.21**	.00	1													
Birth order (4)	.07	.03	.34***	1												
Religion (5)	-.05	-.04	.19**	.09.	1											
Family type (6)	.06	.05	-.03	.01	-.05	1										
PDT (7)	.07	-.11	.14*	.11	-.01	.01	1									
SES (8)	-.18**	.04	-.08	-.12	.12	-.05	-.08	1								
Global sibling rel.(9)	-.05	.04	.17*	.20**	.13	.00	.29***	.19**	1							
Affection (10)	-.07	.04	.13	.16*	.17*	-.03	.20**	.21**	.91***	1						
Conflict (11)	-.03	.03	.11	.11	-.11	.09	.21**	.02	.46***	.11	1					
Control (12)	.09	.04	.14*	.26***	.10	-.03	.26***	.11	.60***	.46***	.31***	1				
Emotional distance (13)	.18**	.03	.06	.07	.26***	-.10	.25***	-.04	.32***	.28***	.16*	22**	1			
Resilience (14)	.08	-.06	.07	-.03	.04	-.04	.14**	-.02	.23**	.19**	.09	.25***	.07	1		
Self-esteem (15)	-.15*	.03	-.11	-.11	.00	.08	.04	-.06	.04	.10	-.14*	-.11	-.04	.34***	1	
Emotional problems (16)	-.06	.14*	-.03	.01	.07	.08	-.01	.03	.05	-.03	.18*	.03	.18**	.02	-.06	1
Risky behaviour (17)	.07	-.15*	.07	-.01	-.01	.02	-.04	.16*	.06	-.01	.18**	-.04	.04	-.12	-.17*	.11

Note. *p< .05, **p< .01, ***p< .001 (2-tailed)