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Impact of birth order and sibling relationship on school adjustment in senior high schools in the Central Region of Ghana

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IMPACT OF BIRTH ORDER AND SIBLING RELATIONSHIP ON SCHOOL ADJUSTMENT IN SENIOR HIGH SCHOOLS IN THE CENTRAL REGION OF GHANA

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A Thesis in the Department of Counselling Psychology, Faculty of Applied Behavioural Sciences in Education, Submitted to the School of Graduate Studies, in partial fulfillment of the requirements for the award of the degree of Doctor of Philosophy (Counselling Psychology) in the University of Education, Winneba

AUGUST, 2024

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DECLARATION

Student's Declaration

I, Godfred Agbakplor**,** declare that this thesis titled Impact of Birth Order and Sibling Relationship on School Adjustment in Senior High Schools in the Central Region of Ghana, with the exception of quotations and references contained in published works which have all being identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole for another degree elsewhere

Signature: .....

Date: .....

Supervisors' Declaration

We hereby declare that the preparation and presentation of this work was supervised by me in accordance with the guidelines for supervision of Thesis laid down by the University of Education, Winneba.

Principal Supervisor: Prof. Stephen Antwi-Danso

Signature: .....

Date: .....

Co-Supervisor: Prof. Patricia Amos

Signature: .....

Date: .....

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DEDICATION

I dedicate this work to my dear wife Mary and children: Elorm, Elinam, Edinam and Eyram.

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ABSTRACT

This study examined the impact of birth order and sibling relationship on school adjustment among selected senior high schools in the Central Region of Ghana. The study is critical since there is a societal concern about the school adjustment issues that arise when students, both male and female, detach from their homes to pursue academic goals in Senior High Schools. This study therefore looked at the adjustment issues from the perspectives of the students' birth order and sibling relationship. Relevant literatures that were related to the study were reviewed. In order to be able to measure the variables for the study, four research questions and six hypotheses were developed. The Sequential explanatory Mixed Methods design was used. The main instruments used for data collection were questionnaire and interview schedule. The construct validity of the questionnaire was established using factor analysis and reliability using Cronbach's alpha. The proportional stratified sampling method was used to select 522 students, and convenience sampling technique was used to select eight (8) students for the qualitative phase. Both descriptive and inferential statistics were used in analyzing the quantitative data. The Pearson Moment Product Coefficient (r), the step-wise multiple regression, the independent samples t-test and the One-Way Analysis of Variance (ANOVA) were used to test the hypotheses. The qualitative data was analyzed using thematic analysis. The study outcomes indicated that birth order of students did not play significant role in influencing variations in academic, institutional, personal/emotional, and social adjustment among students. Additionally, there was a moderate and statistically significant positive correlation between school adjustment and sibling relationships. Moreover, factors such as sibling goal setting, involvement, and encouragement had a significant predictive influence on school adjustment, whereas academic engagement did not. From the study findings, it is recommended that school authorities implement adjustment programs for secondary school students while considering birth order of students when taking decisions about the welfare of students. Senior High Schools are also to eliminate barriers hindering students' full engagement in schools and create a conducive atmosphere and ensure the availability of social support for students. At home families are to prioritize effective communication and building effective relationship among siblings. The study is very significant to the curriculum developers and policy makers in education; as it serves as valuable information for senior high school administrators, enabling them to develop targeted intervention programs to support students in coping with the demands and challenges encountered in the educational environment.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The effective adjustment of students to the school environment holds significant importance for various stakeholders, including senior high students aspiring for success, administrators dedicated to promoting student well-being, along with mental health professionals supporting students in addressing emotional, social, and academic difficulties. A high-quality education system should not only impact academic knowledge but also foster the realisation of students' social and personal skills, promoting optimal school functioning and equipping them to handle future developmental tasks successfully. This expanded role, in conjunction with the recent emphasis on schools promoting well-being, has led to increased research on school adjustment and related factors (Slemp et al., 2017), with a specific focus on the strengths of adolescent students. The word "adjustment," originating from the Latin term "ad-justare," denotes the process of harmonizing one's needs with the challenges present in their environment (Gebhard, 2012). School adjustment involves adapting to fulfill academic and psychosocial goals, including, self-esteem, resilience, reported emotional problems, risky behaviors, as well as other demands within the school environment.

There is an enduring societal concern about the psychosocial challenges that arise when students, both male and female, detach from their homes to pursue academic goals in Senior High Schools (Zajacova, Lynch & Espenshade, 2005). According to Fabian (2000), the transition from a familiar environment to an unfamiliar one, such as from home to secondary school, involves change, tensions, and uncertainties. Students experiencing this transition may feel overwhelmed physically and

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psychologically, harbor doubts about their abilities, and adopt an avoidant attitude toward their studies (Wong, Bheung, Chan, Ma & Tang, 2006). The effective adjustment of individual students in school is closely tied to their personal resources, particularly the skillful use of coping strategies (Salami, 2008). Family and social interactions, including those among siblings, plays a significant role in a child's development.

One critical strength contributing to positive adaptation in the school environment is school engagement, defined as students' sense of connection with their school (Veiga, 2016). Scholars generally acknowledge the three-dimensional nature of this variable (Ros & Zuazagoitia, 2015), encompassing behavioral (participation in academic activities), emotional (feelings toward the school context), and cognitive dimensions (investment and effort in learning) (Fredricks, Blumenfeld, & Paris, 2004). Additionally, Adler (1928) proposed that the various positions (birth order) of children within a family can influence students' behavior in schools.

The order of birth within a family significantly influences one's style of life, creating unique childhood conditions that shape individual perceptions across various aspects. Whether one is older or younger than siblings and the exposure to different parental attitudes contribute to distinct childhood experiences. Siblings exhibit differences in behaviors, personality, characteristics, intelligence, familial sentiment, and more. Consequently, due to their specific birth order, each child undergoes varying levels of parental resources and investment, influencing their developmental trajectory (Sun Ha & Tam, 2011). Groose (2000) highlighted that a child's position in the family is a potent predictor of personality and academic achievement. Recognizing this factor is

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crucial for parents and teachers seeking ways to foster the well-being and happiness of children.

The exploration of birth order traces back to the 19th century with the work of Sir Francis Galton. As a British anthropologist, geographer, and statistician, Galton believed in the potential perfection or improvement of the human species. Through his research, he observed that firstborn and only children often became renowned English scientists (Kluger, 2011). This phenomenon was linked to the prevalent practice of primogeniture in many nations, including England, where the firstborn son inherited the family fortune. Subsequent researchers, such as Alfred Adler, delved deeper into the connection between a child's birth order and their personality (Forer & Still, 1976).

Alfred Adler, the pioneer of Individual Psychology had a significant influence on contemporary psychology, emphasized the enduring impact of early childhood experiences on adults. Adler asserted that the position a child holds in the family leaves an indelible mark on their style of life. He believed that a child's personality is predominantly shaped by their chronological place in the family, as parents tend to treat children differently based on their birth order (Isaacson, 2004).

Birth order is a field that seeks to comprehend an individual's position within their family structure, and the sequence in which a person is born can have a substantial impact on their life (Leman, 2009). It involves categorizing children into four fundamental positions: oldest, middle, youngest, and only. Each of these positions is associated with distinct personality traits and dynamics that shape the individual's childhood experiences (Kalkan, 2008). The influence of birth order is further shaped by the interactions with parents and siblings (Leman, 2001).

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There are two widely accepted forms of birth order: psychological and actual. The order in which an individual is born, such as being the first, only, second, or last child, is known as their actual birth order. This order is linked to personality traits, behavior, attitude, and interests (Kalkan, 2008). Psychological birth order, also known as perceived birth order, refers to how a person perceives their position within their family of origin. Alfred Adler emphasized that birth order is not solely about the numerical sequence of births but rather the way a child interprets and adopts a role based on their interactions with others (Kalkan, 2008). Adler stated, "It is not, of course, the child's number in the order of successive births which influences his character, but the situation into which he is born and the way in which he interprets it is the role a child adopts in his or her interactions with others" (Eckstein & Aycock et al., 2010, p. 409).

Recent investigations into the impact of birth order cover a broad spectrum of areas, encompassing income levels (Bertoni & Brunello, 2016), psychological traits (Salmon et al., 2016), intelligence (Rodgers, 2014), educational achievements (Monfardini & See, 2016), malnutrition (Jayachandran & Pande, 2017), health outcomes (Black et al., 2016), consumer behavior (Saad et al., 2005), and addictions (Barclay et al., 2016). Additionally, birth order has been identified as a factor influencing the formation of identity in emerging adults (Wong et al., 2010).

Understanding one's birth order provides valuable insights into various aspects of life, including personality traits, relationships with friends, colleagues, and loved ones, as well as potential aptitudes for specific types of work and problem-solving approaches (Leman, 2009). The choices individuals make in response to their family dynamics, interactions with siblings, and the surrounding environment contribute to the

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solidification of their personality (Leman, 2001). Birth order serves as a useful tool for offering an environmental context to a client's comprehension of the world.

The trailblazer in birth order research, Alfred Adler, characterizes firstborns as leaders who are high-achieving, ambitious, and inclined to conform. They strive to please their parents through traditional means, such as excelling academically and exhibiting responsible behaviors. Conversely, middle children frequently express feelings of inferiority to their older siblings, as they may struggle to establish a distinct position of privilege and significance within the family, lacking the chance to monopolize their parents' attention. Many middle-born individuals redirect their efforts toward areas different from those where their older siblings have already established themselves. In a bid to stand out within the family dynamic and overcome rivalry with firstborns, middle-born individuals often innovate by engaging in activities or adopting roles that differ from those of their older siblings. Their early exposure to the example set by their older siblings can lead them to demonstrate competence at a younger age (Franz, 2006).

In contrast to their older siblings, last-borns and only children are often perceived as the family's indulged or pampered members. This perception stems from the fact that individuals in these birth positions are the sole focus of the family's attention. However, unlike only children, those born later, such as middle and last-born children, are aware of the elevated status of the firstborn. Consequently, they employ alternative strategies to distinguish themselves from their siblings. According to Groose (2003), only children are frequently perfectionists with high self-expectations, leading to notable academic achievements.

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The dethronement theory also offers an explanation for the effects of birth order on individual development. The oldest child receives all of the parents' attention before a younger sibling is born, but the newborn eventually takes their place. In response to this dethronement, the child exerts additional effort to regain parental attention. This process contributes to the development of characteristics such as conscientiousness, conservatism, independence, and competence in the firstborn, which later prove beneficial in their life progress.

The school adjustment of senior high school students could also be significantly affected by the nature of their sibling relationships. Positive interactions among siblings play a role in shaping the psychosocial functioning, emotional well-being of adolescents and social skills (Deater-Deckard & Dunn, 2002; Updegraff et al., 2002; Whiteman et al., 2007). Albert Bandura's modeling concept (Bandura & Walters, 1977) further elucidates how older siblings often act as role models for their younger counterparts (Whiteman et al., 2011). Consequently, young siblings tend to emulate both the positive (Rogers et al., 2018; Vleuten et al., 2020) and negative behaviors (Kothari et al., 2014; Samek et al., 2015) exhibited by their older siblings. Considering that approximately 90% of adolescents have siblings, this highlights the unavoidable nature of interaction and interpersonal relationships (Milevsky, 2011).

Alfred Adler posited that a person's siblings exert significant influence on their experiences and perspectives. Younger siblings may either adopt the same roles as their older siblings or choose divergent paths. The identity embraced by the eldest child profoundly shapes the perspectives of the entire sibling group. Many children regard their older siblings as role models and emulate their choices. However, when younger siblings opt for different roles, this is termed as differentiation, often

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employed to mitigate competition and comparison among siblings (McHale et al., 2012).

Siblings share both positive and negative feelings toward each other, and their shared experiences create enduring memories (Van Volkom, Machiz & Reich, 2011). These sibling relationships serve as the earliest connections in a person's life, fostering emotions of both love and hate. These intense emotions can lead to various other feelings, such as anger or excitement. The sibling relationships individuals are born into are vital social environments with associated opportunities, costs, and unique niches. Even identical twins, who share similar genes, have distinct personalities because each sibling is born into a distinct environment (Van Volkom, Machiz & Reich, 2011). Adler asserted that birth order significantly contributes to the development of diverse personalities among children from the same family with similar genetic backgrounds (Badger & Reddy, 2009).

Sibling relationships are shaped by the influence of family members and societal norms, leading to a multitude of dynamics within these connections. Emotions in sibling relationships vary, with some individuals experiencing jealousy and anger, while others take pride in their siblings (Van Volkom, Machiz & Reich, 2011). In the early stages of life, older siblings typically wield more power and authority over their younger counterparts. However, as siblings age, the power dynamic tends to level out, and they draw closer to each other. This shift in dynamics often coincides with siblings pursuing their individual paths and becoming less preoccupied with parental attention (Van Volkom, Machiz & Reich, 2011).

The balance of power becomes more equal as firstborn children relinquish some control, and second-born children assume greater influence (Tucker & Updegraff,

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2010). Shared life-changing experiences contribute to siblings growing closer, fostering a sense of camaraderie as they relate to each other's experiences in various ways.

As siblings age, they typically develop a positive attitude and become the sources of both instrumental and emotional support for each other. This emotional bond tends to endure throughout their lifetimes, even when physical proximity is not maintained. Siblings often serve as valuable resources for support, love, and friendship as they grow older (Van Volkom, Machiz & Reich, 2011).

In families where parents have passed away, sibling relationships play a crucial role in providing emotional sustenance. During times of need and stress, individuals often turn to their siblings for support. Experiencing traumatic life events together tends to strengthen the bonds between siblings, offering a supportive outlet in times of need. Research indicates that women are more inclined to seek support from their siblings compared to males (Van Volkom, Machiz & Reich, 2011).

While it is natural for not all siblings to get along all the time, conflicts and fights are common. Sibling rivalry, characterized by jealousy, competition, and fighting, can be classified into two types: adult-initiated conflict and sibling-generated conflict. Adult-initiated rivalry involves parents making comparisons between siblings, often through subtle statements. Sibling-generated rivalry occurs when children seek parental attention and aim to elevate their status within the sibling relationship. Close-in-age siblings may experience more competition, as societal expectations often dictate similarities in interests, behavior, and achievements. Research indicates that sibling rivalry is most prevalent between the ages of 10-15 years, often manifesting in an

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academic setting. Female siblings tend to exhibit more supportive behavior compared to competitive tendencies seen in males (Badger & Reddy, 2009).

Adolescence, encompassing the age group of 10–19, is marked by complex social, physiological, and psychological transformations (Miller et al., 2019; Perry et al., 2020), making adolescents susceptible to both perpetrating and experiencing violence (Widom & Wilson, 2015; Turchik, Hebenstreit & Judson, 2016). According to international research, around one-third of teenagers between the ages of 13 and 15 who are enrolled in school had experienced physical violence in some capacity (Han et al., 2019; Radford et al., 2013). For instance, research in Ghana disclosed high levels of bullying among adolescents, with 15% reporting incidents of being kicked (Acquah, Wilson & Doku, 2014). According to another survey conducted in Ghana, 32% of teenagers enrolled in school had been in at least two violent altercations (Acquah, Lloyd, Davis & Wilson, 2014). This highlights the high rate of interpersonal violence in Ghana and calls for immediate research attention.

Researchers categorize sibling relations among students into five groups: popular students, who are attractive, liked, and prefer spending time with others; rejected students, who are not well-liked and are avoided by the group; controversial students, whose peers are uncertain in their feelings toward them; neglected students, who are liked by very few group members; and average students, who receive an average level of attraction from others in the group (Coie & Dodge, 1988; Newcomb, Bukowski & Pattee, 1993; Košir & Pečjak, 2005).

1.2 Statement of the Problem

The process of adapting to school appears to hold significant importance in a student's life, serving as a fundamental pillar that shapes their entire life trajectory. This

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adjustment may not solely be linked to a student's academic progress and achievements; it also encompasses their attitudes toward school, experiences of anxiety, social support, academic motivation and feelings of loneliness. Successful adaptation to the school environment relies on students possessing a diverse set of skills and behaviors ranging from social and emotional/behavioral skills to academic proficiency that enable them to effectively engage and participate in the school setting (Wentzel, 2002). Students with robust emotional well-being are more likely to feel secure, at ease, and comfortable in their new environment, thereby fostering positive attitudes toward school and learning (Kochenderfer & Ladd, 1996). The adjustment to school is a complex interplay of a student's personal experiences, characteristics, and the interconnected relationships between the home, preschool, and school (Criss, Lee, Morris, Cui, Bosler, Shreffler & Silk, 2015). The extent to which a child successfully adjusts to school can significantly impact their social, emotional/behavioral, and progress in academic issues (Joussemet, Koestner, Lekes & Landry, 2005).

Research indicates that a child's experiences, characteristics, personality type, and educational achievements can be shaped by both birth order and sibling relationships (Zajonc & Sulloway, 2007; Booth & Kee, 2009; Kristensen & Bjerkedal, 2010). Additionally, studies have demonstrated that the mental development of a child is significantly impacted by the presence of older siblings within the family (Dai & Heckman, 2013). In terms of the child's characteristics, age differences between siblings often affect the type and quality of academic support exchanged. Older siblings, particularly those with a substantial age gap, frequently take on mentorship or tutoring roles, which can positively influence the younger sibling's school adjustment, including motivation, academic performance, and classroom behavior (McHale & Crouter, 1996). When age gaps are smaller, siblings may experience more

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peer-like interactions, which can encourage collaboration but may also lead to rivalry and distraction (Teti, 2002). The developmental maturity of an older sibling often enhances their capacity to provide emotional and academic guidance. Gender differences shape the emotional tone and quality of sibling interactions, which indirectly affect school adjustment. Same-gender siblings, particularly sisters, tend to offer more emotional support, which fosters a secure environment for learning (Stocker et al., 1989). On the other hand, male siblings, especially brothers, may engage in more competitive or conflictual interactions, which can be either motivating or disruptive depending on the family dynamics (McHale et al., 1999). The interaction between age and gender further refines the impact on school adjustment. For example, older sisters are more likely than older brothers to provide nurturing academic support, enhancing their younger siblings' school engagement and coping strategies (Dunn, 2002). Meanwhile, mixed-gender siblings may benefit from diverse socialization styles but may experience less intimacy and academic collaboration.

A significant amount of research has shown how birth order affects a range of consequences. People born later in the sibling order, for example, typically exhibit lower IQ scores (Bjerkedal, Skjeret, Kristensen & Brevik, 2007; Black, Devereux & Salvanes, 2011), attain lower levels of education (Black, Devereux & Salvanes, 2005; Booth and Kee,s 2009; Härkönen, 2014), face higher mortality risks (Barclay and Kolk, 2015; Modin, 2002), earn lower incomes (Björklund & Jäntti, 2012), and are more likely to smoke (Black, Devereux & Salvanes, 2016). Conversely, a study conducted in Ecuador suggested that later-born children may achieve higher levels of education (De Haan, Plug & Rosero, 2014). Some studies propose that birth order has minimal effects on intelligence (Rohrer, Egloff & Schmukle, 2015; Damian & Roberts, 2015). In the case of first-borns, research from Jordan indicated that the first

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child or the only child tends to perform well in school and is adept at adjustment, especially if the first child is a boy (Al-Khayat & AL-Adwan, 2016).

Globally, there is literature examining the connection between birth order and school adjustment (Zajonc & Sulloway, 2007; Booth & Kee, 2009; Kristensen & Bjerkedal, 2010). However, a consistent divergence in evidence regarding birth order effects on school adjustment is observed between the developed and developing worlds. Developed countries show negative birth order effects, whereas developing countries exhibit indications of positive birth order effects (De Haan, Plug & Rosero, 2014). Consequently, birth order effects on school adjustment seem to be context-specific, contingent on a country's level of development. Previous research on birth order and outcomes including educational attainment, intelligence and personality has predominantly focused on populations from Western, educated, industrialized, and democratic countries (Heinrich, Heine, & Norenzayan, 2010). To enhance our understanding of human universality and variability, researchers must shift their attention from Western populations to encompass diverse populations (Rad, Ginges, & Martingano, 2018).

However, there are ample empirical studies on the relationship between birth order, sibling relationship, and school adjustment of senior high school students. Notable examples include the investigation conducted by Yunus, Baba, and Wai (2014), who examined the effect of family environment on students' adjustment at the School of Health Technology in Keffi, Nasarawa State. The findings of this study revealed that the family environment significantly influences school adjustment. Other studies in this realm encompass the work of Singh (2006), Raju and Rahamtulla (2007), Velmurugan and Balakrishnan (2011), Maureen, John, and Ayere (2011), Kaur (2012),

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Basu (2012), Roy and Mitra (2012), Peerzada (2013), and Howell, Holla, and Waidmann (2016).

Isangedighi, Joshua, Asim, and Ekuri (2004) emphasized that learners enter school with varying developmental levels, diverse environmental influences, distinct social attitudes and behaviors, and various cultural and ethnic backgrounds. Examining how individuals progress and adapt over time with their diverse psychosocial characteristics is a crucial domain in educational research. Gebhard (2012) identified three primary areas in which students encounter adjustment problems: academic, social interaction, and emotional reactions to their new environment. The transition to senior high school can be a challenging experience, with many students ill-prepared for the psychological, emotional, and academic realities. Students who struggle to develop new coping styles may negatively impact their school adjustment. Global research indicates that adjustment disorders contribute to poor academic performance in students (Kamal & Bener, 2009; Needham et al., 2004). This challenge is exacerbated if the student comes from a conflict-stricken family, lacks proper values cultivation, and has an insecure attachment to parents or guardians (Wei & William, 2004).

Interpersonal relationships among siblings can sometimes escalate into inter-personal violence, a significant public health issues associated with various negative effects (Senanayake et al., 2019; Moore & Stuart, 2005; Ratele et al., 2010). Inter-personal violence involves engaging in physically dehumanizing acts that detrimentally impact the well-being and health of people (Senanayake et al., 2019; Moore & Stuart, 2005; Ratele et al., 2010). This type of violence may manifest as physical attacks or fights targeting adolescents (Senanayake et al., 2019; Pengpid & Peltzer, 2020).

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Interpersonal violence among adolescents enrolled in school is also influenced by psychosocial factors, including psychological distress, smoking, suicide attempts, alcohol consumption, truancy, tobacco use, bullying victimization, sedentary behavior, and injury (Senanayake et al., 2019; Peltzer & Pengpid, 2014).

In Ghana, there seems to be limited research on the intersection of birth order, sibling relationships, and school adjustment among students despite evidence indicating that students encounter adjustment issues. For instance, Kumador (2015) investigated the effect of sibling relationships on adolescents' psychological adjustments, utilizing a quantitative approach with questionnaires as the sole data collection tool in contrast to the mixed methods employed in the current study. Anape (2016) explored the correlation between birth order and students' entrepreneurial inclination, employing a concurrent mixed method design with different philosophical considerations, as opposed to the pragmatist epistemology adopted in the current study.

Furthermore, most studies, as indicated in the literature, have focused on only one or two aspects of school adjustment. However, according to several researchers, successful adjustment to college is a complex and interconnected construct (Bishop et al., 2019; Buote et al., 2007; Credé & Niehorster, 2012; Darlow et al., 2017; Friedlander et al., 2007; Katz et al., 2017; Lidy & Kahn, 2006; Mattanah & Lopez, 2011; Wintre & Yaffe, 2000; Swenson et al., 2008;). While academic success, commonly assessed by GPA, is one facet of college adjustment, Baker and Siryk (1984) identify four domains of college adjustment: academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment. Assessing all four domains is crucial because students' levels of adjustment can vary across these areas (Baker & Siryk, 1984; Credé & Niehorster, 2012). For instance, a student may

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excel academically but face challenges socially and personally-emotionally. Therefore, when researching college adjustment, it is essential to consider multiple indicators, including academic, personal-emotional, social, and institutional attachment (Baker & Siryk, 1984).

Considering the aforementioned factors, this study adopted a comprehensive approach to adjustment by examining the four primary domains outlined by Baker and Siryk (1984). The research aimed to address methodological, contextual, and theoretical gaps, utilizing Adler's theory to explore the interplay of birth order, sibling relationships, and school adjustment through mixed methods designs.

Hence, there is a compelling need for research that focuses on the adjustment challenges faced by senior high school students. Some informal perspectives suggest that these challenges may be contributing to issues of indiscipline and other psychosocial problems within schools. A study conducted in Ghana, utilizing the Global School-Based Health Survey, including the Central Region (GSHS), found that Senior High School students reported various psychosocial issues: 15% felt lonely, 13% felt extremely worried, and 38% felt profoundly sad or hopeless (Owusu, 2008). Additionally, a recent study in the Central Region highlighted a high level of indiscipline among senior high school students (Sackey, Amaniampong & Abrokwa, 2016). Given these findings, the purpose of this study was to determine how sibling relationships and birth order affected students' adjustment to school in senior high schools in the Central Region.

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1.3 Purpose of the Study

The purpose of the study was to examine the impact of birth order and sibling relationship on school adjustment in senior high schools in the Central Region of Ghana.

1.4 Research Objectives

The following objectives guided the study. To:

1. Identify components of school adjustment that exists among senior high school students in the Central Region of Ghana.
2. Examine the relationship between birth order and school adjustment of senior high school students in the Central Region of Ghana.
3. Find out the link between sibling relationship and school adjustment of senior high school students in the Central Region of Ghana.
4. Examine which set of sibling relationship predict student school adjustment in the Central Region of Ghana.
5. Examine if there is statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana
6. Establish if there is statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana.
7. Examine if there is statistically significant difference in school adjustment of senior high school students based on age.

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1.5 Research Questions

The following research questions were formulated to guide the study:

1. What are the components of school adjustment in senior high school students in the Central Region of Ghana?
2. What relationship exists between birth order and school adjustment of senior high school students in the Central Region of Ghana?
3. What is the relationship between sibling relationship and school adjustment of senior high school students in the Central Region of Ghana?
4. Which set of sibling relationship predict student school adjustment among students in the Central Region of Ghana?
5. What statistically significant differences exist in sibling relationship among senior high school students based on gender?
6. What statistically significant differences exist in school adjustment among senior high school students based on gender?
7. What statistically significant differences exist in school adjustment among senior high school students based on age?

1.6 Hypotheses

The following null hypotheses were tested:

H_{o1}. There is no statistically significant difference in school adjustment in terms of birth order of students.

H_{o2}. There is no statistically significant correlation between sibling relationship and student school adjustment of senior high school students in the Central Region of Ghana.

H_{o3}. Sibling relationship will not statistically significantly predict school adjustment of senior high school students in the Central Region of Ghana.

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H_{o4}. There is no statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana.

H_{o5}. There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana.

H_{o6}. There is no statistically significant difference in school adjustment of senior high school students based on age.

1.7 Significance of the Study

In terms of theory, the study aims to advance knowledge in birth order research and its influence on school adjustment. It builds on and contributes to existing theories, such as: Adler's Theory of Birth Order, Resource dilution theory suggesting resources diminish with more siblings, affecting development. Confluence model posits that the family's intellectual environment influences cognitive development. The study addresses gaps in understanding the role of birth order and parental dynamics on academic and social development. It seeks to mediate the controversy among researchers and practitioners about birth order, sibling relationships and school adjustment. Theoretical contribution to psychological and educational frameworks by exploring individual differences among siblings.

In terms of policy, the study will inform educational policy by validating the influence of family background particularly birth order on student outcomes. If a strong link is established, findings could support the development of new educational models that address diverse student needs. The research supports the inclusion of family structure variables in policy decisions related to student support services and school adjustment programs. The study may drive data-informed guidance policies for schools and

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institutions seeking to optimize academic outcomes through personalized learning support.

In terms of practice, the study offers actionable insights for educators to tailor instruction taking into consideration birth order and sibling dynamics. The study will provide school counsellors with a framework to design targeted interventions for students struggling with adjustment or motivation. It will help parents with the requisite knowledge to address the special needs of each child based on birth order and academic performance. It will also enable siblings to better understand their roles and improve relationships through self-awareness, potentially reducing rivalry. Finally, the study will support future researchers and practitioners by offering a robust framework and direction for further study in family dynamics and education.

1.8 Delimitation

The research centered on examining the impact of birth order and sibling relationships on school adjustment of senior high school students specifically in the Central Region. The study was confined to the public senior high schools in the Central Region. The choice of Central Region was driven by the perceived prevalence of adjustment issues among students in this area, prompting the need for in-depth research on the subject.

With school adjustment as the dependent variable, the study examined two independent variables: sibling connections and birth order. Academic adjustment, emotional or personal adjustment, social adjustment, and institutional adjustment made up the dependent variable, school adjustment.

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Elements of school adjustment considered in this study are academic adjustment which comprises of how a student copes with the curriculum, school attendance, academic performance, class exercises, studies and assimilation of teaching. The second element is social adjustment which also comprises of relationship, participation in social activities, ability to form friends, leadership roles and communication. The third element is personal or emotional adjustment which involves self-control, sociability, emotional stability, hard work, and temperament. The final element considered under school adjustment is institutional adjustment which also comprises of satisfaction with school programme, satisfaction with the school itself, school policies and regulations.

In terms of methodology, the study adopted the mixed method approach which employed both quantitative and qualitative approaches in the study.

1.9 Definition of Terms

Birth Order – biological position to which one is born with the description of psychological assumption based on Adler's birth order Theory. The component of birth order considered in this study are: first born, middle born and last born. The study was limited to these three variables in accordance with the study of Onwe (2021) who also selectively researched on similar variables.

Firstborn: Oldest of two or more siblings in a family. Firstborn and oldest are used interchangeably.

Middle-born: Includes all siblings who are not the firstborn or last-born in a family. Other terms used interchangeably are middle child or middle children.

Last-born: The youngest of two or more siblings in a family. The term is used interchangeably with youngest, youngest child, or youngest children.

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School adjustment- School adjustment is the process through which students adapt to their educational environment.

Siblings' relationship – This is the relationship that exists among siblings at home.

Academic achievement: The ability of students to do well in the classroom is known as academic achievement.

Biological birth order: The position that a person is born into within their family is known as their birth order. To prevent misunderstandings, the phrase "biological birth order" was employed for the purposes of this study to refer to the link with the biological family of origin.

Psychological birth order: The way a person perceives their role in the family within the framework of birth order might be characterized as psychological birth order.

Family of origin: The family into which a person is born.

Scholastic (or academic) motivation: Scholastic motivation is explained as the level of aim of each student as applied to the academic environment.

Career choices: in this study, career choices shall mean the academic choices or courses the students are pursuing.

Students: In this research, senior high school students refer to someone admitted in the senior high school.

Struggling Students: These are students who are finding it difficult to adjust in the school setting.

Coastal: Refers to places nearer to the coast.

Interior: remote from the coast. In other words, places that are within the land relatively far from the ocean.

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1.10 Theoretical Frameworks

This research was underpinned by Individual Psychology by Alfred Adler (1928) and Tinto's (1993) Student Integration Theory.

1.10.1 Adler's Theory of Individual Psychology

One of the captivating and extensively explored realms in psychology revolves around personality and the diverse factors influencing it. Previously, numerous theories were proposed to elucidate the intricacies of individual character development. Renowned psychologists and other influential figures have contributed a plethora of perspectives and theories, leading to a rich tapestry of ideas (Ryckman, 2013). Alfred Adler, born in 1870 and initially trained as a medical doctor, emerged as a significant figure in this field, founding Adlerian Psychology and Individual Psychology (Ryckman, 2013). While Adler's contributions to psychology are multifaceted, his birth order theory stands out as particularly relevant to the shaping of distinct personality traits. According to Adler, the experiences tied to one's order of birth play a pivotal role in molding their personality characteristics. Adler also delineated the anticipated traits associated with each birth order rank. Subsequent research has extensively explored the heuristic value of Adler's theory, with researchers keen on assessing the accuracy of his predicted characteristics for each rank due to the broad applicability of his categories to all individuals. Since it demonstrates how children of different birth orders behave differently and, consequently, adjust to new surroundings like senior high school, the idea was essential to the current study.

Adler advocated for the study of individuals in the context of their entire personality, as reflected in the nomenclature of his school of thought. Despite this emphasis on the

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individual, Adler posited that a comprehensive understanding of individuals is attainable only through their interactions with others (Ryckman, 2013). Consequently, Individual Psychology is centered on grasping "the experiences and behavior of each person as an organized entity" (Ryckman, 2013). Adler asserted that all human behaviours are steered by aspirations and an inherent quest for superiority, motivated by feelings of inferiority. Feelings of inferiority, according to Adler, can be organ-related, social, or psychological. Thus, Adler's theory places a focus on the social aspects of human behavior and the human pursuit of self-improvement.

In his extensive body of work, Adler delved into the topic of birth order, emphasizing its significant role in the formation of personality traits. According to Adler, an individual's position within the family hierarchy would influence their experiences, consequently shaping the development of their personality. Notably, Adler asserted that the expected traits for each child were not solely determined by their ordinal position in the birth sequence but were rather shaped by the social interactions resulting from that position. Adler clarified this perspective, stating, "It is not, of course, the child's number in the order of successive births which influences his character, but the situation into which he is born and the way in which he interprets it" (Eckstein et al., 2010, p. 409). Therefore, while birth order itself does not inherently assign specific traits, it does impact the circumstances and experiences that play a key function in shaping a person's personality.

Adler highlighted that various factors beyond the numerical sequence of births lead to the development of key characteristics associated with birth order. According to Adler, the real birth order is less important than a person's subjective perception of their birth order. This subjective interpretation could be influenced by many things, including

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instances where a child has disabilities. In such cases, if the eldest child is disabled, the second-born might assume the characteristics and role of the first-born. Similarly, the death of a child can alter the perceived birth order within a family, a circumstance that was not uncommon during the 1920s and 1930s when Adler formulated his theory. In large families with significant age differences among children's groups, the eldest child of a later group may adopt the traits of a first born.

Moreover, gender plays a role in shaping individuals' self-perception within their families. In patriarchal societies, if a girl comes as the firstborn and the second-born is a boy, societal expectations may compel the boy to take on the role of the firstborn. Gender imbalances within a family, particularly when there is a single male child in a family of girls or a single female in a family of males, can also influence social dynamics and the development of masculine or feminine qualities (Ryckman, 2013). Consequently, various factors contribute to how individuals interpret their experiences and perceive their birth order, with their subjective perception often carrying more weight than their position in the birth sequence.

In addition to the impact of birth order on individual personalities, Adler proposed the concept of sibling de-identification as a contributing factor to the formation of distinct personality among siblings. As noted by Eckstein and Kaufman (2012), the presence of at least a sibling prompts children to consciously or unconsciously differentiate themselves from one another. This process aims to establish unique identities and secure individual attention and support from parents. Through the mechanism of de-identification, children carve out their distinctive attributes, behaviors, and tendencies within the family context. Sibling identification and modeling also play a major function in this dynamic. Older siblings often act as role models for their younger

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counterparts, providing care and support, leading to the emulation of their behavior by younger siblings (Eckstein & Kaufman, 2012). Consequently, the intricate interplay of perceived birth order, de-identification, and modeling contributes to the formation of specific personality types associated with each birth rank.

1.10.1.1 The First-Born Child

Adler outlined five distinct birth order categories that can be universally applied, each associated with specific traits. The first category pertains to the eldest child, who typically receives considerable attention before the arrival of younger siblings. As the sole focus of parental affection initially, first-born children experience a change in dynamics with the birth of a second born, transitioning into the role of the "dethroned monarch" and having to share parental attention (Ryckman, 2013). The time gap in births also influences how children adapt to the arrival of a new sibling. A longer interval, such as three or more years, allows for an established life routine, making it easier for the individual to comprehend and respond to the change. In contrast, a shorter time span leaves the child grappling with the adjustment, as they may lack the cognitive capacity to fully understand the transformation. Hence, children face varying challenges based on the time interval between births and the consequent impact on their ability to comprehend and adapt to the changes.

The eldest child may harbor feelings of resentment and hostility toward younger siblings due to the perceived displacement from their initial position in the family hierarchy. The likelihood of such negative emotions increases when parents fail to adequately prepare children for the arrival of a new sibling. Poor preparation may contribute to neuroses in the oldest child, but with proper handling, they may assume a role akin to that of another parent (Ryckman, 2013). Consequently, some first-born

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children exhibit protective, supportive, and nurturing behaviors toward their younger siblings, functioning as a quasi-parental figure. This role often fosters the development of organizational talents. According to Ryckman (2013), the oldest child's understanding of power and authority is profound, having experienced the loss of it. This experience may make them more supportive of and dependent on people, politically conservative, and inclined toward conformity. Additionally, they may exhibit a preference for order, structure, and adherence to norms and rules (Stewart, 2012). Eldest borns might also have a previous outlook, focusing on the era when they were the center of attraction. Consequently, the adjustment to the birth of a new child can lead eldest siblings to display either protective and supportive qualities or neurotic and insecure tendencies.

1.10.1.2 The Second Born Child

The second classification of birth order outlined by Adler pertains to the middle or second child, who is born after the first but may eventually have younger siblings (Ryckman, 2013). This child enters the world already having to share attention with an older sibling, contributing to their generally cooperative nature. The second-born child tends to exhibit a high level of competitiveness, constantly striving to keep pace with their older sibling. However, their propensity to set overly ambitious goals may lead to inevitable failure, resulting in potential neurosis later in life, as their expectations become unattainable. In adulthood, second-born individuals are more inclined to resist authority and may harbor the belief that no power is invincible (Ryckman, 2013).

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1.10.1.3 The only Child

The third birth order category described by Adler is the only child, referring to an individual without siblings. As no sibling rivals exist, these children enjoy the undivided attention of their parents throughout and are usually pampered (Ryckman, 2013). Stewart (2012) notes that this may lead to feelings of ownership and dependence, extending beyond the family setting. However, some only borns may feel surprised by the excessive attention from their families and seek autonomy and independence (Stewart, 2012). Studies highlight potential challenges for only borns, where feelings of competition may be directed towards their fathers, while their mothers pamper them. This dynamic can result in a mother complex, wherein the child seeks their mother's exclusive attention and aims to exclude the father from the family picture. Therefore, the abundance of attention given to only borns can lead to serious difficulties.

Additional challenges may come up for only borns due to their parents. Studies suggest that parents expecting more children but facing economic concerns may become pessimistic. Another possible scenario is that the parents of only children did not desire offspring, leading to potential rejection or neglect, which could have a lasting and detrimental consequences (Ryckman, 2013). Consequently, only borns may exhibit abnormal personality traits stemming from various factors related to their inability of having siblings. Adler also observed that children in large family separated by significant age gaps could develop characteristics resembling those of only borns.

1.10.1.4 The Middle Child

The fourth category of birth order personality types is the middle born, referring to a child with both older and younger siblings (Ryckman, 2013). Stewart (2012) notes

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that middle children may feel squeezed out of their families as they lack the distinctiveness associated with being the first or last born. This lack of special attributes might lead to feelings of being less loved or rejected. However, those who successfully navigate these challenges may develop strong interpersonal skills and heightened self-esteem (Stewart, 2012). Therefore, while middle children may face certain difficulties based on their birth order, they also possess the potential to overcome such challenges. Each of the five birth order classifications is associated with a projected personality type influenced by an individual's order of birth.

1.10.1.5 The Younger Child

The fifth birth order category pertains to the youngest child, who holds the position of being the last born in the family. As subsequent siblings do not displace the youngest, they are often pampered as the babies of the family. This favored status can lead to a heightened reliance on others for assistance and protection (Ryckman, 2013). Since the youngest born has older siblings, they frequently engage in healthy competition. The increased attention they receive provides ample opportunities for them to develop exceptionally and excel in various pursuits, often outshining their peers. Their families, eager to indulge them, may pave the way for success, garnering recognition within the family unit. However, due to their status as the youngest, they may become accustomed to seeking easy solutions and employing charm or persuasion to influence others. This ability often renders them as the most popular among the various birth order ranks.

Stewart (2012) notes that Adler proposed that some youngest-born may easily become discouraged in their tasks, failing to establish socially important responsibilities with their siblings. In such cases, they may utilize their failures and mistakes to seek

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significance among family members. While Adler acknowledged that some youngest children can overcome competitors and achieve success with added family support, he also hypothesized that those who are spoiled are highly likely to become problem children. Furthermore, Adler suggested that youngest children are well-suited to become counselors. According to studies. such individuals may struggle to attain independence and may lack a singular ambition due to their desire to excel in all areas. Some may also grapple with extreme inferiority, weaker, feeling younger, and less experienced than people in society Consequently, there exists greater variability in the traits of the youngest born, ranging from a successful, competitive, individual to a problem child reliant on assistance for task completion.

Adler's theory was used to underpin the study because the theory relates to the topic of the study. Adler's theory explains a lot about birth order and the unique characteristics of each birth position and how that affect adjustment of individuals. Furthermore, the theory also explains the dynamics involve in the relationship that exist among siblings and how that in itself affect how they adjust in life.

1.10.2 Tinto's (1993) Student Integration Theory

This study was informed by Tinto's (1993) student integration theory which explains school adjustment. Specifically, Tinto's theory served as a foundation for comprehending how well students adapted to college life. This is due to the fact that Tinto's theory describes in great detail how students acclimate to college. Tinto's (1993) theory, which holds that students have the propensity to stick with a college and stay there, regardless of the social and academic connections they made there, is one of the hypotheses that best explains how well students acclimate to college. The hypothesis is hinged on the idea that students come to college with a range of

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background characteristics, including sibling connections, family, academic aptitude, and birth order. These characteristics start a first commitment to the objective of finishing college and to the specific college that was attended. It is believed that early commitments, when combined with these aspects of parenting, have an impact on students' academic achievement as well as how they interact with and eventually integrate into the social and academic structures of school. As a result, a student's degree of intellectual and social integration depends on their eventual commitment to the college and their drive to finish.

Specifically, Tinto's theory served as a framework for comprehending how well pupils adapted to school. This is due to the fact that Tinto's theory describes in great detail how students acclimate to college. In the context of this study, the aforementioned theories complement one another by illustrating the institutional and psychosocial elements that influence students' academic performance. Tinto's hypothesis considers the elements that influence how well pupils adjust to school. This adjustment includes academic adjustment (study habits, time management, and desire for learning), emotional adjustment (resilience, self-regulation, and coping mechanisms), and social adjustment (peer interactions, social integration, and relationships with teachers and classmates).

Tinto went on to say that in their efforts to successfully integrate into the collegiate system, students frequently go through three fundamental phases (Tinto, 1993). Among these are: Family separation, a phase of individuation in which emerging adults construct their "self" independently of parental guidance. The second stage is essentially the transfer to the collegiate context, when students acquire the knowledge they need to navigate their surroundings and successfully integrate into college

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culture. The final stage is integration into the college culture, during which time students have acquired the necessary skills to function in the campus environment and have essentially embraced the community's values, beliefs, and behaviours. Therefore, it implies that students may experience adjustment difficulties if any of the three stages of college transition are not adequately managed. In order to help adolescents integrate emotionally, academically, socially, and institutionally, both the home and the school must play a vital role. Tinto's idea is especially appropriate for students from underprivileged families in Ghanaian senior high school since it takes into account unique circumstances of the students (Jackson, 2016). According to Strayhorn (2012), students' need to feel like they belong at college is crucial because if they don't, they may become emotionally distant and ultimately decide to leave out. According to Strayhorn (2012), students will leave the university to find a place outside of the classroom if they do not feel like they belong to the college community, which is similar to Maslow's theory of needs.

Detachment from family is the initial stage of adjusting to college life, according to Tinto's theory of adjustment to college. Therefore, it stands to reason that the degree and types of connection and relationships a person is raised with may influence how they go about living an independent life from their family. Although the attachment style of each student may have an impact on how they adjust to college life, little research has been done on this topic, particularly in the African viewpoint in addition to their birth order. A framework for examining the intricate network of relationships between students' background traits, such as birth order and sibling relationships, and adjustment factors, such as social, academic, institutional, and emotional adjustment, is provided by the proposed theoretical model. It highlights the need for additional research to completely understand these interactions, especially in particular contexts

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like residential schools where kids could face particular opportunities and obstacles that influence their experiences. As our knowledge grows, educators and legislators can modify support initiatives and interventions to raise children' adjustment levels and, ultimately, their academic performance.

1.11 Conceptual Framework

Several factors are believed to influence the adjustment of senior high school students, with birth order and sibling relationships being particularly relevant. The conceptual framework presented below illustrates the prediction of adjustment based on birth order and sibling relationships (e.g., Waghmare, 2016; Argys et al., 2006). Adler (1928) contends that the circumstances of a child's birth and their interpretation of those circumstances shape their character and subsequently influence their adjustment to new environments. According to Adler, birth order influences an individual's personality, affecting how they adapt to new situations. Adler proposes that differences in personality based on birth order primarily stem from siblings vying for parental attention by asserting specific roles or niches within the family structure (Adler, 1964). It is evident that birth order has a significant influence on behavior, reflecting on one's position within the family, and this, in turn, affects the role birth order plays in shaping personality (Argys et al., 2006).

Hence, within a family, individuals engage in self-comparisons with their siblings to determine their role. If the first-born is perceived as exceptionally intelligent and subsequent siblings feel they cannot match that intelligence level, they might adopt alternative roles, such as being the most sociable or creative, to garner parental attention. Adler's theory is critical to this study as it elucidates how children with different birth orders exhibit diverse personalities, impacting their adjustments to new

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environments like school. Pajoluk (2013) identified four forms of sibling relationships, including encouragement, involvement, academic engagement, and goal setting. The current study incorporates these variables and explores their correlation with school adjustment. For instance, Lewin, Hops, Davis, and Dishion's (1993) research demonstrated a robust association between sibling relationships and school adjustment.

Adjustment entails the dynamic association between an individual and their environment, characterized by the individual's diverse behaviors aimed at establishing a harmonious connection with the environment, others, or themselves. Social, academic, personal-emotional, and institutional factors are all included in the four dimensions of adjustment (Taylor & Pastor, 2007; Arnett, 2013). According to Salami (2011), academic adjustment refers to how successful students handle the demands of school, including their motivation to complete assignments, academic effort, and level of satisfaction with the learning environment. Social adjustment also includes students' engagement in activities that are social in nature, social interactions, and contentment with several facets of their schooling (Salami, 2011). Furthermore, institutional adjustment also indicates students' satisfaction with their overall experiences at the institution, whereas personal-emotional adjustment includes students' skilful management of emotions when confronting obstacles (Salami, 2011).

Conceptual Framework showing the relationship between birth order, sibling relationship and school adjustment. In this study, the dependent variables were birth order and sibling relationship while school adjustment was the independent variable. The conceptual framework looked at the relationship between birth order and school adjustment of students. Then also, it looked at the correlation between sibling

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relationship and school adjustment of students. It further looked some personal characteristics like gender, age and their role when it comes to school adjustment and sibling relationship. The square boxes in Figure 1.1 indicate constructs and theories with arrows showing hypotheses of the study.

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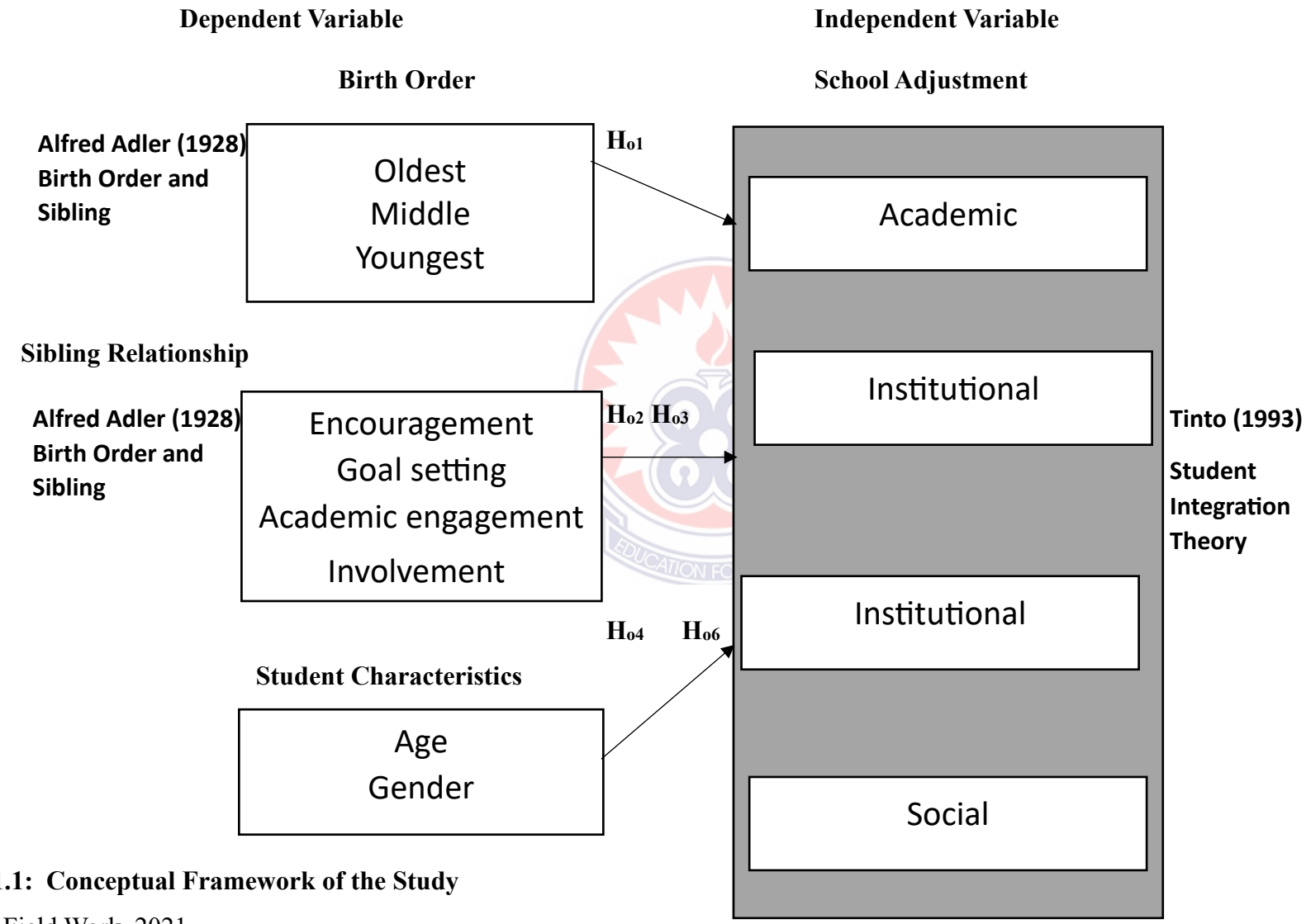


Figure 1.1: Conceptual Framework of the Study

Source: Field Work, 2021

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H1 looked for a statistical relationship between school adjustment and birth order. Additionally, H2 looked for a statistical correlation between senior high school students' school adjustment and their sibling relationships. H3 aimed to investigate whether sibling ties may statistically significantly predict senior high school students' school adjustment. The H4 also explains whether or not senior high school students' sibling relationships do not differ statistically significantly dependent on their gender. The H5 examined whether gender-based differences in senior high school students' school adjustment are statistically significant. Lastly, the H6s also aimed to determine if age does not significantly affect senior high school students' school adjustment.

1.12 Organization of the Study

The study has been organized into five to chapters.

The first chapter examines the introduction, which covers the study's background, problem statement, purpose, objectives, questions, hypotheses, significance, delimitation, theoretical and conceptual frameworks, and, lastly, how the study is organized. The study's pertinent literature is reviewed in Chapter 2. Theoretical, conceptual, and empirical reviews were discussed in this chapter. The third chapter concentrates on the research technique, which comprises the population, sample, and sampling procedure, instrumentation, validity and reliability, data collection procedure, data analysis procedure, research approach, and study design. Data presentation and analysis are covered in Chapter 4, and summary, conclusions, recommendations, and ideas for further research are covered in Chapter 5.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

The theoretical, conceptual, and empirical reviews are all deeply rooted in research and guidance and counseling practices, ensuring a comprehensive and well-informed review of literature. The review literature followed the following outline namely;

1. Theories on Sibling Relationships
    a. Attachment Theory
    b. Social Psychological Processes in Sibling Relationships
    c. Social Learning Theories
2. Empirical Support for Birth Order Influences
3. Empirical Support for siblings' relationship Influences
4. Empirical Support for gender Influences
5. Conceptual Reviews
    a. The Concept School Adjustment
6. Domains of College Adjustment
    a. Academic Adjustment
    b. Social Adjustment
    c. Personal-Emotional Adjustment
    d. Institutional Adjustment
7. Adjustment Challenges among Senior High School Students
8. Birth Order and Educational Attainment
9. Birth Order Effects
10. Nature of Sibling Relationships
    a. Sibling conflict and aggression

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b. Sibling warmth

11. Potential mechanisms linking sibling relationships
    a. Behavioral modeling
    b. Emotion
    c. Social cognition
    d. Morality
12. Social Learning Mechanisms of Sibling Influence
    a. Nurturance
    b. Warmth and intimacy
    c. Social and domain-specific support
    d. Temporal involvement
13. Vicarious reinforcement and power status
14. Sibling relationships and students' psychosocial outcomes
15. Conceptual Framework
16. Summary of Review of Literature

2.3 Theories on Sibling Relationships

2.3.1 Attachment theory

The theory of attachment which has its roots in John Bowlby's early publications (e.g., Bowlby, 1969), is to explain how social connections undergo developmental changes, primarily individual differences. This viewpoint emphasizes how crucial the early attachment between newborns and their primary caregivers is to their survival. Beginning in the earliest days of life, infants actively seek out proximity to caregivers by their traits and behaviours (such as screaming and clinging). An attachment bond develops throughout the course of the first year, with the extent of security depending on how sensitive and responsive the caregiver is.

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By the second year, the attachment model has evolved into a safe haven where kids can explore the outside world while also seeking solace and protection during stressful times. On the other hand, worry and sadness are brought on by the loss or separation of an attachment figure. This theoretical viewpoint holds that an internal working model of relationships is established by the quality of the relationship with a major attachment figure, and usually it is the mothers. This model takes into account people's expectations, comprehension, feelings, and actions in reference to their overall interpersonal connections.

According to this perspective, a child's ties with their primary caregiver have a lasting impact on how they interact with their siblings. Emotionally secure and stable caregiver-child interactions are presumed to promote intimate as well as trustworthy relationships with other people. Insecure connections, on the other hand, might result in relationships including those with siblings that are tense, distant, or less fulfilling.

The understanding that young children can form attachments to a variety of very known people in their social surroundings, aside from their primary caregiver, is equally important from an attachment standpoint. Siblings stand out as ideal candidates for developing attachment bonds because of their ubiquitous presence in daily life throughout childhood and adolescence. Because of the need for security in early life, attachment ties are formed based on how well others respond to the requirements of infants. As a result, elder siblings who are involved and sensitive could end up receiving attachment.

From an attachment perspective, it is important to remember that attachment suggests a greater connection that changes beyond simply expressing agreeable interactions in a relationship to include differences in the extent to which a relationship partner offers

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emotional security. Siblings may therefore not always exhibit attachment ties, even when there are cordial exchanges between them. In contrast to other children, some could use their siblings as safe basis for exploration or as a source of solace during difficult times (Samuels, 1980). Jenkins (1992) noted that siblings turn to one another for emotional security sometimes during their parents' marital disputes, confirming the possibility that siblings can act as attachment figures. Jenkins's (1992) study and other studies (e.g., Kim et al., 2006; Voorpostel & Blieszner, 2008) show that siblings can give emotional security at different periods of life, even when they are not based on attachment frameworks. Future research must focus on determining the elements that explain why siblings develop attachment bonds.

Another crucial aspect for sibling interaction and support is the notion that, as children mature, they increasingly engage in reciprocal interactions where each partner's responsiveness to the other's needs becomes significant. Consequently, the behaviors exhibited by siblings toward each other can impact the overall sibling relationship, and the individual working model of each sibling can play a role in shaping an attachment relationship within them. As previously discussed, (e.g., Dunn, 2007; McHale et al., 2006), sibling relationship possess a distinctive blend of hierarchical and reciprocal elements that evolve across different contexts and over time.

The formation and development of attachment relationships between siblings represent important considerations for both attachment theory and researchers studying sibling relationships. However, as our review indicates, research on attachment between siblings is currently not enough.

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Most research studies on attachment framework concerning siblings have primarily focused on comparing attachment bonds between parents and individual children across sibling pairs. The majority of these studies have indicated only moderate levels of agreement, ranging from 40% to 70%, in parents' attachment classifications with several offspring (e.g., Caspers et al., 2007; O'Connor & Croft, 2001; Rosen & Burke, 1999; van Ijzendoorn et al., 2004). Notably, studies highlight group variations in this concordance, with higher rates observed among same-gender sibling pairs (van Ijzendoorn et al., 2004).

Even though attachment research generally indicates that there aren't many differences in how girls and boys are classified (Benenson, 1996), objective differences among children in the same family could result in different parenting philosophies and ways of interacting, especially between sons and daughters. Within-family designs that compare two or more children within the same household are crucial for investigating such possibilities. By using this method, research on siblings can add insightful information to the larger body of knowledge on family dynamics.

The idea that parent-child attachment bonds act as internal working models influencing children's interactions with siblings is supported by longitudinal studies done during infancy and early childhood, which show that infants with insecure attachments to their mothers have higher levels of sibling conflict and hostility during the preschool years (Volling, 2001; Volling & Belsky, 1992). Furthermore, Teti and Ablard (1989) discovered that sibling pairings with both children having strong bonds with their mother were more likely to form a healthy relationship than dyads with both siblings having weak bonds with their mother.

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Sometimes, elder siblings could act as a safe haven or attachment figure for their younger siblings. When an older sibling supports exploration (Samuels, 1980) or provides consolation in upsetting circumstances when the basic caregiver is not accessible (Stewart, 1983; Teti & Ablard, 1989), for instance, a sibling attachment link could be clearly visible. Sibling attachment relationships may also be influenced by the gender of the children. Stewart (1983) noted that elder siblings usually were likely to offer consolation in mixed-gender dyads than in same-gender dyads. It is possible that siblings in same-gender dyads are less receptive to their siblings' needs because they are more concerned to issues of conflict and competition. However, it is crucial to note that since most research examining sibling attachment patterns have used small groups, the importance of replicating these findings cannot be overstated.

The available studies on sibling attachment during adolescence as well as adulthood is limited. The sibling attachment bond significantly increased around the time younger siblings started secondary school, at roughly twelve (12) years in a Dutch sample, according to research examining attachment ties from early to late adolescence. This surge in attachment might be attributed to the newly shared environment and experiences of siblings at this developmental stage (Buist et al., 2002). This observed trend of change may be caused by elements like a greater emphasis on peer-like interactions, shared social experiences, and an expanding ability for intimacy, all of which call for more research.

According to other studies, the basis for attachment bonds between siblings may be found in a number of traits of the dyad and siblings, such as empathy and shared experiences. Furthermore, a small body of research on siblings with multiple births,

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including twins, suggests that adult twin relationships usually display attachment traits (Neyer, 2002; Tancredy & Fraley, 2006).

Research shows that sibling relationships are trending away from one another in early adulthood, as seen by decreases in proximity and contact (e.g., White, 2001). This phenomenon of distancing corresponds with the many life transitions that take place at this time, such as leaving the family home, finishing formal schooling, starting a career, forming committed romantic relationships, and becoming a parent. Given that sibling contact and interaction are adversely correlated with significant life changes like marriage and parenting, it would seem that during this phase, siblings turn their attention from their families of origin to their families of propagation (White, 2001).

According to research, sibling relationships are deteriorating in early adulthood, as seen by declines in contact as well as proximity (e.g., White, 2001). The numerous life transitions that manifest during this stage, including leaving the family home, completing formal education, beginning a profession, establishing committed romantic relationships, and becoming a parent, are correlated with this phenomenon of distancing. It would appear that during this stage, siblings shift their focus from their families of origin to their families of propagation, as sibling contact and interaction are negatively associated with major life transitions such as marriage since Facebook and blogs make it simpler for people to interact with their family, adult siblings are probably more involved and knowledgeable than they were a few years ago. Most adult siblings.

Briefly, studies indicate that adopting an attachment perspective could serve as a robust basis for investigating sibling relationships throughout life. During childhood, the attachment bonds among siblings may mirror and enhance parent-child bonds,

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while also potentially compensating for parental shortcomings during times of stress or deprivation. Moreover, the attachment dynamic among siblings evolves over time, with both reciprocal and hierarchical aspects undergoing changes as the sibling relationship progresses.

Sibling relationships become more voluntary and peer-like as they grow from childhood to adulthood. This leads to alterations in attachment habits as well. For example, Cicirelli (1995) highlights that traits like contact, support, help, and a sense of security and intimacy indicate sibling attachment in adulthood. In turn, these habits are linked to both physical and mental health in later life. It's important to understand, though, that not all intimate partnerships are the same as attachment partnerships. Finding determinants and correlates of sibling attachment connections should be the main goal of research. Importantly, examining sibling relationships which are usually the only relationships that last a lifetime for most people may offer a way to test the life-span tenets of attachment theory.

2.3.2 Social psychological processes in sibling relationships

Theories of social psychology seek to explain how people are impacted by others, including how they conceptualize the traits of others and the motivations behind their actions. The attribution theory (Heider, 1958), for example, emphasises on how people explain the reasons behind events and acts, such as their own behaviour and that of their other peers. It emphasizes how crucial attributions are in determining how people respond to experiences and events involving other people. This viewpoint holds that how well partners understand one another's motivations determines whether social relationships are harmonious or conflictual. Even though social psychologists have interest in group processes such as roles, social norms, and

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interaction dynamics, the study of sibling relationships has rarely used these ideas, despite their applicability.

Social comparison theory is a viewpoint that is extremely pertinent to comprehending sibling relationships. Social comparison theory, first propounded by Leon Festinger in the 1950s and resembling Adlerian ideas, asserts that people are naturally motivated to evaluate themselves by comparing themselves to others, particularly those they believe to be similar to them (Festinger, 1954). Enhancing self-esteem is a key component of this intrinsic motivation system (Suls, Martin, & Wheeler, 2002). People use upward comparisons to improve their self-perception by comparing themselves to people they admire, and downward comparisons to defensively boost their self-esteem when they believe they are better off than others. Due to their shared experiences and family history, siblings are frequently used as subjects of social comparison. For example, the previously stated theories on sibling rivalry presume that siblings engage in a great deal of social comparison, such as comparing their parents' treatment of them to that of their siblings.

The social comparison processes between siblings have only been the subject of a small number of research. Feinberg, et al. (2000) found that birth order had an impact on social comparison processes, with younger siblings more likely to make upward comparisons and older siblings also likely to make downward comparisons. According to other researchers, the effects of social comparison dynamics vary depending on the sibling relationship's nature and history, age spacing, and the importance of the domain being compared (e.g., Connidis, 2007; Noller et al., 2008; Tesser, 1980). For example, siblings who are closer in age and have more tense

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relationships are more affected negatively by upward social comparisons (Noller, et al., 2008).

However, as the performance domain is not extremely essential to the individual's self-definition, upward comparisons among siblings could theoretically result in good consequences, wherein celebrating the sibling's positive successes boosts one's self-esteem (Tesser, 1980). The consequences of social comparison may also be influenced by how siblings experience failures or reach different goals. Connidis (2007) discovered a correlation between economic inequality and the quality of sibling relationships based on the source of economic advancement in a case study that looked at sibling relationship traits in adulthood across two families. In one family, relationships suffered and younger siblings expressed greater ambivalence when older siblings' personal achievement (job) led to economic advancement. On the other hand, sibling relationships were better in a different family where younger siblings benefited economically mostly through marriage rather than personal achievement.

As previously stated, it is crucial to study social comparison process directly rather than inferring their operation based on patterns of sibling relationship outcomes. These findings highlight the complexity of sibling relationship dynamics, including the multitude of interacting factors that shape how siblings perceive each other. The results suggest that examining these interacting factors directly may be a viable approach to researching sibling relationships across life, despite the dearth of research on the topic.

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The idea of social comparison is used by equity theory, which was first put forth by Adams in 1965 and then expanded upon by Walster, Walster, and Berscheid in 1978, to explain social relationship dynamics and people's contentment in them. This theory holds that people evaluate their own contributions to and benefits from a relationship by comparing them to those of their partners. Relationship unhappiness, emotional anguish, and attempts to alter the relationship including the potential for withdrawal are caused by imbalances in the ratio of rewards to contributions between partners. The rewards and investments people make in social interactions are also the focus of a related viewpoint known as theory of social exchange (Thibaut & Kelley, 1959). According to this perspective, people may decide to leave a relationship if the drawbacks outweigh the advantages, particularly if there are more fulfilling options available. Because of the complex nature of the social cognitive processes involved and the theories' focus on individual rather than developmental differences, equity and exchange principles were first developed to explain dynamics in voluntary relationships and have mostly been studied in adults. However, because adult sibling relationships are choice, equity and exchange theories can be applied appropriately to explain differences between close and more distant sibling dyads.

The consequences of siblings sharing the burden of caring for an aging parent have been examined using equity theory. One sibling usually bears a disproportionate amount of the burden of caring for a parent when equitable issues are not taken into account. When their siblings do not share caregiving duties, primary caregivers frequently show signs of discomfort (Ingersoll-Dayton et al., 2003). In keeping with the idea that injustice can be a catalyst for change, Ingersoll-Dayton et al. (2003) noted that siblings used a range of behavioural and psychological techniques to make things more equitable. To maintain a sense of equity, these tactics included asking for

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more help, explaining limited contributions with personal (like personality) and contextual (like having children or other family obligations) factors, and modifying the perceived importance of contributions.

Consistent with equity theory, Ingersoll et al. found that when attempts to establish equity were unsuccessful, distress levels increased. Indeed, a study revealed that in cases of significant caregiving inequities, sibling relationships sometimes broke down: Strawbridge and Wallhagen (1991) discovered that siblings ceased interactions or even pursued legal action against each other when the distress related to caregiving became overwhelming.

Similar to research on parents' differential treatment, studies grounded in an equity theory framework emphasize that perceptions of justice may play a mediating role in the relationship between inequity and various aspects of relationship quality (e.g., Boll et al., 2005; Cicirelli, 1992). Cicirelli (1992) found that, despite approximately 80% of siblings contributing to the care of their parents in unequal proportions, fewer than half perceived this distribution as unfair. Additionally, Boll et al. (2005) discovered that siblings' assessments of the fairness of their parents' differential treatment in adulthood served as a mediating factor in the connections between differential treatment and the quality of family relationships. The spectrum of mediating psychological processes and contextual factors that may modify the correlations between siblings' family experiences and the traits of their sibling relationships should be the focus of future research to build on existing efforts.

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2.3.3 Social Learning Theory

The social learning Theories are probably the most often used collection of mechanisms used to explain the dynamics of sibling relationships, especially between child and siblings of adolescent. The theory of social learning states that reinforcement and observing the actions of others are the two main ways in which people pick up new behaviours, including cognitive activities like attitudes and beliefs (Bandura, 1977). The influence of parents, such as when parents praise their children for getting along well or model good dispute resolution techniques in their marriage, is the main focus of research on sibling relationships during childhood and adolescence. On the other hand, the study also looks at instances in which parents either do neither or behave in a very bad way. Through social interactions, such as mutually reinforcing positive or negative behaviours and watching and copying one another, siblings in turn help to shape their own relationship. There are many opportunities for these social learning processes to occur in the majority of family settings.

The principles of observational learning state that family members are crucial social learning role models. In this setting, people are more likely to emulate role models who are nurturing and kind, have a high social standing, and resemble them (Bandura, 1977). According to these concepts, family members' interactional patterns are very important when it comes to learning. Family members who are seen as kind, caring, capable, and strong like parents or older siblings can serve as especially significant role models. Through their relationships with parents and siblings, as well as by watching how members in the family interact with others, children learn social skills. Not all learned behaviours in sibling relationships are favourable, as will be covered

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later in this section. Siblings can also mimic undesirable dynamics, such as conflict, animosity, and aggression.

Furthermore, according to social learning principles, the constellation of the sibling dyad influences the modelling processes in sibling relationships, with older siblings and siblings of the same gender being more likely to act as models. Because they resemble the observer, siblings who are close in age may be imitated, but siblings who are older may be given more authority and prestige, which encourages modelling. The effects of parent and sibling traits as possible moderators of observational learning processes have been examined in some studies on sibling influences. The evidence aligns with these theoretical models in some cases (Slomkowski et al., 2001), but findings are not entirely consistent (Whiteman, et al., 2007). Given the mixed findings, it is crucial for future research to continue examining moderators (e.g., relationship style, status, power) of social and observational learning, directly measuring these processes rather than inferring their operation based on observed patterns of similarity.

Siblings can actively affect the dynamics of their relationships through their own actions in day-to-day contacts, in addition learning through observational processes that take place outside of their direct interactions. The phenomena of coercive cycles, which entail increasing negative and reinforcement processes, is one illustration of this (Patterson, 1984). This dynamic may show up in sibling relationships when siblings learn to get what they want by being more hostile and violent when they are fighting with one another. When the targeted sibling gives in, the aggressive sibling is positively reinforced for increasing negativity (leading to a subsequent rise in negativity), and the sibling who yields is negatively reinforced for giving in. As both

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siblings learn that escalating negativity can be effective in achieving their goals, sibling relationships are often characterized as a training ground for aggressive behaviors (Patterson, 1986).

By using deviant conversation, in which they praise and model one another for stories and plans including dangerous and delinquent actions and activities, siblings can also actively support bad conduct (Bullock & Dishion, 2002). Although the majority of studies in the social learning tradition have focused on how siblings affect one another's personal adjustment, including conduct difficulties, substance abuse, and hazardous sexual behaviour, these subjects are outside the purview of this review. However, the sibling connection can be seen as a platform for different social learning processes because of the possible influence siblings can have on one another's social conduct and development.

The concepts of Social Learning Theory have been investigated in the context of sibling relationships in an increasing amount of empirical study. Parents actively try to control and influence sibling interactions, frequently by stepping in to mediate sibling conflicts, according to studies looking into how parents shape sibling relationships (Perlman & Ross, 1997). Parental involvement in sibling disputes during childhood appears to improve sibling relationships. Siblings are more likely to use successful disagreement resolution approaches, such compliance and perspective taking, when parents provide an example of proper reasoning and encourage their children's conflict resolution abilities (Kramer et al., 1999; Perlman & Ross, 1997). Intervention programmes aimed at training parents on how to effectively manage sibling relationships have demonstrated positive effects in reducing sibling conflict,

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fostering positivity, and enhancing children's conflict resolution skills (Siddiqui & Ross, 2004; Tiedemann & Johnston, 1992).

However, during adolescence, the benefits of parental intervention are not always evident. Rather, some cross-sectional studies indicate that direct parental intervention may worsen adolescent sibling relationships. This could be because parents typically only step in during adolescence after sibling relationships have already drastically deteriorated (Kramer et al., 1999; McHale et al., 2000).

When parents set an example for their children in their one-on-one interactions and marital interactions, it also affects sibling relationships. Since the main goal of this type of influence is not to directly mould sibling relationships, it is known as indirect influence (Parke & Buriel, 1998). These relationships could be mediated by the parent-child relationship (Brody et al. 1994; Dunn et al., 1999; Noller et al. 2000; Reese-Weber & Kahn, 2005; Stocker & Youngblade, 1999). There is evidence that the characteristics of sibling and marital relationships are correlated. According to the social learning hypothesis, strained marriages are typically linked to more antagonistic interactions between siblings and between parents and children. However, in contrast, as mentioned previously, Jenkins (1992) discovered that in the area of intense marital conflict, some siblings actually became more intimate, turning to each other for emotional attention. These findings support the notion that parents have an impact on the relationship experiences of siblings, but observational learning is not the sole process underpinning these associations.

Certainly, siblings play a significant role in shaping their relationships. Through daily interactions, siblings directly reinforce each other's behavior (Patterson, 1984). Siblings also serve as models for one another, contributing to observed similarities

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between siblings in various domains, such as delinquency and aggression (Bank, Patterson, & Reid 1996; Slomkowski et al., 2001), substance use (Slomkowsk et al., 2005), sexual behavior (Rodgers & Rowe, 1988), and social competence (Stormshak et al., 1996). Findings regarding sibling influences should be interpreted cautiously when studies do not incorporate information about the broader family environment. For instance, siblings often share parental models, underscoring the importance of conceptualizing and studying sibling influences on their relationships within the context of larger family processes.

2.4 Empirical Support for Birth Order Influences

A study by Kaemra and Singh (2021) looked into how young adults' personalities and adaptability were affected by their birth order. The research aimed to evaluate how birth order influences personality and adjustment, utilizing two psychological tools and the Adjustment Inventory for College Students (AICS) to measure the variables. The study involved 120 college students (60 firstborn and 60 second born) within the age range of 18-25 years, selected from various colleges in Delhi-NCR. The findings indicated no differences in personality traits between firstborn and second born individuals significantly. Furthermore, the study revealed no notable distinction in the levels of adjustment of firstborn and second born participants. Gender differences were observed in personality and adjustment among firstborn males and females, whereas only minor differences were noted in second born males and females. It is noteworthy that, in contrast to this study, the current research utilized a mixed-methods approach, incorporating both questionnaires and interview guides for a more comprehensive understanding.

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Nwankwo and Felix (2016) conducted a study exploring authoritative parenting, birth order, and social adjustment among secondary school students in Isoko South and Isoko North Local Government Areas of Delta State, Nigeria. The research employed an ex-post facto design and addressed three research questions along with corresponding hypotheses. From a population of 3,346 first-year secondary school students, a sample of 654 was chosen using a multistage sampling procedure. The data collection utilized a questionnaire named Social Adjustment Scale (SAS) and Parenting Styles Scale (PSS), both developed by the researcher. These instruments underwent validation for face, content, and construct validities by specialists in educational psychology and test experts in Measurement and Evaluation. The construct validity coefficients were 0.67 for SAS and 0.80 for PSS using the Pearson product-moment correlation method. Reliability, assessed through the test-retest method, yielded coefficients of 0.89 and 0.69 for SAS and PSS, respectively. Data analysis involved mean and standard deviation for addressing research questions, while t-test and analysis of variance (ANOVA) were employed to test the null hypotheses at a 0.05 level of significance. The results indicated, among other findings, that male students with authoritative parenting styles demonstrated higher social adjustment compared to their female counterparts. Furthermore, students' social adjustment was not significantly impacted by their middle or last-born positions. The study recommended an increase in guidance and counseling services in secondary schools, particularly for first-year (JSS-1) students, to aid in their adaptation to the school environment. It is important to note that the current research as well as the publications of Kaemra and Singh (2021) and Nwankwo and Felix (2016) utilized only quantitative methods of data collection, differing from the present study that

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employed mixed methods. However, all three studies incorporated both descriptive and inferential statistics for data analysis.

Nissenbaum (2012) undertook a study regarding birth order and its influence on the academic and social achievement of school students. The main goal was to look into how students' academic and social experiences during their college years related to their birth order. The goal of the study was to evaluate the perfect college experience, which would include active learning, supportive networks, and favourable social interactions. In addition to supplying demographic data including age, gender, and family birth order, as well as the genders and birth orders of their siblings, students in Syracuse University were asked to self-evaluate their personalities and college experiences via an anonymous and voluntary survey.

The gender and sibling role were the two aspects of birth order that were investigated in the study. The position a person occupies as an older or younger sibling, or both, or neither, was considered their sibling role. A person's gender role was determined by the part they play as their siblings' brother or sister. In order to ascertain their possible impact on social and academic achievement, both factors were investigated. SPSS statistical analysis was used to evaluate the potential impact of birth order on these outcomes. 505 undergraduate students at Syracuse University responded to the survey.

Only-children and middle-children who share the same gender as all of their siblings had the lowest academic and social achievement scores, according to the data. These two groups were also the least likely to have a positive opinion of their birth orders. In order to address unmet needs or disadvantages brought on by sibling and gender roles, the study underlined the significance of social workers' knowledge and comprehension of birth order impacts. This understanding can empower social

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workers to support children in developing the necessary tools for positive college experiences. Notably, both the present study and Nissenbaum's (2012) research utilized a sample size exceeding 500 participants to fulfill their research objectives.

Clarke (2021) conducted research on Biological Birth Order vs Psychological Birth Order and its Predictability of Personality. While biological birth order (BBO) has been previously associated with personality, the more recent area of study, psychological birth order (PBO), has also been linked to personality. The study involved administering a questionnaire to participants (N=161) through social media sites, utilizing a convenience snowball sampling technique. The questionnaire encompassed demographics, biological birth order, personality assessment using the International Personality Item Pool of Goldberg's Big Five (1992), and psychological birth order using the Psychological Birth Order Inventory (Campbell, White & Stewart, 1991). Hierarchical multiple regressions were employed to analyze the results, with age and gender being controlled variables. The findings indicated that neither biological birth order nor psychological birth order predicted significant changes in personality markers. Nonetheless, a significant disparity in scores between biological and psychological birth order was noted. This study suggests the possibility of other areas where this difference may manifest, and it discusses future research directions and implications. It is noteworthy that, similar to the studies by Kaemra and Singh (2021), Mozammil et al. (2018), and Nissenbaum (2012), the current study also employed a questionnaire for data collection.

Härkönen (2014) used fixed-effects models and sibling data from the German Life History Study to investigate the impact of birth order on educational outcomes and transitions in West Germany. According to the study, birth order significantly lowered

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educational attainment in West Germany, indicating poorer educational levels. This result runs counter to a number of skeptic viewpoints on birth order that may be found in the literature on sociology and psychology. Additionally, the study emphasized how sensitive birth order estimates are to model specification, which may be the reason why previous research has produced inconsistent findings. The impacts of birth order were shown to be less pronounced for females and in bigger families, but they were not affected by the socioeconomic status of the families. The findings contradicted ideas suggesting age crossovers in birth order effects around 11 years and theories highlighting the dilution of socioeconomic resources. Nonetheless, it was thought that a believable explanation was the diluting of other family resources, such parental time and attention. The historically gender-unequal returns to education may be the cause of the reduced birth order effects among females, as German women's higher educational attainment was not always correlated with the intellectual and academic performance benefits linked to lower birth order. All things considered, these results highlight the relevance of birth order in determining socioeconomic success and, more generally, the variables affecting the experiences and disparities of children raised in the same household.

Waghmare (2016) undertook a study to look into the relationship between college students' adjustment and birth order. Students studying medicine and engineering from Maharashtra's Jalna and Aurangabad Districts made up the sample. First-born students (15 girls and 15 boys), second-born students (15 girls and 15 boys), and third-born students (15 girls and 15 boys) were all included in the study. Data were collected using Bell's Adjustment Inventory by Lilit Sharma, and a 3x2 factorial design was applied for data analysis, utilizing mean, standard deviation, and ANOVA. First-born, second-born, and third-born students did not significantly differ in their

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social, emotional, or health adjustment, according to the data. Though it concentrated on senior high school students, the current study is in line with Waghmare's research in that both seek to examine the connection between birth order and school adjustment. Both studies employed descriptive and inferential statistics for quantitative data analysis. However, the present study adopted mixed methods, while Waghmare's (2016) study was purely quantitative, akin to the other studies mentioned earlier.

Aloka (2022) investigated how first-year undergraduates at a specific university in Kenya coped with birth order differences. The study employed a cross-sectional survey research design, with a sample of 213 year-one students selected through the stratified random selection techniques. The data were collected using an adjustment standardised questionnaire, and they were analysed using Analysis of Variance (ANOVA) and Tukey's post hoc tests. The ANOVA results showed that the order of birth significantly affected the overall adjustment of year-one students ($F(5, 207) = 8.279$, $p = 0.000$). Tukey's HSD Post Hoc findings indicated that first-born students had significantly superior overall adjustment than other students. According to the report, university counselling centres should create specialized orientation programs to help first-year students especially those with later birth orders adjust. Notably, the current study used a sequential explanatory mixed methods technique, whereas Aloka's work was quantitative and employed a cross-sectional survey research design. Furthermore, there were 522 pupils in the current study, compared to 213 in Aloka's study. Both research used questionnaires to gather data, but in order to collect qualitative data using mixed-method research design, the current study also used an interview guide. Both research used inferential statistics to analyse their data.

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A study by Onabarniro et al. (2010) examined the impact and connection between birth order and secondary school students' academic performance. The study's population consisted of all senior secondary school one (SS1) pupils enrolled in Lagos State public secondary schools. 300 kids, 156 of whom were first-born and 154 of whom were later-born, were randomly selected from six schools for the study using a stratified random sampling technique. The main tool used to gather data was the Birth-Order Questionnaire (BOQ).

For data analysis, the researchers used the Pearson product moment correlation to investigate the association between students' academic achievement and their birth order, while the t-test was employed to determine variations in mean achievement between first-borns and later-borns. The results indicate a strong relationship between academic accomplishment and birth order, indicating that a child's academic performance is influenced by their place in the birth order. In particular, first-borns outperformed later-borns (with x = 20.32 for first-borns and 16.41 for later-borns). Both studies, like the present one, used questionnaires to gather data, concentrated on senior high school students, and analysed the results using statistical methods like the Pearson product moment correlation. However, the present study employed a mixed method research approach, had a larger sample size (522), and utilized additional tools for comprehensive analysis.

In their 2018 study, Fatima and Ashraf examined the relationship between university students' psychological birth order, self-efficacy, and achievement motivation. They specifically looked into how self-efficacy mediated the relationship between psychological birth order and achievement motivation. The research employed a correlational design, utilizing purposive sampling to select 440 undergraduate and

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graduate students aged 17-25 from colleges and universities. Data were collected using the Psychological Birth Order Inventory, Achievement Motivation Scale, and Self-Efficacy Scale. Pearson Product Moment Correlation Analysis and PROCESS were employed for data analysis. Results revealed significant positive correlations between first Psychological Birth Order (both men and women) and Self-Efficacy, as well as a significant negative correlation with Achievement Motivation. Middle and only Psychological Birth Order (both men and women) showed a significant negative correlation with Self-Efficacy. A significant negative relationship was found between the youngest Psychological Birth Order (both men and women) and Achievement Motivation. Mediation analysis demonstrated that Self-Efficacy mediated the relationship between middle; only Psychological Birth Order and Achievement Motivation in both genders. Additionally, t-test results indicated a gender difference in Achievement Motivation, with males exhibiting higher levels than females.

Premnath et al. (2021) conducted a cross-sectional study on the belief about birth order and its reflection in academic performance. The study, influenced by Alfred Adler's theory, aimed to evaluate the association between academic performance and birth order. An online questionnaire was used to gather gata from 88 people (34 men and 53 women) about the students' biodata, birth order, gender, age, number of siblings, parents' educational attainment, and income. Descriptive statistics were performed using SPSS software. Results indicated that 44.85% were first-born, 11.96% were middle-born, and 31.03% believed that birth order had an effect on a child's behavior in educational settings. Furthermore, 28.57% suggested a connection between sibling roles and academic success in life. While the response rate was limited, the study hinted at a relationship between birth order and academic

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performance, acknowledging potential variations based on countries, family sizes, and diverse cultures.

Mozammil et al., 2018) conducted a cross-sectional study at KMS Medical College, Sialkot, Pakistan, in February 2017, to explore the association between birth order, personality factors, and academic performance. The research involved 148 eligible consenting 3rd and 4th-year medical students categorized as firstborn, middle, last, or only born, with 37 participants in each group. The average age of participants was 21.13±0.89 years (range 20 to 22), and the majority (70.7%) belonged to middle-income families. The goal of the study was to assess the relationship across personality factors, birth order, and academic performance. Various personality factors, including openness (F=1.01), conscientiousness (F=2.12), extraversion (F=1.13), agreeableness (F=0.67), neuroticism (F=2.19), and academic performance (F=1.042), were conducted. The results showed that conscientiousness showed a positive correlation, while extraversion exhibited a negative correlation with academic performance. However, there was no discernible link found between academic achievement, personality traits, and birth order. Thus, the study came to the conclusion that neither personality nor academic achievement was influenced by birth order.

Diverse findings from various situations are found in the literature on birth order and adjustment. In a previous study on the relationship between birth order and adjustment, William (1959) found that in two-sibling families, the older sibling had much better adjustment than both the younger sibling and all other first-borns. Furthermore, compared to other children born in intermediate places, the middle kid in a household of three showed superior adjustment. These findings imply that being

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the firstborn, particularly in two-parent households, the middle child in three-parent households, or the lastborn in larger families is positively correlated with having a favourable adjustment.

Significant variations in emotional development according to birth order levels were discovered by Gallagher and Cowen (1977). According to Herrera, Zajonc et al. (2003) survey of 196 Stanford University undergraduate students, only children were considered the most annoying, while first-borns were described as the most bright, obedient, stable, and responsible. Last-borns were described as the most creative, emotional, extraverted, disobedient, reckless, and outspoken, while middle-borns were thought to be the most jealous, the least brave, and the most talkative. According to Labay and Walco (2004), relationship exists between a child's birth order and adjustment. According to Fergusson et al. (2006), birth order-influence on intrafamily dynamics may have a long-term impact on an individual's future academic and achievement results.

Fergusson et al. (2006) came to the conclusion in a study conducted in New Zealand that birth order-influenced intra-family dynamics may have long-lasting consequences on people's future academic and achievement outcomes. But according to Borne and Mears' (2009) research, children's behaviors were not significantly impacted by their siblings' ordinal positions. Small but substantial impacts were shown by Wong et al. (2010), suggesting that older siblings, particularly those of the same gender, had a higher long-term influence on the identity formation of younger siblings. Two depressed respondents were middle and last-born rather than first-born, according to Sambul's (2011) study of Rowan University undergraduate students. Only-children

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and middle-children scored the low on social and intellectual wellbeing, according to Nissenbaum (2012).

According to a different study by Hotz and Pantano (2013), students' adjustment and school performance decrease with birth order, with first-borns showing the highest adjustment scores and last-born children having the lowest. The reason for this fall is that their parents' disciplinary measures have become less severe. Additionally, first-borns continuously fall low in scholastic achievement from childhood to adolescence, according to De Haan, Plug, and Rosero (2014), who documented beneficial and long-lasting birth order impacts on achievement. This gap is clearly caused by moms breastfeeding their firstborns for shorter periods of time and spending less quality time with them than with their later-borns.

Rohrer et al., (2015) found no differences in agreeableness, extraversion, conscientiousness, emotional stability but firstborns scored somewhat higher on tests of intelligence and intellect, supporting these findings. In a similar vein, it was also discovered that female first-born students showed greater social adjustment than female later-born students, whereas male later-borns showed better social adjustment than male first-born students (Priya & Raina, 2016). Furthermore, first-born students are more likely to portray themselves in a faultless manner, according to Preeti and Navin (2016). They discovered through planned interviews that parental influences were more significant in decision-making and conscientiousness

According to a study by Coşkun et al. (2017), the youngest siblings often vie for the teacher's attention, acting unresponsive and vying for attention because of perceived disparities in acceptance. The eldest siblings, on the other hand, see attention-grabbing as a way to make up for the seeming decline in family interest.

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Ekeh and Iyomatere (2016) discovered that first- and second-born positions had no discernible impact on pupils' social adjustment in Nigeria. This is in line with the results of Moshoeshoe (2016), who found that birth order and educational attainment were negatively correlated, with first-born children experiencing the most impact and last-born children experiencing the least. In a similar vein, Ramesh (2018) found no discernible differences between first-, second-, and third-born pupils' adjustment in terms of home, social, emotional, and health. The general emotional maturity of teenagers from diverse birth orders, including first-born, last-born, and single children, were found to differ significantly in the study by Joy and Mathew (2018). Furthermore, according to Kanu and Gayatri (2018), teenagers' emotional adjustment does not appear to be significantly influenced by their birth order. However, research by Kieron (2018) indicates that children born later in large families stand to benefit the most from educational expansion because there are more educational opportunities available during the longer average birth interval between the first and last born in large families.

According to a study by Easey et al. (2019), first-born infants were shown to be well-adjusted, whereas greater birth order was linked to lower adjustment levels. The last-born child in a family had better educational achievements than their siblings, whereas the middle child had the lowest educational outcomes, according to Yehui and Zhiqiang (2019), who also found that only children had considerably superior educational outcomes than siblings. Birth order factors showed significantly negative effects on adjustment, according to Esposito et al., (2020). According to Kieron et al., (2021), a parent's birth order affects their child's scholastic results by influencing their own socioeconomic and educational status. Additionally, the study found that while

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having a second or fifth born mother lowers educational attainment, having a parent born later lowers educational outcomes.

According to Hoang and Quang (2021), a child's educational performance is significantly impacted by their birth order, albeit this influence appears to lessen with the youngest sibling. There was no difference between first born and second born people's adjustments, according to Kaemra and Singh (2021). Psychologically first-born people tended to support the mastery-approach goal orientation, whereas psychologically youngest or last-born people supported mastery avoidance, according to Cayubit et al. (2021). According to Fukuya et al. (2021), last borns had the greatest levels of resilience and adaptability, this was followed by first borns, middle borns, and only borns. Alabbasi et al., (2021) observed no significant difference between first-born children with siblings and only children, but first-borns exhibited stronger adaptability, as seen by divergent thinking, than later-born children. Chege (2015) found that procrastination and respondents' birth position are statistically correlated in Kenya, with the majority of procrastinators being last-borns and a small percentage being middle-borns.

Low levels of adjustment among year-one students in public universities in Kenya have been noted. According to a study by Osoro et al., (2020), these students struggle with a number of adjustment challenges, such as poor academic performance, a rise in suicidal cases, unintended pregnancies, instances of students hurting one another, and drug usage. If not addressed right away, all of these issues contribute to dropout rates. Notably, the research contains little evidence about how birth order affects adjustment. While the current study takes into account a variety of characteristics of adjustment, the examined studies also did not emphasise the full areas of adjustment.

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Additionally, the results of the literature that has already been written about birth order have been inconsistent, which calls for confirmation and serves as the basis for this research.

2.5 Empirical Support for Siblings' Relationship on adjustment

A study on the factors influencing teenage academic success based on sibling relationships was carried out by Pajoluk (2013). 288 younger siblings (YS) in the ninth and tenth grades were included in the statistics. In addition to completing tests on sibling closeness, OS support for YS academic plans, YS image of OS, social learning, and differentiation, participants also supplied information on their own and their older siblings' (OS) grades. Additionally gathered were family and demographic information, such as parental expectations of success and family harmony. Four different factors—encouragement, goal-setting, OS academic engagement, and involvement—were found through factor analysis to describe OS support for YS academic plans. When sibling accomplishment groups were created, discriminant analysis showed that the greatest accurate categorization (55%), when academic achievement was measured by GPA, was obtained. The study discovered that OS academic involvement was the most reliable indicator of YS achievement, followed by parent expectations of difference and success. Classification accuracy was lowest (37–46%) when older siblings were low achievers and highest (81%) when older siblings were good achievers and parental expectations of accomplishment were high. It's crucial to remember that, in contrast to the mixed-method design used in this study, this one used a quantitative research methodology.

A study on the temperament, social skills, and behaviour of first-born and second-born children in China was carried out by Qian, Chen, Jiang, Guo, Tian, and Dou in

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2022. The Sibling Relationships Scale, Temperament Scale, and Social Competence and Behaviour Evaluation Scale were completed by 212 Chinese children (average age = 4.52, standard deviation = 0.88). The results showed that (1) temperament subscales were not significantly associated with sibling relationships, but were favourably correlated with social competence and conduct in first-born children. Furthermore, there was no significant correlation between children's social competence and conduct and their sibling relationships; (2) for second-born children, the association between sibling warmth and emotionality of temperament was totally mediated by implicit and explicit behavioural issues. Like Pajoluk (2013), this study used quantitative methods to collect and analyse data. But the current study used the mixed method, gathering data using both qualitative and quantitative techniques.

LeBouef & Dworkin (2021) research investigated the connections among well-being, sibling closeness, and sibling communication. Expanding on the principles of social exchange theory, the study aimed to assess whether well-being moderates the relationship between communication and perceived sibling closeness. Drawing a subsample of participants (n=236) from a larger group of emerging adults, surveys were administered through Amazon's Mechanical Turk, and participants received $0.50 as compensation. Hierarchical multiple regression, utilizing IBM SPSS Statistics 23, was employed, and the dataset was scrutinized for adherence to linear regression assumptions. The results indicated that emotional, psychological, and social well-being did not moderate the relationship between sibling communication and sibling closeness. Nevertheless, associations between sibling communication and sibling closeness were statistically significant in the full model. Gender dyads with a male and female, as well as individuals identifying as Asian, were statistically significant. The findings suggested that male-female gender dyads were more likely to

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experience closeness, while those identifying as Asian were less likely to be close to their siblings. Similar to Pajoluk (2013) and Qian, Chen, Jiang, Guo, Tian, and Dou (2022), this study was predominantly quantitative, utilizing quantitative methods to achieve its research objectives, but the current study incorporated qualitative methods, making it a mixed-method research approach.

A study on sibling relationships and adolescent adjustment was carried out by Whiteman et al. (2015). Participants were siblings from 189 African American families who were born sequentially, with older siblings average 14.03 (SD = 1.80) years old and younger siblings averaging 10.39 (SD = 1.07). Over a three-year period, data were gathered through yearly house interviews. The data was analysed using multi-level models, which showed that there were no appreciable variations in sibling dyad gender constellation, but rather a drop in both sibling positivity and negativity throughout adolescence. The study indicated that increases in sibling negativity, but not positivity, were positively correlated with changes in adolescents' risky behaviours and depressed symptoms after adjusting for age-related changes and time-varying parent-adolescent relationship characteristics. Despite displaying some distancing over adolescence, sibling negativity remained a uniquely significant relational factor influencing the adjustment of African American adolescents. This current research diverges from the aforementioned study in terms of research methodology. The present study utilized an interview guide for data collection, distinguishing it from studies such as Pajoluk (2013), Qian, Chen, Jiang, Guo, Tian, and Dou (2022) which were exclusively quantitative. However, similar to Whiteman, Solmeyer, and McHale (2015), the current study adopted a mixed methods approach, involving the gathering and analysis of interview data.

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A study on sibling relationships as a predictor of life satisfaction and resilience among college-bound students was carried out by Sethi (2022). This study's target was to investigate how sibling relationships affect college students' resilience and life satisfaction and whether there are any gender-based disparities in this area. A total of 100 individuals in the study, 50 of whom were female and 50 of whom were male, were between the ages of 18 and 25 and all had at least one sibling. The Nicholson McBride Resilience Questionnaire-NMRQ, the Adult Sibling Relationship Questionnaire-VSF (2014), and the Satisfaction with Life Scale-SWLS (1985) were the instruments used to collect the data. The hypothesis that sibling relationships have a positive link with resilience and life happiness was investigated quantitatively using t-tests and Pearson's product-moment correlation. According to the results, people who have a better and more pleasant brother relationship are more resilient and have higher satisfaction in life. While no significant gender differences were observed in life satisfaction and resilience, a slight gender difference was identified in sibling relationships. Additionally, the study concluded that sibling relationships serve as factors that affect life satisfaction and resilience among college-going students. This research shares similarities with the current study, as both employed a quantitative approach with questionnaires as a primary means of data collection. The use of statistical tools such as t-tests and Pearson's correlation aligns with the methodology adopted in the current study. However, it differs from Whiteman, Solmeyer, and McHale (2015) in terms of research focus, approach, and data collection methods.

Kemjika and Gladys (2017) conducted a study examining the connection between family conflict, values, and adjustment among secondary school adolescents in Rivers State. The research utilized a correlational design aimed at establishing the relationships among family conflicts, values, and school adjustment. A sample of

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1,000 adolescent students was selected through a multi-stage sampling technique. Participants responded to two validated questionnaires: the Family Conflict and Values Scale (FCVS) and the School Adjustment Scale (SAS), both measured on a four-point scale with reliability coefficients of 0.731 for FCVS and 0.728 for SAS. Two research questions and two hypotheses served as the study's compass, and the Pearson Product Moment Correlation statistic was used to analyse the data. At the 0.05 level of significance, the findings indicate a positive and statistically significant correlation between family conflict, values, and school adjustment. The results indicated a substantial relationship between teenagers' school adjustment and household factors like conflict and values. The study recommended, among other suggestions, that families receive encouragement from stakeholders, including teachers, counselors, and school authorities, to provide support to children facing school adjustment challenges. The current study shares similarities with Kemjika and Gladys (2017) in its focus on family variables and their impact on school adjustment. However, this study used a mixed-method, while Kemjika and Gladys (2017) employed a quantitative method, similar to Ejekwu (2016).

A study by Milevsky and Levitt (2005) examined the impact of sibling social support on the academic adjustment of 695 teenagers, whose average age was 12.69 years. Every adolescent in the study named people who were important and intimate in their lives. Participants then indicated which people performed different support functions, including offering emotional support, helping with homework, spending time with them, and participating in fun activities. By looking a at the average number of support functions provided by each sibling that the participants specified, the degree of support from brothers and sisters was calculated independently. School attitudes (such as appreciating the value of education), academic achievement metrics (such as

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GPA and SAT scores), and school adaptation measures (such as behavioural problems) were all taken into account when calculating the academic adjustment composite. According to the study, the relationship between academic adjustment and support was moderated by gender, and it differed depending on the academic adjustment measure. Both male and female teenagers' favourable school attitudes were linked to their brothers' support. However, it only projected that male adolescents would do better academically. It is intriguing to learn that the only significant impact of sister support was seen in high-risk situations including poverty, high stress level, and single-parent households. Teenagers who had more support from their sisters demonstrated greater school adaptability in these high-risk circumstances. It is crucial to remember that the study averaged sibling support for all siblings, making it impossible to draw precise conclusions about the impacts of unique sibling dyads.

In another study, 258 Latino teenagers, whose average age was 17.26, participated. They were required to evaluate the overall quality of their sibling relationships and the degree of academic assistance they received from their siblings, including encouragement to continue their education (Alfaro & Umaña-Taylor, 2010). Sibling support and quality in terms of relationship were averaged across all siblings rather than concentrating on specific sibling pairs, following the methodology used in Milevsky and Levitt's (2005) study. The effect of these combined metrics on academic motivation was then carefully examined. The results showed that sibling support was predicted by the quality of the sibling connection (correlation coefficients varied from.36 to.37). Gender also turned out to be a moderating influence. While sibling support only affected motivation academically in the context of strong relationship quality (correlation coefficient of.10) for girls, it was associated with academic motivation in boys (correlation coefficient of.22).

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Widmer and Weiss (2000) collected data from 148 adolescent sibling pairs on academic success (including the amount of Ds/Fs and grade retention) and school involvement (such as love of school). They also learned about the younger sibling's perception of their senior siblings (e.g., whether the senior sibling is a clever student, complies with parental expectations, and is expected to succeed in life), as well as the support given to the younger sibling, such as help with homework or personal matters. Remarkably, support was associated with lower levels of engagement and achievement in school. But when the older sibling's reputation was added as a moderating influence, this relationship changed. Support from the older sibling was linked to higher levels of school involvement in situations when younger siblings had a favourable opinion of their older sibling.

By performing a longitudinal study on the effects of older sibling support and achievement, and the younger sibling's perception of their older one on academic achievement over a two-year period, Bouchey and colleagues (2010) built on the cross-sectional study conducted by Widmer and Weiss (2000). At the beginning of the younger sibling's seventh-grade year (Time 1) and soon after the end of their eighth-grade year (Time 2), they collected data from 341 sibling pairs, whose average ages were 15.00 and 12.23 years at Time 1, respectively. While older sibling academic involvement was evaluated using a variety of metrics, such as grades and homework time, younger sibling support and perceptions of their older brother were measured using similar methods to those employed by Widmer and Weiss (2000). Academic self-concept, perceived school value, and GPA were used to measure the academic adjustment of younger siblings. In line with a modeling approach in which older siblings' academic behavior serves as a good example for younger siblings to follow, the results showed that older sibling academic involvement was predictive of an

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improvement in younger sibling academic adjustment. However, depending on gender constellation, the influence of elder sibling support and the younger sibling's image showed a moderating effect. In particular, only in mixed-gender dyads were elder sibling support linked to a decrease in younger sibling academic adjustment, and only in same-gender dyads was a positive opinion of the older sibling predictive of a higher GPA.

Ejekwu (2016) examined the impact of Birth Order on the academic success of middle, last and only girl-child students in primary schools in Nigeria. The study used an ex post facto survey research design. The study population comprised 2199 female primary five pupils in primary schools, with 1500 female primary five pupils as the sample. The research instruments included a researcher-developed checklist titled "Birth Order and Girl-Child Academic Performance Checklist" (BOGAPC), and the raw scores of the last session examinations in the core subjects (English, Mathematics, Social Studies, and Primary Science). The findings indicated a significant difference in the academic performance of middle-born and last-born girl-child students. Furthermore, the study revealed that the effect on the academic performance of middle-born students and only children varied significantly.

2.6 Empirical Support for Gender Influences

Velmurugan and Balakrishnan (2011) investigated the correlation between the social adjustment and self-concept of high school students, considering gender and locality. Their findings indicated that social adjustment is not dependent on either gender or locality. Additionally, the correlation coefficient between social adjustment and self-concept was observed to be negligible.

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Adhiambo et al., (2011) explored the degrees of school adjustment and its connection to academic success. The findings indicated that there were no noteworthy distinctions between girls and boys regarding school adjustment. However, notable differences were observed between high-achieving and low-achieving students in terms of dedication, absorption, engagement, and overall school adjustment.

Roy and Mitra (2012) investigated the adjustment patterns in early and late adolescent school students. The study findings indicated significant differences between the two groups in terms of adjustment in the areas of home, health, and social domains. Additionally, it was observed that girls exhibited better adjustment compared to boys.

Research on how adjustment affects high school pupils' academic performance was done by Yellaiah (2012). In the Mahabubnagar district of Andhra Pradesh, 300 Class IX students from both public and private schools, representing both rural and urban areas, made up the study sample. The results indicated that students from government and private schools, as well as female and male students, differ significantly in terms of academic achievement and adaptability.

Paramanik, Saha, and Mondal (2014) examined secondary school pupils' adaptability in relation to their gender and domicile. The results showed no difference between the adjustment levels of students living in urban and rural locations significantly.

Sarkar and Banik (2017) conducted a study on the adjustment levels of adolescents in West Tripura, examining their academic achievement, age, and gender. The sample comprised 120 adolescents (60 boys and 60 girls). Data analysis involved the use of Standard Deviation, Mean, Percentile, t-test, and Pearson Product Moment Correlation. The study results indicated no differences in adjustment and academic

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achievement between boys and girls during adolescence significantly. However, there was a significant disparity among emotional adjustment, social adjustment, educational adjustment, and academic achievement in this period. The researcher also identified a positive association between adjustment and academic achievement for both boys and girls in the adolescence period of West Tripura District. The study holds implications for adolescents, teachers, parents, and policymakers.

Conley, Kirsch, Dickson, and Bryant (2014) conducted research revealing that during the initial year of college, both men and women encountered a similar rise in stress. However, the study noted that while women experienced a continual increase in stress levels, men's stress levels gradually stabilized over time. Additionally, the study highlighted that ethnicity is another indicator associated with college adaptation.

In order to investigate sex differences in the connections between social, psychological and academic, adjustments, Yau and Fong (2014) carried out a study. The study found a significant difference between academic adjustment and gender in a sample of 114 year-one undergraduate students from a Hong Kong university (ibid). Female students outperformed males academically and demonstrated superior social adjustment, according to a study by Ivanka et al. (2007) that examined gender and age differences in social, emotional and academic adjustments among 845 students from the Rijeka University in Croatia. According to a different study by Sanja et al. (2010), female students fared well in terms of academic in school than their male counterparts.

There are a number of reasons why women in college have made better academic progress than men. According to Larose and Roy (1995), female students are more likely to use successful learning techniques from a young age and to be more

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consistent in pursuing their academic objectives. According to Leonard and Jiang (1999), women often have superior study abilities compared to men. Wainer and Steinberg (1992), on the other hand, contended that women typically earn better grades than men due to their increased dedication, which includes higher attendance rates in class. Fergusson et al. (1991) noted in their study that gender differences in classroom behavior may stem from higher rates of disruptive and inattentive behaviors exhibited by boys, ultimately impairing their learning and leading to lower academic success rates.

Another study examined the relationship between medical students' negative emotions and adaptability (Nyamayaro & Saravanan, 2013). 99 medical students from Malaysia's International Medical University made up the sample. Interestingly, the study found no discernible differences between males and girls in terms of overall adjustment. Likewise, no discernible gender-based variation in social adjustment was found. It's crucial to recognize that the study's sample size was small, and care should be taken when extrapolating the results to other college students.

According to a different study by Leong and Bonz (1997), social adjustment did not significantly differ by gender. A study by Patel and Taviyad (2013) looked at the academic performance and adjustment of high school students in India using a sample of 100 respondents. The results showed that social adjustment and gender were significantly correlated, with male pupils outperforming females. The study also found that emotional adjustment and gender differed significantly (ibid). Despite concentrating on high school pupils, the study offers insightful information about the intricate process of adjustment. In a similar vein, Ganai and Mir (2013) discovered no discernible variations in students' social adjustment and gender. The study also

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indicated no significant differences between gender and other dimensions of adjustment.

In a sample of 200 Filipino college students, Datu (2012) looked at the relationship between personality traits, profession preference, paternal parenting style, and college adjustment. According to the respondents' sex, the study found variations in adjustment especially social. Previous study also revealed that female students typically show less social adjustment than their male counterparts (Abulah et al., 2009; Enochs and Roland, 2006; Abdullah et al., 2009). Additionally, it was observed that female students had more adjustment problems than male students, especially when it came to making friends on campus. This was explained by the fact that female students participated in campus events less frequently and had fewer chances to hold leadership positions in clubs and other campus groups (McWhiter, 1997).

Manju (2011) investigated the adjustment levels of high school students in relation to their gender. The study showed that there were no differences in emotional, social, educational, and overall adjustment among students based on their gender significantly.

According to a study by Ganai and Muhammad Ashraf Mir (2013), there was no discernible difference in the overall adjustment scale scores between male and female college students. Furthermore, there were no differences between the two groups' scores on any of the adjustment scale's dimensions when taken separately. Additionally, there was no discernible difference in the academic performance of the two groups.

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Paramanik, Saha, & Mondal (2014) explored the adjustment abilities of secondary school students with regards to gender and place of residence. The sample included 471 class X students, with 234 boys and 237 girls randomly selected from various schools in Purulia districts, West Bengal. The researchers developed and validated an Adjustment Inventory (AI) for school students to gather necessary data. The results showed that pupils living in urban and rural settings did not significantly differ in their adjustments. Nonetheless, girls' mean adjustment score was greater than boys', indicating that they were more adjusted than boys.

Sangeeta and Chirag (2012) discovered that male college students experience fewer adjustment issues than their female counterparts. In contrast, Kaur (2012) observed that girls exhibit greater adjustment capabilities than boys, and the locality does not influence their adjustment power.

2.7 Empirical Support for Age Influences on Adjustment

Researchers like Yahya (2016) and Dong et al. (2021) discovered that age is a function of college students' ability to adapt to institutional expectations in connection to the elements of school adjustment. Furthermore, older college students had better social adjustment, according to Maqbool et al. (2021) and Malau-Aduli et al. (2021), whereas older students had greater social adjustment issues, according to Dawborn-Gundlach and Margetts (2018). According to other studies age had an impact on emotional adjustment, with older students showing better adjustment (Kirtania et al., 2021; Herwandha & Prastuti, 2020), While Atteraya's (2021) study found no association between age and college students' academic adjustment, other studies, such as Dawborn-Gundlach and Margetts (2018) and Tadese et al. (2022), found that age did affect academic adjustment because older students were better able to handle

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academic challenges. These all serve as indicators of the likelihood that age and college adjustment will be related.

2.8 Conceptual Reviews

2.8.1 The concept school adjustment

Derived from the Latin word ad-justare, adjustment means the way people harmonize their needs against the challenges present in their environment. Scholars have provided different definitions for adjustment. Frequently, the term is used interchangeably with accommodation and adaptation, emphasizing an individual's endeavor to navigate their social and physical surroundings (Monroe 2009). Robinson (2009) elucidated that the adjustment process serves as a means for individuals to cope with stress, tensions, conflicts, and fulfill their needs.

School adjustment is the process through which students adapt to their educational environment (Van Rooij et al., 2018) and reflects the extent to which adolescents feel at ease, committed, and accepted within the school setting (Gutiérrez et al., 2021). The level of school adjustment is understood as the perceived state of students when evaluating different areas of their lives (Willems et al., 2021). Positive self-perceptions are associated with success, while negative self-perceptions are linked to failure, allowing for discussions about positive adjustment and negative maladjustment.

Caldera-Montes et al. (2022) emphasize that the school adjustment construct encompasses various dimensions related to the academic context, such as academic performance, learning competence, socialization among students, and attitudes toward the school and teaching staff. Therefore, a comprehensive assessment of school adjustment considers different areas where adjustment is evident and students' self-

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evaluations. Positive school adjustment is characterized by attributes such as being a diligent student, displaying motivation in attending school and completing tasks, and engaging in positive social activities like making friends and establishing good relationships with teachers.

Conversely, school maladjustment is viewed as a negative state where there is a lack of commitment and satisfaction in attending school and completing tasks. Individuals experiencing school maladjustment may feel disconnected from various groups within the school community, including peers, teachers, and the educational community, leading to antisocial, disruptive, violent, and challenging behaviors (Valenzuela Santoyo et al., 2021).

Hence, adjustment refers to the ongoing process through which a living organism strives to maintain equilibrium between its needs and the external conditions influencing the satisfaction of those needs. It is the individual's endeavor to navigate stress, tensions, conflicts, and other challenges in order to fulfill their needs. Throughout this process, individuals can establish harmonious relationships with their environment. Human beings possess the capacity to adjust to the physical, social, and psychological expectations inherent in their dependence on others.

The concept of adjustment encompasses how a person adapts to both themselves and their surroundings, without necessarily distinguishing between success and failure in the adjustment process. It involves achieving desired goals, having confidence in one's abilities, and managing basic impulses effectively. Consequently, adjustment fosters self-initiated intellectual, emotional, social, and physical growth and development.

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People also work to create harmonious interactions with their surroundings as part of this continuous process. The environment and the individual are two essential components in adjustment. The norms and values of the varied backgrounds of college students vary. The college has its own set of standards and ideals that are determined by its purpose, vision, and core values. As a result, students need to align their values and behaviors with those of the college to assimilate into the institutional culture. The process of adjustment varies among students, depending on their individual developmental stages. Dyson & Renk (2006) support this notion by stating that nearly all fresh students undergo an adjustment when they enter a university, each progressing at their own pace of development.

Baker (1985) also opined that freshmen know very little about class scheduling prior to high school. They just follow the schedule for everything in high school, including study time. Students come to college with unanswered questions about the world and themselves, questions that parents and schools have purposefully discouraged them from posing. Disappointment frequently replaces the initial excitement that freshman bring to college (Baker, 1985). Students face a distinct set of stressors during their college years, especially during a time of major transition and many first-time experiences, including acclimating to a new way of life, making new friends, navigating relationships with roommates, experiencing different cultures, and interacting with different viewpoints. Lapsley & Edgerton (2002) assert that when students struggle to deal with these initial experiences, they are more likely to face challenges. If students feel inadequately ready to cope with the new college environment, they may become susceptible to depression and anxiety. Higher rates of psychological challenges are observed among year-one university students globally (McDermott & Pettijohn, 2011).

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Researchers created a number of tools in the 1980s to gauge college students' adjustment levels. These tools included the Student Adaptation to College Questionnaire (Baker & Siryk, 1989), the College Adjustment Rating Scale (Zitzow, 1984), the College Adjustment Scales (Anton & Reed, 1991), and the College Maladjustment Scale of the Minnesota Multiphasic Personality Inventory (Butcher et al., 1989). The most popular tool for assessing adjustment of students is the Student Adaptation to College Questionnaire (SACQ) (Hurtado et al., 1996). The Student Adaptation to College Questionnaire (SACQ) is a psychometrically tested instrument commonly employed in many universities and colleges to gauge how effectively students adapt to the college experience (Baker and Siryk, 1989). This questionnaire comprises four subscales that assess academic adjustment, social adjustment, personal emotional adjustment, and goal commitment-institutional adjustment.

2.9 Domains of College Adjustment

2.9.1 Academic adjustment

While academic adjustment is a commonly assessed aspect in studies (e.g., Abdullah et al., 2014; Baker et al., 2021; Dennis et al., 2005), Baker and Siryk (1984) offer a more comprehensive perspective on academic adjustment. Academic adjustment pertains to students' attitudes and objectives regarding their academic endeavors. It is also evaluated based on students' engagement in coursework and their success in studying and academic efforts (Baker & Siryk, 1984). For instance, a student who is academically well-adjusted is likely to be more engaged and successful in completing their class assignments (Credé & Niehorster, 2012). Positive academic adjustment, characterized by higher levels of academic adjustment, correlates with both higher GPAs and lower attrition rates (Credé & Niehorster, 2012; Consolvo, 2002; Gerdes & Mallinckrodt, 1994; Martin et al., 1999).

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On academic outcomes, a meta-analysis by Credé and Niehorster (2012) indicated that a more positive academic adjustment is connected with low depression and stress levels. On the other hand, poor academic adjustment is associated with increased alcohol and drug use (Credé & Niehorster, 2012). Because it has a substantial influence on many facets of students' behaviour and well-being, the academic domain must be taken into account when researching college adjustment.

For the majority of college students, the shift to the classroom usually means modifying their academic routines and expectations. Because courses may be larger, teachers use a variety of teaching philosophies, assignments are longer, and requirements are higher, this adjustment frequently entails studying harder to improve study habits. Setting and maintaining priorities becomes essential at this time. Rice (2009) asserts that, particularly for freshmen, the discussions within academic domains in higher education can be challenging. For students whose cultural and linguistic backgrounds diverge from those that underpin the prevailing ideas of higher education institutions, this confusion might be more noticeable.

As Monroe (2009) points out, students who enrol in higher education institutions face increased academic obligations and develop new social networks. According to Robinson (2009), students often have doubts about their capacity to fulfill these expectations. Some students may find it unfamiliar to think on their own, particularly if they are used to viewing the instructor as the final authority on the material (Titley, 1980; Robinson, 2009).

2.9.2 Social Adjustment

This adjustment holds significant importance for students, given that the social context plays a crucial responsibility in the college experience, especially for

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emerging adults attending college (Arnett, 2016). Social adjustment is characterized by students' engagement in activities, their ability to function in social situations, and the quality of their interpersonal relationships (Baker & Siryk, 1984). Students who are effectively socially adjusting to college become integrated within the social structure of their university (Baker & Siryk, 1984). Positive social adjustment is exemplified by activities such as attending campus events and forming new friendships (Credé & Niehorster, 2012).

A longitudinal study revealed that a more positive social adjustment predicts lower attrition rates (Gerdes & Mallinckrodt, 1994). Furthermore, students' likelihood of dropping out of college is better forecasted by their social adjustment to college than their academic adjustment (Credé & Niehorster, 2012). Beyond academic outcomes, a more positive social adjustment is correlated with lower levels of depression, loneliness, and stress (Credé & Niehorster, 2012). These findings underscore the notion that social adjustment to college is just as crucial as academic adjustment when considering students' academic and psychological well-being.

More students experience living away from home for the first time when they start college, making it a momentous occasion. Sometimes the family setting is the only support mechanism students have encountered prior to attending college (Rice, 2009; Soet, & Sevig, 2006). As a result, first-year students are left to navigate college life themselves without the safety and familiarity of a support network (Al-Busaidi et al., 2011). Because of their early difficulties acclimating to college life, many first-year students report feeling homesick and lonely (Prancer et al., 2009). Even though year-one students may establish several social relationships, this does not actually alleviate feelings of loneliness (Curtona, 2007; Rice, 2009). The quality of the relationships

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formed plays a crucial role in influencing the experience of loneliness. However, for a healthy adjustment, students must undergo a gradual process of separation or detachment from home.

Tao et al., (2000) found that social support was the most relevant element in reducing anxiety, loneliness, and depression throughout the college transition. Everyone needs to adapt socially, but students going through the process of separating from their home situations need to pay special attention to this. Overall adjustment has been associated with students' social adjustment to college or university (Monroe, 2009). According to Dyson and Rank (2006), it may be evaluated by looking at how well students behave in their immediate surroundings, how involved they are in social activities, and how satisfied they are with different social facets of their university experience. The social environment of school demands adjustment from new students, as they need to fit into groups they care about both within and outside the university (Law, 2007; Cooke, Beewick, Barkham, Bradley, & Audin, 2006). Peer groups have a significant impact on new students' life, primarily because they aim to substitute peer support networks for family and community support networks (Law, 2007). As a result, freshman have a great need for approval and likeness from their classmates as well as a desire to influence and be influenced by them. Going to college is frequently the adolescent's first experience creating and sustaining a sense of self outside the home, according to Kitzrow (2003).

2.9.3 Personal-Emotional Adjustment

Students' mental and physical health as they deal with the demands of college life is referred to as personal-emotional adjustment (Baker & Siryk, 1984). The degree to which students suffer from physical symptoms (such as sleep disruptions) and/or

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sadness and anxiety as a result of the changes that come with college life is a measure of this adjustment factor (Credé & Niehorster, 2012). Similar to social adjustment, intellectual adjustment is not as well as personal-emotional adjustment in predicting attrition rates (Gerdes & Mallinckrodt, 1994). Positive personal-emotional adjustment is also correlated with higher GPAs (Credé & Niehorster, 2012). Conversely, negative personal-emotional adjustment is linked to elevated levels of depression and stress, along with increased rates of alcohol and substance abuse (Credé & Niehorster, 2012).

Personal-emotional adjustment encompasses the psychological distress as well as somatic symptoms related with the process of adaptation. As reported by Heath (1968), freshmen are often concerned with integrating into the university community and proving themselves to their peers. This need for approval can occasionally result in actions like substance abuse, sexual activity, and fear, which can cause one to become less forceful and compromise their morals (Kasayira et al., 2007). Research shows that unstable and maladjusted kids typically perform worse in their studies than their well-balanced counterparts in relation to their IQ levels, suggesting that emotional adjustment has an indirect effect on academic accomplishment.

The inability to adjust appropriately at the university level could be a sign of psychological issues. According to Kitzrow (2003), universities have been found to be potential breeding grounds for mental health problems, and the number of college students dealing with these issues is on the rise. Financial limitations were found to be a significant source of stress by Kasayira et al. (2007) in their study on the difficulties experienced by college students, especially in developing nations. Task management, time management, adjusting to campus life and peer pressure are additional difficulties. Off-campus residents also have to deal with extra stressors including

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ineffective transit systems and challenges getting access to university facilities. According to Law (2007), students may experience greater levels of weariness from the demands of university coursework than nine other occupational groups, such as teachers, medical professionals and police officers.

2.9.4 Institutional Adjustment

This adjustment also refers to how students adapt to the college community and their sense of belonging to their university (Baker & Siryk, 1984). While social adjustment evaluates a student's broader social community, encompassing interactions outside the school community, institutional attachment specifically gauges a student's connection to their college community. Consequently, institutional attachment is considered a distinct domain of college adjustment (Credé & Niehorster, 2012). For instance, a student may encounter challenges in making new friends, indicating a suboptimal social adjustment, but still experience a strong institutional attachment based on other community connections within their college, such as a positive relationship with teachers. Institutional attachment correlates positively with GPA and retention rates (Credé & Niehorster, 2012). Meta-analytic findings reveal that a positive institutional attachment is the most reliable predictor of retention rates compared to other domains of college adjustment (Credé & Niehorster, 2012). Similar to other aspects of college adjustment, institutional attachment is linked to non-academic outcomes. It is negatively associated with alcohol and substance abuse, depression, and stress (Credé & Niehorster, 2012). It is essential to acknowledge that much of the prior research on associations between college adjustment and other outcomes (e.g., depression, stress, loneliness) is cross-sectional, and therefore, the directionality of these associations cannot be definitively determined.

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2.10 Adjustment Challenges among Senior High School Students

Many students face a variety of academic, social, and personal obstacles as they make the move to college (e.g., Oppenheimer, 1984; Rickinson & Rutherford, 1995; Shaver et al., 1985; Tinto, 1987, 1993). Since tertiary-level education requires the development of skills like academic writing and critical thinking, students must deal with the inherent challenge of taking on more intellectually demanding tasks than they did in the past (Guest, 2000; Hager et al., 2003; Lillis & Turner, 2001). Additionally, the heightened academic expectations may lead to students receiving grades or feedback that fall below their expectations or prior experiences (Krause, Hartley, James, & McInnis, 2005), potentially resulting in adverse effects on the individual.

Additionally, because first-year senior high school (SHS 1) classes are frequently large and less individualized, the student must adjust to new teaching and learning approaches. Furthermore, compared to their prior educational environments, students are supposed to assume more responsibilities for their own learning experiences (Kantanis, 2000; Scanlon et al., 2007; Wankowski, 1991). These difficulties might be made worse by students' propensity to undervalue the significant distinctions between senior high school and their previous educational experiences, especially with relation to the degree of independence needed (Brinkworth et al., 2009).

Adapting to a new and unfriendly environment needs social and interpersonal adaptation in addition to the intellectual ones. Depending on the student's age or residence status, these adaptations may take on many forms, and for some, they may represent a major life transformation. For example, for traditionally-aged students living on campus, the start of school could be their first time away from home, friends, and family (Rosslyn, 2004). As part of this transformation, current support

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systems must be abandoned (Earwaker, 1992; Farnill & Robertson, 1991; Pancer et al., 2000), and current relationships must be adjusted and reorganized (Rickinson & Rutherford, 1995; Shaver et al., 1985). Additionally, new connections must be established; it's not uncommon for many new students to express feelings of loneliness or homesickness during this period (Cutrona, 1982; Fisher & Hood, 1987; Shaver et al., 1985).

Personal problems include adjusting to new roles, developing one's personality, and forming personal beliefs as a result of moving to senior high school (Chickering, 1969; Chickering & Reisser, 1993; Patiniotis & Holdsworth, 2005; Scanlon et al., 2007). Along with establishing new routines and a new lifestyle, students must also get to know their new surroundings (Rickinson & Rutherford, 1995).

Emotions and thoughts about the experience of commencing school and the wisdom of choosing to attend the selected SHS or enrol in a program may also be present during the first few weeks or months of school. When it comes to discipline decisions, students frequently face uncertainty and difficulties (Yorke & Longden, 2008). If the actual school experience does not live up to their expectations, they may become disillusioned and disappointed (Baker et al., 1985; Lowe & Cook, 2003; Miles & Leinster, 2007; Pancer et al., 2000). Pressures may be further compounded by concerns about finances (Cooke et al., 2006), and there may be a need to engage in paid work while studying, adding additional expectations on the student's resources and time.

Predictably, given the stresses as well as challenges associated with commencing senior high school, numerous incoming students encounter physical and psychological issues. The transition into the first year has been linked to depression and negative

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moods (Beeber, 1999; Pritchard, Wilson, & Yamnitz, 2007; Tao et al., 2000; Wintre & Yaffe, 2000), eating disorders (Beeber, 1999), and heightened mental disturbance and cognitive lapses (Fisher & Hood, 1987). This concern is likely more pronounced for younger students, as adolescents and young adults are generally more prone to engaging in sensation-seeking and risk-taking behaviors (Spear, 2000). Clearly, the effective management and preservation of their psychological and physical well-being pose a significant challenge for students.

In addition to the common challenges, both traditional-aged and older students may encounter distinct difficulties. While younger, traditional-aged students navigate increased independence and the assumption of adult roles, mature students may find attending school to be a major obstacle. Cross (1981) identifies several challenges typically related to older students, broadly categorized as situational, dispositional, and institutional. Specifically, mature students may face constraints related to time, finances, emotional support, and confidence, both in themselves and in the institution's capacity to cater to their specific needs. Institutional barriers may involve curriculum delivery methods, faculty attitudes, or timetabling that could be prejudiced against mature students. Furthermore, the diverse roles that many adult students undertake are likely contributors to the aforementioned difficulties (Donaldson, 1999; Norton et al., 1998). For younger students, significant challenges include assuming adult responsibilities, learning to manage their time and finances independently, and experiencing a higher degree of personal freedom.

2.11 Birth Order and Educational Attainment

Recognizing the direct link between an individual's educational level and their professional trajectory, it is crucial to explore and comprehend the connection

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between birth order and educational achievement. This inquiry stems from the notion that as individuals acquire more formal education, they gain increased opportunities for career choices and advancements.

In order to acknowledge that first-born people generally do better on cognitive tests, earn more money, have more schooling, and have better job outcomes than their younger siblings, Pavan (2016) conducted a study. Understanding how parental investments across siblings affect these observed patterns was another goal of the study. Pavan used Longitudinal Survey of Youth 1979 (CNLSY), which included 2,931 women interviewed for the National Longitudinal Survey of Youth (NLSY79) and 11,504 children from birth to 14 years. The study addressed potential biases, including the over-representation of black as well as low-income earning white mothers, and considered various outlier factors such as families with siblings more than 15 years apart, families with twins, and families with missing relevant information.

This Longitudinal Surveys (NLS) comprise a series of surveys designed to collect information over multiple decades, serving as a crucial resource for economists, sociologists, and various researchers (U. S. Bureau of Labor Statistics, n.d.). In 1986, a distinct survey focusing on all children born to female respondents in the NLSY commenced, significantly expanding the scope of child-specific data gathered. Apart from incorporating all maternal information from the NLSY79, the child survey encompasses assessments of each child along with additional demographic and developmental details obtained from either the mother or the child. For children aged 10 and above, data has been collected biennially since 1988, covering various factors like child-parent interactions, attitudes towards schooling, dating and friendship

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patterns, religious attendance, health, substance use, and home responsibilities. Biennially, beginning in 1994, children aged 15 and older undergo an extensive interview modeled on the NLSY79 questionnaire, collecting information on their education, training, work experiences and expectations, health, dating, fertility and marital histories, and household composition (U. S. Bureau of Labor Statistics, n.d.).

Even after accounting for a variety of controls and family fixed effects, Pavan's research shows a significant birth-order effect in both mental abilities and parental investments. Using a methodology akin to that of Cunha and Heckman (2008) and Cunha et al., (2010), Pavan found that sibling variations in parental conduct account for almost half of the birth-order disparity (Pavan, 2015). However, a notable setback of this research and subsequent analyses is the missing of consideration for non-cognitive skills, which can play a crucial role in shaping an individual's professional choices, career trajectory, and overall professional success.

Even after taking into account different variables and family fixed effects, Pavan's research shows a significant birth-order influence on both cognitive abilities and parental investments. Using a methodology akin to that of Cunha and Heckman (2008) and Cunha et al., (2010), Pavan found that differences in parental conduct between siblings was responsible for most of the birth-order disparity (Pavan, 2015). The absence of non-cognitive skills, which are vital in determining a person's career path, professional decisions, and overall effectiveness in the workplace, is a significant drawback of this study and any further analyses.

Hotz and Pantano (2015) aimed to investigate non-cognitive skills influencing academic performance related to birth order, focusing on parental disciplinary actions. Their research, using robust empirical evidence from the National Longitudinal Study

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of Children (NLSY-C), indicates a decline in school performance with birth order. It also reveals that later-born children spend more time on cognitive activities with their mothers and are breastfed for a longer duration (Haan, Plug, & Rosero, 2014). This study suggests an inverse relationship between birth order, cognitive development, and educational attainment, particularly in less economically developed countries compared to more economically successful nations. Therefore, understanding a person's birth order and its impact on education and future career choices requires consideration of the economic context, providing an opportunity for further research and analysis.

To complement the findings of Pavan and De Haan, Plug, and Rosero, Lillian Belmont, in her research at the New York State Psychiatric Institute, aimed to investigate whether last-born individuals are overrepresented among those with lower educational attainment. Belmont discovered that last-born individuals, at each family size, face a greater risk than first- and middle-born individuals of experiencing school failure, as indicated by (a) attendance at special schools for the mentally retarded and (b) failure to graduate from lower school (first 6 years of school) (Belmont, 1977). Additionally, Belmont noted that these findings were more prevalent among children of parents in manual labor positions and from larger families. It's essential to consider the study's limitations, as it reviewed data from over 400,000 men in the Netherlands born between 1944 and 1947, focusing on male participants at the age of 19, lacking gender variations and representing a limited scope by solely examining secondary educational accomplishments.

The effect of birth order as well as family size on educational performance was the focus of another set of British studies. This research specifically addressed the notion

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that birth order is more significantly related to family size in larger families. The initial-born child in any family is more likely to be part of a small family compared to later-born siblings (Booth & Kee, 2009). While some surveys attempt to address these influences and variables using control groups or variables, they often fail to fully consider this influence. Utilizing data from the 13th wave of the British Household Panel Survey (BHPS), a nationally representative random-sample survey of private households in Britain conducted in 2003-04, Booth and Kee discovered that the sibling shares [of parental resources] decrease with birth order. After controlling for family parental income, age of parent at birth, and family-level attributes, they observed that children from larger families tend to have lower levels of education, and there is an additional negative birth order effect (Booth & Kee, 2009). Booth and Kee emphasized that their research contradicts earlier studies that may not have accounted for various cultural variables. The family size effect did not disappear when controlling for birth order, possibly reflecting different cultural or institutional factors in the two countries (Booth & Kee, 2009).

2.12 Birth Order Effects

The idea that an adult's birth order might have long-lasting consequences has been discussed frequently, and has frequently led to the commonly held stereotypes of firstborns, middleborns, lastborns, and only borns (Nyman, 1995). Although first-borns are frequently viewed as bright, aspirational, and submissive, they can also be viewed as conceited, pampered, and uncreative (Herrera et al., 2003). Although middle-born people are seen as independent, considerate, and tolerant, they can also feel neglected, envious, and rebellious. In addition to being characterized as emotional, immature, and spoilt, last-borns are typically seen as outgoing, imaginative, and chatty (Eckstein et al., 2009). Only children are supposed to exhibit

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ambition and independence but may also be viewed as anti-social and disagreeable (Nyman, 2001; Herrera et al., 2003).

While various studies in the past have explored values about birth order, these assumptions have deep historical roots. These beliefs have sparked numerous professional studies aiming to determine the measurable effects of birth order. This review of literature seeks to delve into past research on the effects of birth order. Although a diverse range of questions had been posed, many conclusions have revealed consistent results regarding the mental development and sociability of adults based on their birth orders and childhood experiences with or without siblings. However, there exist opposing views among scholars regarding the true effects of birth order. The studies examined in this review both reinforce existing knowledge about birth order and highlight areas that still require further exploration.

Literature suggests Alfred Adler was the first to publish a theoretical discussion of birth order effects in 1928 (Srivastava, 2011). Adler discussed how even though children have the same parents and grow up in nearly the same family setting, they do not have identical social environments (Srivastava, 2011). Values about birth order have evolved greatly since 1928, as made clear by Srivastava's (2011) account of Adler's profile of birth orders based on shared attributes.

The oldest child mostly tends to be conservative, power oriented and predisposed towards leadership. The only child according to Adler tends to be reliant and self-centered. Adler is also quoted as saying 'the only child has difficulties with every independent activity and sooner or later they become useless in life. Furthermore, the middle child is usually achievement oriented, but may set unrealistic goals that will

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end in failure; finally, the youngest tends to be very motivated to outdo older siblings in various circumstances (Srivastava, 2011).

While some of Adler's ideas from 1928 are still upheld, numerous aspects of his theories have been challenged. In a critical review conducted in 1992, Watkins found Adler's studies on birth order to be inconclusive. The review highlighted factors such as psychological position, gender, age spacing, race and more were not adequately considered in Adler's research (Watkins, 1992). Many subsequent researchers have echoed these limitations, underscoring the necessity for further investigations into the impacts of birth order.

In 1977, Lindert explored the impact of sibling position during childhood on later levels of education and occupational status in a paper titled "Sibling Position and Achievement." His analysis focused on intra-familial dynamics, concluding that individuals with higher accomplishment received more praise and spent more time with their parents during childhood. Lindert argued that the allocation of time and resources by parents was directly linked to birth order, asserting that "sharing family time and money with siblings is a drag on achievement." His examination of the advantages and disadvantages associated with each sibling position revealed that first-borns spent the most time with parents, leading to the highest achievements and IQs in adulthood. Children born between the first and last received less attention and encouragement, with middle-born adults showing lower intelligence than first-borns. Last-born children received more attention and encouragement, and last-born adults tended to stay in school longer than individuals in other sibling positions. Notably, only-born adults did not demonstrate an advantage in achievement levels, despite lacking siblings for competition in parental attention and support. Lindert's study

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provided insights into how birth order could influence achievements in adulthood, but his definition of achievement included prestige and occupational status, potentially overlooking individuals capable of high achievements in non-prestigious career paths. A broader examination, such as focusing on a pool of college students, might have provided a more representative perspective on how birth order influences achievement.

In subsequent years, many studies emerged that identified higher intelligence levels among first-born borns. Falbo (1978) investigated the dynamics of sibling teaching, suggesting that the role of older siblings helping their younger counterparts with schoolwork contributes to intellectual development. Falbo suggested that having younger siblings to teach is advantageous for mental growth. This perspective could address the discrepancy in Lindert's (1977) study regarding only children not achieving higher levels of success despite receiving more attention from parents. Another study supported Falbo's conclusion, emphasizing that the teaching function adopted by older siblings when younger siblings are born can enhance the intelligence of earlier-born children (Zajonc et al., 1979). Only children, lacking younger siblings to tutor, do not enjoy the same advantage as those with younger siblings, explaining why last-born children were found to be less intelligent in Falbo's study (1978). These birth order studies underscore the significance of the role played by first-born children as tutors in influencing their later intelligence. This prompts consideration of other roles that older and younger siblings may assume, contributing to their adult traits.

In 1982, Kidwell undertook a study investigating the effect of birth order on self-esteem. She explained individuals with high self-esteem as those who "realistically respect themselves, consider themselves worthy, and expect to grow and improve,"

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while those with low self-esteem experience “self-rejection, self-dissatisfaction and disapproval, and a desire to change oneself” (Kidwell, 1982). Kidwell came to the conclusion that a child’s sense of uniqueness and importance is shaped by their birth order, which in turn affects their self-esteem. According to her studies, children who are born first or only have a tendency to have high levels of self-esteem, which she attributes to their perceived high degree of uniqueness. Parental specialization or internal perceptions may be the cause of this distinctiveness (Kidwell, 1982).

Additionally, Kidwell discovered that middle borns sense a "lack of uniqueness" because they think their parents are less supportive (Kidwell, 1982, p. 234). Compared to first- and only-born children, middle-born children typically have poorer self-esteem. Kidwell also found that middle children who have a distinct gender status can have higher self-esteem. In contrast to previous researchers, Kidwell focused on how gender and birth order interact to influence childhood experiences and subsequent adult characteristics. There is potential for more research into how the gender roles of all sibling placements affect adult qualities, though, given her primary focus was on middle children.

The trait of sociability in adults is widely acknowledged to have roots in childhood. In the study titled “Number of Siblings and Personality,” Blake examines the way family size influences the acquisition of social skills (Blake, 1991). Sociability, as defined by Blake, involves the “desire to draw near, cooperate, and be with a friend,” encompassing actions such as meeting people, making acquaintances, showing goodwill, pleasing others, and avoiding hurting others (Blake, 1991, p. 272). Blake’s focus is on how large families provide opportunities to practice these social skills. Growing up with many siblings compels children to play with peers of similar ages,

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necessitating adaptation to sharing both tangible and intangible possessions, such as toys or parental affection. Having more siblings also demands that children consider the needs and perspectives of their siblings (Blake, 1991). Blake discusses the observation that only children, as children, tend to associate more with adults and less with peers (Blake, 1991). She concludes that the social skills developed in large families contribute to the formation of more sociable adults. However, Blake does not delve into whether individual intra-familial sociability is influenced by birth order or if the presence of more than one gender in a family can affect sociability.

Several scholars have looked into the possible negative intellectual effects of being a part of a large family, in contrast to the favourable social effects that come with having many children. The Confluence Model is examined by Zajonc et al. (1979) in their investigation of birth order and IQ. The Confluence Model states that the average family's intellectual level declines with the birth of a second child (Zajonc et al., 1979). By dividing the total IQ of all family members by the total number of family members, one can calculate the average IQ of the family. The average intellectual level of the family continues to decline with each new birth because infants and small children are unable to add to the family's intellectual total. According to the Confluence Model, children's potential for intelligence is limited by a lower average intellectual level (Zajonc et al., 1979). According to this concept, IQ and family size/birth order are negatively correlated.

While other studies, like Lindert's (1977) findings that last-borns often complete the most schooling, indicate that high intelligence levels can still be achieved by the youngest children, the widely accepted notion is that larger families produce children with lower intelligence (Falbo, 1978). However, it's crucial to note that causation

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cannot be firmly established merely based on the high correlation between intelligence levels and family size. In a study titled "Resolving the Debate over Birth Order, Family Size, and Intelligence," it is proposed that adults with lower IQs are more likely to have larger families (Rodgers, Cleveland, Van den Oord & Rowe, 2000). This introduces a third factor—the intelligence of the parents—that could be influencing both the intelligence levels of children and the size of the family. Recognizing that a person's intelligence is influenced by a wide range of factors, it becomes necessary to examine other traits that contribute to achievements. Individuals can achieve significant success in overcoming academic and intellectual challenges even without high IQs, driven by traits such as determination and confidence. Studies on intelligence and birth order often yield inconclusive results, but a more comprehensive study on students' academic success and birth order, considering additional personality traits, could provide a more indicative understanding of future accomplishments.

One personality trait that can be used as a predictor of success in both personal and professional spheres of life is extraversion. Sociability and dominance are the two separate components of extraversion, according to Beck, Burret, and Vosper (2006). Extraverted people with high levels of sociability are frequently surrounded by people who are considered to be socially successful in their personal life. Conversely, people with strong extraversion dominance are able to effectively advocate for themselves and pursue their objectives without being discouraged by setbacks. In their birth order study, Beck et al. (2006) distinguished between the aspects of extraversion related to sibling placements, even though extraversion is frequently measured across people of various birth orders. They discovered that although last-borns show the highest levels of sociability, first-borns show the highest levels of dominance (Beck et al., 2006).

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According to this study, personality traits and birth order may be related, which could have a direct impact on people' personal and professional lives.

Beck et al. (2006) go into great detail about the different features of extraversion, but they don't look at other parts of personality or how gender could affect these qualities. Along with neuroticism, conscientiousness, agreeableness, and openness to new experiences, extraversion is one of the Big Five Personality Traits (Hoyer & Roodin, 2009). We'll talk about the importance of these five well-known personality qualities later.

Researchers Harris and Morrow (1992) examined the impact of gender and sibling roles on attributes like dominance and responsibility in their study, "Differential Effects of Birth Order and Gender on Perceptions of Responsibility and Dominance." The study's overall findings showed that males are more dominant than females, although females are generally more responsible than males. It was discovered that both of these characteristics often declined with birth order, suggesting that the oldest male tended to be the most dominant and the oldest female the most responsible.

Males' levels of responsibility and females' levels of domination demonstrated the interaction between gender and birth order. The eldest male shown increased levels of responsibility, though still less than the eldest female, just like the eldest female did. On the other hand, female dominance patterns demonstrated the reverse trend. Despite being less dominating than the oldest male, Harris and Morrow (1992) found that the youngest female tended to be the most dominant. This study emphasizes how crucial it is to take into account how gender and birth order interact. As mentioned earlier, another study on dominance and birth order did not explore gender effects, and the two studies arrived at different conclusions. This discrepancy emphasizes the need to

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examine not only birth order but also gender order, as various traits or experiences are likely influenced by both factors.

Similar to Harris & Morrow (1992), Szobiova's 2008 study examined how gender and birth order affect many aspects of teenage personality. Szobiova (2008) used a personality test to identify key attributes according to birth order using the Big Five personality traits: conscientiousness, extraversion, agreeableness, neuroticism, and openness to experience. According to the results, only-borns had the highest levels of neuroticism and extraversion, middle and last-borns had the highest levels of agreeableness, middle-borns showed a special openness to experience, and first-borns had the highest levels of neuroticism and conscientiousness. Firstborns' unique scores, according to Szobiova, are a result of their increased responsibilities and the need to be flawless.

Furthermore, Szobiova observed that middle-borns, like last-borns, had a propensity to be highly empathic and sensitive to injustice. In terms of neuroticism and dominance in respect to extraversion, only-borns were described as being more critical and autonomous. Szobiova (2008) first described the patterns of birth order before delving into the gender and sibling constellation in families. She found that siblings showed higher levels of extraversion and conscientiousness when they were all of the same gender. Males who grew up with both a brother and a sister also showed significantly greater levels of agreeableness, which is another interesting discovery (Szobiova, 2008). One of the most thorough attempts to understand gender and sibling roles is this study. While the focus is on adolescents, it underscores the need to explore other critical developmental stages to gain a more in-depth meaning of how birth order impacts adults.

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A study on "The Relationship of Psychological Birth Order to Irrational Relationship Beliefs" conducted by Kalkan (2008) specifically focused on adults and their lifestyles. Kalkan defined irrational relationship beliefs as "unrealistic beliefs of individuals about themselves, about the nature of relationships, and about their partners in relationships…that may lead to self-defeating behavior and poorer adjustment in romantic relationships" (Kalkan, 2008, p. 457). Kalkan also proposed the concept of psychological birth order, suggesting that an individual's perceived birth order might differ from their actual birth order. This implies that a last-born, for instance, might adopt the characteristics and responsibilities associated with a first-born, psychologically identifying as a first-born. This aligns with the earlier identification of the tutor role typically assumed by first-borns.

According to Kalkan (2008) and others, a person's birth order is determined by the combination of their positions as younger, older, or neither sibling. With greater academic accomplishment, cognitive skills, strong self-esteem, and fewer illogical relationship views, the first-born plays a position of authority and influence. In line of Szobiova's (2008) assertion that middle-borns are sensitive to injustice, middle-born people frequently take on the role of peacemaker, serving as arbitrators to promote justice (Kalkan, 2008). According to Kalkan, middle-borns typically believe they are unlovable in love relationships and have lower levels of self-worth and self-esteem. Last-borns are described by their dependency, immaturity, and need for protection, which may pose challenges in relationships as they seek significance by pleasing others (Kalkan, 2008). Finally, only-borns, being the center of attention in their families, may face scrutiny from parents, potentially leading to irrational relationship beliefs (Kalkan, 2008). Kalkan's study is significant for its delineation of the typical

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roles associated with different birth orders and how these roles can impact romantic relationships.

Kalkan's concept of psychological birth order suggests that individuals may not always adhere to the roles associated with their actual birth order but may adopt the characteristics of a different birth order. In contrast, Sulloway (1996), in his renowned book "Born to Rebel: Birth Order, Family Dynamics, and Creative Lives," presents a different perspective. Sulloway argues that there are distinct roles that first-borns and later-borns tend to assume.

Sulloway (1996) asserts that first-borns tend to accept the status quo and customary norms, and they tend to identify with authority and power. They are overrepresented among scientists and have a higher chance of making innovations in well-established domains. However, Sulloway claims that later-born people are more likely to challenge authority and the status quo. He describes them as champions of conceptual change and upheaval who frequently make ground-breaking discoveries and serve as social change agents.

This paradigm has been used by Sulloway (1996) and others to use birth order theories to understand history. For example, scholars have identified prominent early-born individuals like Hilary Clinton and Albert Einstein, as well as later-born individuals like Nicolaus Copernicus and Harriet Tubman (Smilgis, 1997). According to Sulloway, the accomplishments of significant historical and modern personalities were impacted by their birth orders. His research on irrational relationship beliefs implies that Kalkan's (2008) concept of psychological birth order would be consistent with the identification of individuals who fall into these categories, even though he

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doesn't examine the existence of radical first-borns or authoritative and conventional later-borns.

Kalkan's (2008) examination of relationship beliefs provides valuable insights into the challenges that adults may face in their relationships due to their psychological birth orders. However, the study does not explore the potential influence of young adult experiences on later adult relationships or consider how birth order might impact less serious relationships or platonic connections typically formed during young adulthood. Additionally, an important aspect of relationships that deserves examination is the past relationships between children and parents.

In order to look into possible birth order-related causes, a 2009 study asked adults about their memories of parental treatment (Davey, Tucker, Fingerman, Savla, 2009). According to Davey et al. (2009), fathers were less loving in larger families, while daughters reported less maternal attachment than sons. The highest percentages of close relationships with parents were reported by last-borns. Although the study suggests a connection between birth order and previous parent-child connections, it does not fully explain how these disparate experiences may have a substantial impact on a person's social and personal lives beyond childhood.

The Davey et al. (2009) article lacks an analysis of which types of parent-child relationships are most advantageous or harmful, hindering a comprehensive understanding of the positive and negative consequences associated with each type. This omission diminishes the study's usefulness in the analysis of adult behavior.

Identity formation during adolescence and the transition to adulthood is examined in a study that skilfully illustrates the benefits and difficulties of birth order (Wong et al.,

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2009). Identity exploration and commitment are two crucial elements of identity development, according to Wong et al. (2009). These elements are both necessary for self-discovery and the pursuit of a satisfying life. First-borns have the highest levels of identity commitment, followed by middle-borns, while last-borns have the lowest levels, according to the study.

The presence of role models makes it easier for first-borns to commit to their chosen identity since they often emulate their parents during the identity exploration phase (Wong et al., 2009). Similarly, when they are figuring out who they are, middle children especially the second child often mimic the older sibling. On the other hand, last-borns have a harder time exploring their identities, which makes them less committed to their identities. This difficulty is related to earlier research showing that the last-born child is more likely to be dependent and underdeveloped.

Wong et al. (2009) included a brief gender analysis in their birth order study, but they did not look at how only children establish their identities. According to the study, adolescents who had siblings of different sexes were less committed to their identities. According to Wong et al. (2009), this might be because there are less role models for people to build their identities on because of the gender variety. The benefits of having only one gender of sibling were originally mentioned in this study.

There is unquestionably both agreement and disagreement in the literature on the consequences of birth order. Although many academics claim that there are observable birth order effects in the academic, social, professional, and personal spheres, contradictory research contradicts this claim. Dunkel, Harbke, and Papini (2009) investigated how birth order affects personality and identity and came to the opposite conclusion, arguing that birth order is not very important in predicting

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individual differences. Dunkel, Harbke, and Papini (2009) found no observable birth order tendencies when using the Big Five Personality Traits and looking at identity styles that include psychological, social, and personal resources used for identity exploration and commitment. By presenting a counter-narrative, this study raises important questions regarding the participants and research methods used in earlier studies.

In light of the existing research, marked by discrepancies and unexplored relationships among diverse populations, it is evident that further investigations are warranted to comprehensively grasp birth order effects. Future studies should incorporate a gender analysis, and participant demographics ought to encompass individuals striving for similar objectives, particularly in studies exploring achievements and success rates associated with distinct birth orders. Recognizing these gaps in past research motivated my exploration of sibling and gender roles and their influence on the academic and social accomplishments of college students.

2.13 Sibling Relationship

The interaction of dynamic family systems functioning at different levels is the fundamental source of human development. In order to shape and develop behavioural norms within the family and society, these structures guarantee reciprocal influences among individual family members. Sibling relationships are probably the most important of these systems in controlling teenage behaviour (Cox & Parley, 2003). In terms of family dynamics and member adjustment, siblings are quite important. Envy and adoration, rivalry and support, love and hate, all of these emotions are present in their relationships. Children's social worlds revolve around their interactions with their siblings, who frequently develop emotional ties that are

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greater than those between parents and their offspring. Siblings get a variety of social and cognitive abilities from these encounters, which aid in their general social growth.

A study by Sroufe et al. (2005) suggests that sibling relationships fulfill unique developmental functions, serving as a complement to, though not a substitute for, parent-child relationships. Sibling relationships share similarities with parent-child connections, involving emotional ties, while also featuring age gaps akin to those found between peers. They provide a platform for social learning, encompassing skills such as managing emotional conflicts and practicing leadership (Burton, 2007). These relationships serve as enduring, lifelong connections, recognized cross-culturally. Although resembling parent-child ties, sibling relationships offer distinct advantages during adolescence, compensating for potential parental inadequacies. Adolescents often utilize their siblings as a secure base for exploration or seek comfort in times of stress. In challenging situations, good sibling relationships contribute substantial support, even in the absence of adequate parental support (McNerney & Usner, 2001).

Additionally, sibling relationships contribute to intergenerational experiences that enhance individuals' social, emotional, and cognitive competencies (Cox, 2010). These experiences manifest in a person's capacity to tolerate negative effects, form their identity, and develop a broader social understanding. Siblings can exert both positive and negative influences on each other. Research by Kusi-Appouh (2010) revealed that in Ghana and Uganda, older siblings tended to exert pressure on their younger adolescent siblings, encouraging them to engage in risky sexual or deviant behaviors or participate in initiation ceremonies. The desire to increase social approval or shield the younger siblings from teen pregnancy and premarital sex were frequently the driving forces behind this pressure. According to Kusi-Appouh (2010),

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previous research by Karim (2002) and Diop-sidibe (2005) in Ghana and Cote D'Ivoire, respectively, showed that older siblings who had teenage pregnancies and engaged in early sexual practices were more likely to set an example for their younger adolescent sisters.

The dynamics of sibling relationships are multifaceted, characterized by factors such as egalitarianism or power imbalances, closeness or distance, affection or conflict, and support or competition (Furman & Buhrmester, 1985). These qualities vary not only between different sibling pairs within the same family but also among families, influenced by how family members, both as individuals and a collective unit, are socialized to promote their survival and well-being (McCubbin et al., 1996).

Four important factors that influence the character and calibre of sibling relationships were outlined in a thorough model put out by Furman and Buhrmester (1985). The first determinant is the sibling relationship itself, which includes aspects like competition and conflict, relative position and power, and warmth and closeness. Parent-child connections are the subject of the second variable, which looks at how well parents and their kids interact as well as how they handle sibling relationships. Individual variations in personality, social conduct, and thought processes are included in the third variable. Finally, the family constellation variables include, among other things, the number, gender, and relative age of siblings as well as the socioeconomic condition of the family.

Sibling relationships during adolescence often become complex, marked by a mix of emotions, conflicts, rivalry, and, alternatively, nurturing and social support (Steinberg and Morris, 2001). This complexity is particularly pronounced during adolescence, a developmental stage when individuals engage in self-evaluation, identity formation,

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and the questioning of societal and familial norms, often establishing rules contrary to parental expectations. As adolescents learn to navigate their evolving identities, their behavior can impact those around them, leading to potential anxieties and discomfort for parents and siblings who must adapt to these changes (Steinberg, 2001).

The challenges in sibling relationships tend to escalate during the transition from childhood to early adolescence, marked by intensified conflicts according to Brody et al. (1994). In a study involving 85 adolescent students in Michigan, USA, McNerney and Usner (2001) observed heightened competition and rivalry among siblings aged between 10 and 15 years. These adolescents were often characterized by insecurity and vulnerability, leading to aggressive competition for parental attention and resources. However, it's crucial to note that sibling relationships are not uniformly conflictual throughout adolescence. As individuals progress into middle and late adolescence, the intensity of conflicts tends to diminish, giving way to more supportive, warm, assertive, and democratic relationships characterized by mutual assistance and social support (Sternberg & Morris, 2001).

About 78% of children in the US have at least one sibling, demonstrating the importance of sibling connections in a child's development (Kreider & Ellis, 2011). According to Buist et al. (2013), children tend to spend more time engaging with their siblings than with any other person, including their parents. Children's general wellbeing is impacted by these relationships, which include both positive characteristics like warmth and intimacy and negative ones like strong confrontations (Feinberg et al., 2012). Sibling relationships have received less attention than other interactions in children's lives, like friendships and parent-child ties, despite their importance throughout life.

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Recognizing the effect of sibling relationships on the emergence and persistence of children's emotional and behavioral challenges is crucial. Understanding this dynamic provides essential insights for clinicians, enabling them to determine when and how to intervene in sibling conflicts. This article offers a critical synthesis of the literature, examining the connections between features of sibling interactions and the development of internalizing and externalizing symptoms during childhood and adolescence. The review highlights the unique contributions of sibling relationships to behavioral and emotional problems, explores potential mechanisms underlying these associations, and discusses clinical implications, along with suggesting avenues for future research.

2.13.1 The Sibling relationship as a developmental context

Relationship theorists argue that tight ties with family members, particularly siblings, are crucial to a child's growth (Carpendale & Lewis, 2004; Dunn, 2002a). Children gradually develop a more complex awareness of their social and psychological environments through repeated encounters, integrating information about their own and others' thoughts, motives, feelings, and the ways in which these factors influence behaviour. Given the amount of time they spend together and the familiarity they gain from frequent happy experiences (like play) and negative ones (like disagreement), siblings become important influences on one another's development (Howe et al., 2011). Beginning in early childhood and continuing until middle childhood and adolescence, this close bond is evident (Dunn et al., 1994; McGuire et al., 1996).

The particular developmental environment of sibling relationships is influenced by a number of characteristics, including provisions and processes that set them apart from other types of relationships. Hinde (1979) distinguished between two kinds of

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interactions in close partnerships. Peer relationships are characterized by reciprocal interactions, which are equal and reciprocated exchanges that take place during play or conflict. Parent-child relationships are characterized by complementary interactions, which include unequal power and knowledge distributions brought about by age and experience inequalities. These are visible during teaching, mentoring, and instrumental aid. The brother relationship is unique in that it combines complimentary and reciprocal interactions (Howe & Recchia, 2005). Siblings are frequently very close in age, which fosters a variety of common interests that lead to reciprocal interactions over prolonged play, game, and conflict sequences. These interactions offer significant opportunities for the development of social understanding and knowledge about the behavioral dynamics of relationships, emphasizing an understanding of the partner's perspective, thoughts, and feelings (Dunn, 1983; Howe et al., 2011).

Additionally, siblings range in age, skill, and knowledge, which makes complimentary interactions a vital part of their bond. Howe, Della Porta, Recchia, Funamoto, and Ross (2015), for example, found that 6-year-olds engaged in 2.27 teaching interactions with their 4-year-old siblings on average every hour. As a result, youngsters learn a great deal from their interactions with their siblings. Problematic behavioural patterns might result from the power imbalance that exists in sibling relationships; for example, older siblings may dominate during arguments (Siddiqui & Ross, 1999). According to Dunn (1983), reciprocal interactions are the "building blocks" of relationships because they offer chances for social understanding to grow; complementary interactions are also important. To differentiate their function as possible developmental mechanisms, it may be important to consider how much reciprocal or complimentary features predominate in exchanges.

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Sibling relationships are distinguished from other interpersonal contexts from an early age by two unique features. First of all, sibling ties are permanent and involuntary, unlike friendships (Hartup, 1979). Since young siblings live together and share a family, it might be difficult for them to separate. Due to their familial ties, siblings usually stay in touch often throughout their lives, even if their main social circle moves away from the family. This makes them an important source of social support as adults (Carstensen, 1992). Consequently, learning to coexist becomes a crucial challenge while growing up together. Secondly, owing to the substantial time spent together, siblings collaboratively construct an intimate and shared history, forming a fertile ground for both play and conflict. Although adolescents may increasingly spend time with friends, the long constructed history of siblings may be deeply ingrained in defining the quality of their relationship (Dunn et al., 1994).

It is crucial to recognize that sibling interactions are a part of a larger web of family relationships in order to obtain a thorough grasp of sibling dynamics. Relationships between parents and their children are closely related; for example, higher levels of marital conflict are associated with more animosity between siblings (Brody, 1998). Furthermore, psychoanalytic perspectives on sibling conflict highlight the connection between sibling and parental relationships by speculating that some elements of sibling interactions might result from competition for parental affection (e.g., Adler, 1924). Research suggests that envy and competition are important factors in sibling relationships (Howe et al., 2011). Younger siblings may feel envious when parents give their older sibling all of their attention (Miller, Volling, & McElwain, 2000; Volling, McElwain, & Miller, 2002), while firstborns frequently respond negatively to the arrival of a sibling (Dunn & Kendrick, 1982). Any perceived injustice or partiality can be harmful to family functioning, especially the sibling connection, even though it

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is normal for parents to treat their children differently depending on their unique requirements (Kowal & Kramer, 1997). Antagonism, controlling behaviours, and sibling conflict have all been linked to different parental treatment (Brody, Stoneman, & McCoy, 1992; Furman & Buhrmester, 1985). According to a recent meta-analysis by Buist et al. (2013), these detrimental interactions could partially account for the associations between higher levels of unequal parental treatment and increased internalizing and externalizing symptoms. Because boys are more likely than girls to be competitive, the relationship between differential treatment and internalizing symptoms was stronger for brother-brother pairs and for youngsters as opposed to adolescents (Hibbard & Buhrmester, 2010). Due to their limited opportunities to form meaningful connections that can act as buffers against unhealthy family dynamics, younger children may be more vulnerable to discriminatory treatment (Gauze et al., 1996).

Managing strong negative emotions like envy and rage is common in sibling relationships, which can be risky because these strong emotions are commonly linked to undesirable behaviours like aggressiveness (Cole & Deater-Deckard, 2009). However, the range of sibling interactions both good and bad offers a chance to cultivate the social cognitive and behavioural abilities that support healthy relationships (Kramer, 2014). Additionally, sibling relationships' positive qualities can provide social support, which may improve social-emotional well-being. We will examine the literature in the following sections that examines the relationship between internalizing and externalizing symptoms and the two main dynamics of sibling interactions: warmth and conflict/aggression. We will also look into whether sibling relationships affect how well kids perform in other relationships and their overall socioemotional health.

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2.14 Nature of Sibling Relationships

2.14.1 Sibling conflict and aggression

Sibling interactions frequently involve a degree of stress and hostility that is less prevalent in children's interactions with parents or peers. During the preschool years, sibling arguments can occur more than once every ten minutes (Perlman & Ross, 2005), and they are so frequent that fighting and violence are seen as usual (Caspi, 2011).

According to Buist et al. (2013), there is a moderately significant correlation between increased sibling conflict during childhood and adolescence and higher externalizing and internalizing symptoms. The association between conflict and internalizing symptoms was larger when the age gap between siblings was smaller, possibly because younger siblings quarrel more (Furman & Buhrmester, 1985). This heightened hostility may be the result of increasing competition for resources or simply spending more time together (Volling, 2003). The greater emotional intensity of disagreements in more intimate, closely spaced dyads may also account for this association (Buhrmester & Furman, 1990; Recchia, Wainryb, & Pasupathi, 2013). There was no gender constellation-based moderation in the association between sibling conflict and psychological symptoms, suggesting that conflict is problematic in all dyads and that developmental stage had no bearing. Sibling conflict is nonetheless emotionally charged, has harmful patterns of contact, and contributes to negative consequences even though it is less common from childhood to adolescence (Buhrmester, 1992; Updegraff et al., 2002).

Given the links between emotional and behavioural symptoms and sibling conflict, certain arguments may be detrimental or a sign of serious underlying dysfunction.

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Making the distinction between "typical" and clinically worrisome conflict is an important goal for academics and clinicians (Wakschlag, Tolan, & Leventhal, 2010). Parents looking for advice on whether to step in during their children's arguments may also find this material helpful (Kramer & Baron, 1995). The type of disputes that siblings get involved in could be a helpful criterion. Focusing on particular concerns, constructive disagreements are frequently less emotionally charged and more likely to be settled in a way that pleases both siblings (Deutsch, 1977). These disputes offer a crucial setting for social skill development, teaching kids how to stand up for what they believe in, defend their behaviour, and attend to the needs of others (Ross & Lazinski, 2014; Smith & Ross, 2007). According to Howe, Rinaldi, Jennings, and Petrakos (2002), destructive conflicts, on the other hand, entail numerous concerns and significant levels of negative affect. They escalate to coercion and end in a clear winner and loser or no resolution. As anticipated, internalizing and externalizing difficulties are linked to more frequent harmful sibling confrontations (e.g., Garcia, Shaw, Winslow, & Yaggi, 2000; Stocker, Burwell, & Briggs, 2002).

The content of sibling disputes can also be used to differentiate them. The majority of youth disputes centre on property-related matters, such as stealing someone else's belongings and arguing over the use of common resources like television (Recchia & Howe, 2010). In addition to personal domain invasion (e.g., hanging with the other's friends, mocking, and being mean; Campione-Barr & Smetana, 2010), equitable and fair usage of shared resources remains a major conflict issue during adolescence. Adolescent conflict topics are associated with anxiety and depression symptoms: adolescents who fought for equality and fairness were more likely to develop more depressive symptoms over time, and more frequent conflicts about personal-domain incursions predicted later anxiety (Campione-Barr, Greer, & Kruse, 2013). Future

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studies examining the relationships between conflict topics and socio-emotional outcomes may provide important insights into when to step in during sibling disputes, as these findings, along with evidence that the resolution strategies used by siblings differ depending on the conflict content (Recchia & Howe, 2010), suggest.

Regardless of the subject matter, the severity of conflict behaviours is a good way to determine whether or not sibling relationships could be harmful. Compared to disputes with peers, youngsters tend to blame their destructive behaviour toward their siblings on intensely negative feelings like anger and a lack of empathy (Recchia et al., 2013). This may be one of the reasons why arguments between siblings are more likely to turn violent than those between parents or peers (Caspi, 2011; Laursen, Finkelstein, & Betts, 2001). Even among teenagers, there is a fair amount of sibling violence (Tucker, Finkelhor, Turner, & Shattuck, 2013). For example, according to Finkelhor, Ormrod, Turner, and Hamby (2005), 35% of children between the ages of 6 and 17 reported being struck by a sibling within the previous year, and 40% of parents stated that their kid had struck a sibling with an object within the previous 12 months (Straus, Gelles, & Steinmetz, 1980). Older siblings are more likely to be physically aggressive because of the power disparity, particularly in early childhood (Martin & Ross, 1995). Less frequently seen among siblings than among peers, physical aggression is typically committed by boys, especially during the preschool years, and can be influenced by the gender constellation of the siblings (Martin & Ross, 2005). Property damage and theft are examples of aggression that goes beyond physical altercations (Finkelhor et al., 2005). Relational aggression occurs when a child damages a sibling's social relationships, such as by disclosing secrets (Stauffacher & DeHart, 2006; Updegraff, Thayer, Whiteman, Denning, & McHale, 2005).

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Psychological aggression includes cruel remarks and telling siblings they are not wanted or loved (Howe et al., 2002; Tucker et al., 2013).

It is not surprising that victims' socioemotional adjustment is negatively correlated with these behaviours. Using a sizable, nationally representative sample of American teenagers, Tucker et al. (2013) found that sibling physical aggression, property damage, and psychological aggression were all linked to higher levels of mental-health distress (a composite index that reflects rage, despair, and anxiety). This link continued even after accounting for various types of victimization. The commonly held belief that aggression in younger children is harmless is called into question by the finding that, for children under the age of nine, the association between victimization and worse mental health was stronger when physical aggression was less severe (i.e., did not involve a weapon) (Finkelhor, Turner, & Ormrod, 2006). In fact, younger children might have fewer coping mechanisms to deal with these kinds of situations and fewer outside resources to help them deal with them, which could lead to increased distress (Gauze et al., 1996). More recently, Bowes, Wolke, Joinson, Lereya, and Lewis (2014) discovered that, even after adjusting for peer victimization, prior symptomatology, and other family and demographic factors, sibling bullying at age 12 predicted higher levels of depression and self-harm at age 18 in a sizable birth cohort of English children. Furthermore, Button and Gealt (2010) found that sibling aggression has been linked to higher rates of substance abuse, delinquency, and aggression. Therefore, the information that is currently available strongly shows that sibling hostility might be harmful, even though research on the relationships between these behaviours and psychological symptoms is still restricted (Tucker et al., 2013). Untangling the relationships between sibling conflict and kids' emotional and behavioural development is essential. Addressing antagonistic sibling interactions

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may be a key area of focus for intervention if they cause or exacerbate symptomatology rather than being the only outcome of maladaptive conduct by one or both children. It is currently unclear if psychiatric symptoms in children have a role in the gradual escalation of sibling conflict (Campione-Barr et al., 2013). Anxiety and depression symptoms are linked to later increases in adolescent sibling conflict (Campione-Barr et al., 2013), and it has been discovered that a challenging temperament in younger siblings during middle childhood predicts increased negativity with their brother or sister during early adolescence (Brody et al., 1994).

A noteworthy result is that sibling conflict, antagonism, and negativity have been shown to predict future increases in internalizing and externalizing symptoms. Even after accounting for past psychological adjustment and other family functioning indices, these findings remain significant and demonstrate the unique importance of sibling interactions in symptom development. For instance, Stocker et al. (2002) found that conflict between older siblings, ages 9 to 12, predicted higher levels of anxiety, depression, and delinquent behaviour two years later, even after controlling for symptoms at the original time point, parental antagonism, and marital conflict. With a few exceptions (see Pike et al., 2005; Defoe et al., 2013; Richmond, Stocker, and Rienks, 2005), similar findings have been reported in a number of studies (see Bank, Burraston, and Snyder, 2004; Campione-Barr et al., 2013; Criss and Shaw, 2005; Harper, Padilla-Walker, and Jensen, 2014; Kim, McHale, Crouter, and Osgood, 2007; Solmeyer, McHale, and Crouter, 2014; Whiteman, Solmeyer, and McHale, 2015). Notably, research utilizing genetically informed populations has demonstrated that shared contextual factors, rather than shared genes, account for the majority of the connections between sibling negativity, depression, and antisocial behaviour (Pike et al., 1996). Moreover, sibling hostility has been shown to predict externalizing

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behaviour three years later, even after adjusting for intraclass correlations between siblings, tight mother parenting, and previous externalizing behaviour (Natsuaki et al., 2009). Many studies have looked into whether structural aspects of the sibling relationship, like gender composition and birth order, have an impact on the links between sibling negativity and individual adjustment. According to some research, first-born children and second-born children with younger sisters but not with younger brothers were more likely to engage in risky conduct when there was higher conflict (Solemeyer et al., 2014). But as of yet, no consistent moderator group has been identified.

2.14.2 Sibling warmth

In relationships when there is a lack of warmth, sibling conflict and aggressiveness might present unique difficulties (Buist & Vermande, 2014). Even while sibling rivalry is possible, affection and playfulness are also common in sibling relationships. Warmth in sibling relationships, which is a distinct dimension from hostility (Furman & Buhrmester, 1985), has the potential to positively impact children's development. Buist et al.'s (2013) meta-analysis confirmed that increased warmth is linked to lower levels of internalizing and externalizing problems, showing consistent associations for both children and adolescents, as well as for sibling pairs of various gender compositions.

As is customary, these researchers examined conflict and warmth independently. However, it is important to look at these factors together. According to McGuire et al. (1996), sibling relationships can be combative (low warmth, high hostility), disengaged (low warmth and hostility), emotionally charged (high warmth and hostility), or harmonic (high warmth, low hostility). The final pattern is usually more

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noticeable in older adolescents, whereas the previous three are noticeable in childhood (Buist & Vermande, 2014). Since the clinical implications of conflict and warmth may differ depending on the strength of each variable, there may be predictive value in taking these two dimensions into account at the same time.

It appears that aggressive children have low warmth and significant conflict in their sibling relationships (Aguilar, O'Brien, August, Aoun, & Hektner, 2001; Buist & Vermande, 2014). Even when there is a lot of conflict, warmth is associated with less internalizing symptoms and less violence (Buist & Vermande, 2014). Moreover, Stormshak, Bellanti, Bierman, and the Conduct Problems Prevention Research Group (1996) found that aggressive kids who interacted with their siblings in a way that was high conflict and low warmth were rejected by their peers more and were seen as less socially adept than kids who interacted with their siblings in a way that was moderately conflict and warm. This demonstrates once more the link between a lack of warmth and a worse ability to adjust (Aguilar et al., 2001).

The absence of warmth is associated with poorer adjustment (Aguilar et al., 2001). Furthermore, positive sibling relationships, broadly defined, are uniquely linked to improvements in emotional well-being over time. For instance, Kim et al. (2007) found that, for girls, increases in sibling intimacy over time were correlated with decreases in depressive symptoms, even after accounting for sibling depression and parent–child relationship quality. Richmond et al. (2005) also observed that the enhancement of sibling relationship quality over time, measured as the ratio of warmth to conflict, predicted reductions in the depressive symptoms of both older and younger siblings (also refer to Harper et al., 2014; see Branje, van Lieshout, van Aken, and Haselager, 2004, and Whiteman et al., 2015, for exceptions). Associations

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between positive sibling relationships and emotional and behavioral problems did not consistently vary based on dyadic characteristics or birth order.

The research that is currently available indicates that more sibling warmth is associated with better individual adjustment, despite the fact that positive features of sibling relationships have received less attention (Whiteman et al., 2015). Furthermore, children who struggle in other interpersonal situations may benefit from having a strong brother relationship. Early adolescents who reported being victimized by both siblings and peers, for example, had higher self-reported psychiatric symptoms than those who were abused in just one setting, according to Wolke and Samara (2004). The relationships between second-graders' evaluations of the strength of their relationships with their moms, siblings, and friends were examined by Stocker (1994). A notable interaction between warmth in relationships with friends and siblings predicted children's behavioral conduct; specifically, those who experienced low warmth in both relationships reported poorer conduct compared to those with a warm relationship with either a sibling or a friend. This pattern did not extend to feelings of loneliness, depression, or anxiety.

Additional studies utilizing multi-method measurement approaches, rather than relying solely on self-reports, also suggest that a positive sibling relationship can act as a protective factor, although findings are not entirely consistent. McElwain and Volling (2005) observed an interaction between the observed behavior quality of 4-year-olds with older siblings and friends, revealing that when friendship quality was low or moderate, more positive sibling interactions predicted less aggressive behavior. However, there was no correlation between internalizing symptoms and the quality of sibling relationships. Greater sibling support was associated with lower anxiety in

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sixth-graders who were socially isolated at school, but this effect did not hold true for a number of other variables (East & Rook, 1992). Significantly, the buffering effect was not provided by perceived support from a friend outside of school, indicating a special feature of the brother connection. It is obvious that further study is required before firm judgments can be made on the degree to which a healthy sibling relationship offers children who struggle with peers and friends' compensatory advantages. Longitudinal investigations and intervention studies targeting sibling dynamics with measurements of peer outcomes are crucial for a more rigorous assessment of the impact of a high-quality sibling relationship on individual socio-emotional adjustment and interpersonal functioning in other domains.

The idea that sibling connections can operate as a buffer against other family stressors is supported by data from longitudinal research. Regardless of the quality of the mother-child relationship, Gass, Jenkins, and Dunn (2007) discovered that sibling affection moderated the relationship between marital quality and eventual internalizing symptoms in children. Garcia et al. (2000) looked into the relationships between aggressive conduct reported by parents and teachers at ages five and six with sibling conflict and rejecting parenting when boys were two years old. They found that only when destructive sibling conflict was substantial did rejecting parenting predict eventual violence, indicating that a low-conflict sibling relationship might be beneficial. Sibling conflict and ineffective parenting, as measured by multi-informant composites, interacted to predict changes in antisocial behaviour over time using a variety of indicators in longitudinal research including teenage males (Bank et al., 2004). It emphasizes the potential of sibling relationships as a source of resilience, even though the majority of the study to date has been on boys. More research into the important variables driving these correlations would improve the findings' clinical

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usefulness. For example, younger children who spend more time with their siblings may benefit more from a healthy sibling relationship (Volling, 2003).

2.15 Potential Mechanisms Linking Sibling Relationships

Although sibling interactions play a distinctive and significant role in the emergence and persistence of internalizing and externalizing symptoms, the underlying reasons for these associations remain relatively unexplored. Identifying the mechanisms that connect sibling experiences to psychological adjustment enhances our theoretical comprehension of this relationship and establishes a basis for devising focused interventions to address problematic family dynamics.

2.15.1 Behavioural modelling

Sibling interactions have the potential to influence children's behavior. Patterson's (1982) groundbreaking research on sibling conflict demonstrated that coercive cycles between siblings act as a training ground for aggression, as children emulate and reinforce each other's undesirable behavior. The behavioral changes resulting from these hostile interactions directly contribute to both externalizing behaviors (e.g., aggression) and internalizing behaviors (e.g., withdrawal) (Compton et al., 2003). Bullock and Dishion (2002) propose that as negative behaviors escalate, siblings may form a bond based on deviancy, leading to increased warmth and intimacy between them. Paradoxically, these positive features may then contribute to the development of undesirable behaviors.

Longitudinal studies have confirmed that the externalizing behavior of older adolescent siblings poses a risk for similar behavior in their younger siblings, regardless of dyadic gender combinations (Buist, 2010; Compton et al., 2003; Defoe et al., 2013). Importantly, these associations are attributed to relationship effects rather

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than genetic factors (Rende, Slomkowski, Lloyd-Richardson, & Niaura, 2005; Slomkowski, Rende, Novak, Lloyd-Richardson, & Niaura, 2005). The process of behavioral modeling, where the older sibling influences the younger, is more likely to occur in warm sibling relationships (Whiteman, McHale, & Crouter, 2007). For instance, Criss and Shaw (2005) found that greater sibling warmth predicted increased antisocial behavior and increased affiliation with antisocial peers among lower-income boys. However, the impact of this pattern may vary based on gender. Solmeyer et al. (2014) observed that sibling intimacy was associated with greater risky behavior only among brother–brother pairs. Similarly, Slomkowski, Rende, Conger, Simons, and Conger (2001) showed that the older brother's delinquent behavior predicted the younger brother's behavior when the relationship was high in both hostility and warmth. In contrast, the younger sister's delinquent behavior was predicted by the older sister's delinquency when the relationship was characterized by high conflict and low warmth. Early conflictual relationships may be a contributing factor to the development of externalizing behaviour, especially for brothers. They might band together and commit crimes as they get older, which would make them more affectionate and intimate during adolescence (Bullock & Dishion, 2002). Targeted interventions at the right stages require a more detailed knowledge of the developmental sequence that links sibling interactions to externalizing behaviour.

Given the evidence of peer-to-peer contagion for anxiety and depression, researchers should examine whether sibling modelling extends to internalizing symptoms after accounting for genetic effects (Schwartz-Mette & Rose, 2012; Van Zalk et al. 2011). According to Rose et al. (2007), co-rumination—the excessive sharing of interpersonal issues and unpleasant emotions has also been connected to high-quality friendships, but it is also linked to increased internalizing symptoms. According to

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Tucker and Winzeler (2007), this dynamic may appear amongst close siblings who talk extensively about personal parts of their life. In general, since beneficial connections may require adjustment trade-offs, it is imperative to investigate the mechanisms causing and resulting from warm sibling relationships.

2.15.2 Emotion

Sibling experiences are likely linked to psychological adjustment through emotion regulation, a factor implicated in both internalizing and externalizing disorders (Cole & Deater-Deckard, 2009). Family connections, especially those with siblings, are essential for children to develop emotion-regulation techniques, even though a lot of research has concentrated on parent-child relationships and inter-parental dynamics (such as marital discord) (Morris et al., 2007). Siblings may help one another effectively manage negative affect, and younger siblings may imitate their older siblings' emotion-regulation techniques. Additionally, the overall affective climate within the family contributes to emotion regulation; in environments characterized by pronounced negative emotionality, children may become highly emotionally reactive (Morris et al., 2007). The intense fighting that can occur between siblings may amplify the negative emotion expressed in the home. In fact, parents often identify sibling conflict as the most problematic dynamic in the family (Feinberg et al., 2012).

Frequent exposure to intense negative affect also shapes children's understanding of emotion, which has consequences for their wellbeing. For example, physically abused children are biased towards attributing anger to others (Pollak, Cicchetti, Hornung, & Reed, 2000), and are quicker than non-abused children to identify facial expressions of anger, but slower to detect sadness (Pollak & Sinha, 2002). These studies focused on children experiencing extreme parental anger and aggression, but sibling

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aggression is the most common form of family violence (Straus et al., 1980). Repeated sibling victimization may impact emotional understanding.

2.15.3 Social cognition

Social-cognitive biases may also be shaped by sibling interactions, which could exacerbate socioemotional misery. The process of going from being exposed to a social stimulus to executing a behavioural reaction involves a number of cognitive processes, according to the social information-processing (SIP) model put forth by Crick and Dodge in 1994. Both internalizing and externalizing symptoms are linked to distortions in these processes, such as a tendency to interpret other people's acts as hostile (Crick & Dodge, 1994). Children's SIP is shaped in part by their interpersonal experiences; for example, being rejected by peers is associated with a greater propensity to interpret other people's actions as hostile, a decreased capacity to come up with constructive solutions in social situations (Dodge et al., 2003), and more negative expectations of peers (Salmivalli & Isaacs, 2005).

Considering the significant amount of time siblings spend together and the emotionally charged nature of their interactions, it appears plausible that this relationship could contribute to biases in social information processing (SIP). However, to our knowledge, only one study has investigated this hypothesis. The study by Recchia, Rajput, and Peccia (in press) uncovered a correlation between the affective aspects of sibling interactions and children's inclination to attribute hostile intent to their siblings, suggesting a connection between the behavioral histories of siblings and their interpretive processing. Furthermore, the SIP patterns observed with siblings were distinct from those seen in interactions with peers, indicating relationship-specific processes. Additional research is necessary to clarify the causal

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mechanisms behind these associations and to explore the links between sibling interactions and other stages of the SIP model.

2.15.4 Morality

Few studies have examined this topic in regard to sibling relationships, despite theorists' claims that social interactions with other kids are essential to moral development (Piaget, 1932; Sullivan, 1953). For example, considering the hostility often present in some sibling conflicts, it raises the question of whether these incidents could influence children's moral concepts. Findings from studies involving community samples suggest that, under typical circumstances, such conflicts may not have a significant impact. Children frequently express regret afterward and believe that their actions were wrong, even when they occasionally participate in harmful behaviours that show a lack of regard for their siblings (Recchia et al., 2013).

These tendencies, however, might not apply to households characterized by recurrent cycles of animosity and conflict. In particular, youngsters are more likely to consider retribution as a legitimate response to provocation in households where interactions are marked by anger and violence. Additionally, children's violent behaviour is associated with their perceptions of the legitimacy of retaliation (Guerra, Huesmann, & Spindler, 2003). In conclusion, young people may use their moral notions erroneously, justifying retaliatory aggression (Wainryb & Recchia, 2013), which increases externalizing problems, when they believe that their social interactions are coercive rather than loving.

2.16 Social Learning Mechanisms of Sibling Influence

An earlier iteration of Social Cognitive Theory (e.g., Bandura, 1986) was proposed by Bandura in 1969 as Social Learning Theory. Despite subsequent additions and

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modifications to Social Cognitive Theory that place a greater emphasis on human agency (e.g., Bandura, 2001), the fundamental concepts of Social Learning Theory have been applied in sibling research (e.g., Whiteman et al., 2007a, 2010). The research will use "social learning" and "modelling" interchangeably in place of "social cognitive," in order to adhere to the terminology often used in this field.

The Social Learning Theory states that people can pick up particular actions by seeing other people do them. Many scholars have used social learning processes in hindsight to explain why siblings frequently share traits in areas like as risky conduct, psychological adjustment, and academic achievement (e.g., Bouchey et al., 2010; Craine et al., 2009; Kim et al., 2007). Furthermore, several researchers have looked directly into the relationship between similar behavioural outcomes and self-reported sibling influence (e.g., Whiteman & Christiansen, 2008; Whiteman et al., 2010). It is assumed that younger siblings replicate comparable behaviours and results because they view older siblings as role models with whom they can identify. Bandura (1969) found that four important factors nurturance, vicarious reinforcement, status, and similarity influence whether a behaviour would be copied. As explained below, these factors have been investigated to differing degrees in regard to sibling relationships.

2.16.1 Nurturance

People are more likely to emulate and identify with someone who exhibits warmth and nurturing, according to the Social Learning Theory (Bandura, 1969). The reason for this propensity is that warm models tend to spend more time with people, which exposes them to more acts that they could copy. Additionally, as the imitator imitates the model's actions, the model's affection and care toward the imitator likely grows, giving the imitator a positive experience. Accordingly, a brother who is more

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nurturing is more likely to serve as an example than one who is not. Sibling dynamics researchers have examined sibling nurturance in terms of a close and loving bond, as well as the elements of support and quality time spent together.

2.16.2 Warmth and intimacy

Nurturance is often measured in terms of a warm, loving, and pleasant sibling connection in research on sibling impact. The correlation between warmth and closeness and the resemblance between siblings is well-supported by data. Data from 720 same-gender sibling pairs (with mean ages of 14.5 and 12.9 for older and younger siblings, respectively) were examined by Feinberg and Hetherington (2000). They looked at the relationships between the siblings' psychosocial adjustment and their positivity (such as empathy, proximity, and adaptive problem-solving) and negativity (such as aggression, rivalry, and coercion). In addition to answering questions about the positive and negative aspects of their relationship, siblings also self-reported on psychosocial adjustment indicators (such as depressive symptoms, sociability, autonomy, and self-worth). In line with the tenets of Social Learning Theory, the results showed a consistent pattern in which siblings with high levels of positivity showed stronger correlations on each psychosocial adjustment measure than siblings with low positivity (correlations ranging from.12 to.68 versus.07 to.55, respectively).

As said, Whiteman et al. (2007a, 2007b; Whiteman & Christiansen, 2008) investigated the connection between sibling influence reports and the similarity in siblings' outcomes using a social learning framework. The same longitudinal study, which collected data from 191 middle-class, primarily white households, served as the basis for the three publications they presented. Data for the papers were collected between Years 6 and 7 of the longitudinal study, and the participants were firstborn

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and second born siblings (the mean age of the firstborns was 16.39 in Year 6 and the mean age of the Sandborns was 13.78 in Year 6). The sibling connection was evaluated in a number of ways. In each pair, both siblings reported how much time they spent with one another and on various activities. Additionally, they filled out self-report questionnaires about hazardous behaviour, socioemotional functioning, and sibling intimacy. Sibling influence measures included (a) Sandborns' ratings of how often they tried to be like or different from their sibling and how often they competed in sports, the arts, school, and conduct behaviours (Whiteman et al., 2007a); (b) Sandborns' ratings of how much their sibling sets an example and involves them in activities (Whiteman et al., 2007b); and (c) response from firstborns and secondborns to open-ended questions regarding their sibling's influence on them (Whiteman & Christiansen, 2008).

Groups of siblings were categorized using several methods. Using a sibling influence scale, Whiteman and colleagues (2007b) generated sum scores while concentrating solely on social learning processes. Three patterns of sibling influence were identified by Whiteman and colleagues (2007a) using cluster analysis, as was mentioned in a prior discussion: modelling, differentiation, and non-referent. Lastly, depending on how siblings perceived influence, four patterns were identified by Whiteman and Christiansen (2008): modelling, differentiation, both modelling and differentiation, and no influence. Results pertaining to sibling intimacy were consistent across these multiple analyses. Sibling intimacy and reports of social learning had a substantial correlation (r =.62; Whiteman et al., 2007b). Sibling intimacy was higher in the modelling group than in other groups in analyses that included sibling influence groups (Whiteman et al., 2007a; Whiteman & Christiansen, 2008). When comparing

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the modelling group to the differentiation group or the group exhibiting both modelling and differentiation, this effect was most noticeable (d =.48 -.54).

Research by Whiteman and colleagues (2010) that included 166 African American families replicated the findings about sibling effect. In this study, two sequentially born children from each family (the younger siblings' mean age was 12.59 and the older siblings' mean age was 16.29) reported how much time they spent with their sibling. They also filled out self-report questionnaires about risky behaviours, attitudes toward academics, attitudes toward substance use, social competence, and sibling positivity and negativity. An 18-item sibling impact measure was also completed by younger siblings, as previously indicated, and items were categorized using factor analysis into either a social learning or a differentiation subscale. The results showed positive correlations (B =.52) between social learning scores and sibling positivity and negative correlations (B = -.42) with sibling negativity, which is in accordance with social learning theory and previous analyses by Whiteman and colleagues (2007a, 2007b; Whiteman & Christiansen, 2008).

All of these studies show a consistent pattern: siblings who have more positive or close relationships report more influence through sibling modelling (Whiteman et al., 2007a, 2007b, 2010; Whiteman & Christiansen, 2010) and show greater similarity in psychosocial adjustment levels (Feinberg & Hetherington, 2000).

2.16.3 Social and domain-specific support

Assessments of sibling warmth and closeness sometimes contain items related to sibling support, such as questions about requesting a sibling for help or advice (e.g., "How much do you go to your brother/sister for advice/support?" - Whiteman et al., 2007a). These items measure either general social support or support in specific

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domains (e.g., academic support). However, in many studies, researchers often fail to distinguish between sibling intimacy and sibling support. Therefore, it is currently unknown if sibling support—aside from sibling closeness—is linked to social learning processes. Other study, however, suggests that domain-specific sibling support may not be the same as sibling warmth and connection.

Alfaro and Umaña-Taylor (2010), for example, studied 258 Latino teenagers, as was previously mentioned. They found that gender had an impact on the link between academic motivation, sibling warmth, and perceived academic assistance from siblings. For girls, sibling support but only when there was a warm sibling relationship predicted academic motivation, while sibling warmth predicted academic aid. For boys, sibling warmth predicted academic help from siblings, whereas sibling support predicted academic drive. Boys' academic motivation and their siblings' sociability, however, did not correlate. This study raises the hypothesis that warmth, or intimacy, and support are two different concepts. However, since sibling support and closeness were assessed for all siblings rather than for particular sibling dyads, it is crucial to remember that this study does not provide significant evidence in Favor of this theory.

Research that has particularly looked at the support of one sibling within a specific sibling pair has yielded conflicting findings about how elder sibling support affects younger siblings' academic performance. Milevsky and Levitt (2005), for example, found that the impact of elder sibling support depended on gender, meaning that boys who received support from older siblings were more likely to achieve academically than girls. Bouchey and colleagues (2010), on the other hand, found a primary negative effect of older siblings' support on younger siblings' academic attainment

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rather than a moderating influence of gender. These divergent findings underscore the necessity for further research into the role of older sibling support in shaping the academic output of younger siblings.

In fact, according to Dunkel-Schetter et al. (1987), social support is thought to include four dimensions: emotional, instrumental aid, environmental information, and self-evaluation. Each of these dimensions may have different origins and result in different outcomes. Malecki and Demaray (2003) investigated the potential differences in the effects of several types of social support from parents, teachers, and close friends on the academic achievement of 263 students in Grades 5 through 8. The Child and Adolescent Social Support Scale was employed to measure the four types of support: emotional (e.g., “My parents understand me”), informational (e.g., “My classmates give me ideas when I don’t know what to do”), appraisal (e.g., “My close friend nicely tells me the truth about how I do on things”), and instrumental support (e.g., “My teacher spends time with me when I need help”). The results indicated that emotional support from teachers was predictive of students’ academic competence. However, no differential influence was observed among the types of support from parents, classmates, and close friends on students’ academic outcomes. While this study did not measure support from older siblings, it suggests the possibility that various facets of support from specific individuals may have diverse effects on student outcomes.

Unlike the previous study, Ali, Martens, Button, and Larma (2011) took a direct way to investigate if sibling support was one or multiple factors. A factor analysis on a measure measuring support for postsecondary plans (e.g., attending college or getting a job) was conducted with 316 high school students. A number of support factors,

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including participation, encouragement, and sharing of resource information, were assessed after these students completed a range of support measures from many sources (including their mother, father, sibling, and community). The results demonstrated that, in contrast to their initial hypothesis, each scale had only one factor of support.

It is important to note that these results are different from those of Malecki and Demaray (2003), who proposed that different facets of teacher support had different effects on students' academic performance. However, it is difficult to extrapolate broad implications from the two research' respective findings due to methodological differences. Malecki and Demaray (2003) used academic accomplishment as an outcome, did not examine assistance from siblings, and proposed the different nature of the four categories of support based on theory. Ali and colleagues (2011), on the other hand, gathered information on support from older siblings, concentrated on support for post-secondary ambitions rather than academic accomplishment, and utilized a factor analysis to directly assess the emergence of different dimensions of social support.

In conclusion, the conflicting results about how sibling support affects academic performance and whether there are different kinds of support for academic success highlight the need for more study in this field to shed light on these matters.

2.16.3.1 Temporal involvement

Because a more nurturing model is assumed to spend most time with an individual, indicating a higher level of temporal interaction between them, a basic tenet of social learning theory holds that nurturing influences modelling. Sibling relationships are based on the assumption that siblings who have a closer and more intimate bond are

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more inclined to spend more time together. As a result, their common pursuits might offer more chances for social learning. Even though time involvement in sibling influence is important, not much study has been done on the subject, and what has been done so far has produced conflicting findings.

For example, Whiteman and colleagues (2007b) found a positive association (r =.30) between reports of social learning and temporal involvement in one analysis of their longitudinal research data. Siblings in the modelling group and those in the differentiation group did not differ in their temporal involvement, according to a separate analysis (2007a). Whiteman and colleagues (2010) similarly reported this null finding in follow-up research. When measured over a certain time period (e.g., weeks or months rather than days), temporal engagement may have a major impact on modelling. Alternatively, temporal involvement may be correlated with modeling within a given group, but there may be no discernible group differences in temporal involvement. Therefore, additional research is essential to elucidate the role of temporal involvement in sibling influence processes.

Overall, research on nurturance supports the social learning theory, showing that teenagers who are affectionate toward their siblings and cultivate a close bond with them are more likely to have an impact in a variety of areas.

2.16.3.2 Vicarious reinforcement and power status

Vicarious reinforcement, which refers to people's propensity to emulate acts that have been rewarded vicariously through their observed models, is another aspect of social learning theory (Bandura, 1969). To put it another way, people are more likely to imitate a behaviour when they see a model receiving praise for its actions. Both positive and negative behaviours are affected by these phenomena. In the context of

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sibling relationships, for example, if one sibling uses aggression to accomplish goals and is rewarded for it, other siblings could be more likely to use aggression as well. On the other hand, siblings may be more inclined to emulate their parents' conscientious study habits if they receive praise for them. Moreover, a model's success, fame, or prestige can all act as a kind of vicarious reinforcement in and of itself. According to the Social Learning Theory, people are therefore more likely to copy high-status role models, presumably in the hopes that doing so will produce equally positive results.

Vicarious reinforcement in the context of status has been the main focus of sibling influence research, with a specific emphasis on the higher status that older siblings are ascribed due to their birth order. Numerous studies indicate that older siblings have a greater impact on their younger siblings than the other way around. Firstborn and second born siblings were asked about the influence they felt from their siblings in a study conducted by Whiteman and Christiansen (2008). The replies were divided into four influence groups: modelling only, differentiation solely, both modelling and differentiation, and no influence. The findings showed that a sizable majority of firstborns were classified as having no influence, whilst just a small percentage of secondborns were in the same category (59% versus 36%, respectively).

Additionally, a 3-year longitudinal study on control patterns in adolescent sibling dyads was carried out by Tucker et al. (2010). The firstborn and second born siblings' mean ages were 14.94 and 12.43, respectively. In contrast to equal (22%) or second-born-dominant (11%) patterns, the majority of dyads (67%) reported a firstborn-dominant pattern of control, according to their findings. Crucially, this pattern held true over the whole three-year study period.

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In a study by Wong and colleagues (2010), 498 Dutch sibling pairs were examined over a three-year period; the elder siblings' mean ages were 16.78 and the younger siblings were 14.43. By examining current commitments (such as discussing school and work with others and investigating new aspects of school and work) and commitment to school and work (such as investment in and satisfaction with school and employment), the study assessed identity development. The researchers used a variety of path analyses and discovered minor but significant effects (ranging from.13 to.27), indicating that older siblings, particularly when they were of the same gender, had a higher long-term influence on the identity formation of younger siblings than did younger siblings. When taken as a whole, these studies suggest that influence tends to flow more downward from older to younger siblings than upward from younger to older siblings.

One additional way to look at status is to measure how someone perceives the model, specifically how the younger sibling views the older sibling. Only two studies, however, have looked into this topic (Bouchey et al., 2010; Widmer & Weiss, 2000), and as was already said, the results are not as clear-cut as those pertaining to birth order.

A favourable younger sibling perception of their elder sibling was linked to better psychological and academic results for the younger sibling in the 148-sibling pair study by Widmer and Weiss (2000). But only when the older sibling offered support did this positive link appear (β =.41 - 1.18 for the interaction term). However, Bouchey and colleagues looked at how younger adolescent siblings' perceptions of their elder sibling's academic performance affected academic adjustment and found no discernible effects.

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It is difficult to make firm conclusions because of these disparities in results, the lack of metrics pertaining to social learning processes, and the similarity in sibling outcomes. However, the findings of Widmer and Weiss (2000) imply that a key component of the sibling bond may be the younger siblings' perception of their elder sibling.

People are typically more likely to identify with models who are similar to them in the setting of social learning. However, Bandura (1969) asserts that modelling is not always a direct result of similarity alone. Rather, he suggested that modelling is more likely to occur when people have a history of having comparable or equivalent results in addition to sharing commonalities. To put it another way, modelling is more likely to occur when a certain model's behaviour has previously produced the same results for both the model and the human.

The idea of resemblance, one of the factors proposed to aid in modelling, poses a problem in the analysis of sibling relationships since it may be present in both the predictor and outcome variables. However, sibling influence researchers have operationalized resemblance as a predictor variable, which is frequently characterized by a same-gender constellation and closer age spacing. They hope to resolve the measurement issue related to the dual nature of similarity by using this method. The majority of research, such as that done by Whiteman and associates (2007a, 2007b, 2010; Whiteman & Christiansen, 2008), has not discovered strong proof that age spacing or gender constellation directly affects self-reported sibling influence processes.

It is possible that gender constellation moderates the association between other features of the sibling relationship and adolescent results, even though age spacing

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and gender constellation may not directly affect sibling outcomes. For example, as previously mentioned, Bouchey and colleagues (2010) found that only in mixed-gender dyads did elder sibling support indicate a deterioration in younger sibling academic adjustment. Furthermore, it was discovered that only in same-gender dyads did a favourable older sibling image predict an increase in GPA. In a similar vein, Milevsky and Levitt (2005) found differences in the results linked to brotherly versus sisterly support. Gender constellation thus becomes an important feature of sibling dyads that should be taken into account in sibling research.

In conclusion, the Social Learning Theory describes certain processes that clarify how siblings might affect one another. The study that examines some of these sibling impact processes in relation to academic outcomes is reviewed in the section that follows.

2.17 Sibling Relationships and Students' Psychosocial Outcomes

Sibling relationships have a significant impact on how teenagers behave and how their psychological health is affected. Buist et al. (2014) found that adolescents who had sibling relationships that were marked by conflict reported higher levels of internalizing and externalizing problems, as well as lower academic and social competence and diminished global self-esteem. The study involved 1,670 Dutch children from 51 different schools. According to the study's findings, sibling disputes negatively affect teenage growth.

Despite popular belief, not all sibling disputes result in detrimental effects during puberty. According to Kramer (2010), both constructive contacts and disagreement are necessary for the development of many talents. As a result, he makes the argument

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that eradicating sibling disputes entirely might not be a reasonable or suitable objective for the teenage developmental process.

Furthermore, less than 20 years ago, Brody (1998) reviewed the literature on the factors that influence the quality of sibling relationships. According to the review's findings, sibling relationships that balance pro-social and conflictual interactions produce experiences that are most likely to support the social and cognitive development of teenagers.

Researchers and the general public are now fascinated by the similarities and differences between siblings. Despite having the same family history and comparatively similar parental influences, siblings frequently exhibit notable differences from one another (e.g., Dunn & Plomin, 1991; Schachter et al., 1978; Sulloway, 1996). However, it is important to remember that other researches have also highlighted the positive correlations seen in the outcomes of siblings, especially in areas like academic achievement (e.g., Feinberg & Hetherington, 2000; Whiteman et al., 2009).

Numerous studies have looked into the relationships between siblings and their academic success. Lewin, Hops, Davis, and Dishion (1993) sought to address the shortcomings of previous research that mostly entailed watching siblings interact with one another by measuring each sibling's behaviour separately. They gathered teacher evaluations for 45 sibling pairs in Grades 2–5 in a variety of areas, including reading proficiency, math proficiency, and school adjustment. Correlations between the individual evaluations and the academic skills category were computed after these ratings were combined into a more general category known as "academic skills." The results revealed substantial correlations for both individual academic competence

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ratings and the broader academic skills category (r = .60 - .65). Furthermore, it was discovered that 51% of the variation in the younger sibling's academic abilities could be explained by the elder sibling's academic abilities. Despite focusing on school-age children rather than teenagers, this study provided a significant contribution by showing that siblings' academic outcomes were significantly similar, even when each sibling was evaluated separately.

Widmer and Weiss (2000) expanded on the research of Lewin and associates (1993) by examining 148 pairs of teenage siblings. The younger sibling was 12.1 years old, and the older sibling was 15.3 years old. School performance was assessed using a range of indicators (e.g., number of Ds and Fs, grade retention, enrolment in advanced classes), while school involvement was investigated in terms of sentiments of participation with school (e.g., like school, think grades significant). The results indicated that there was no correlation between academic achievement and school involvement, although there was a modest but statistically significant association between the academic performance of older and younger siblings (r =.21). It is significant to note that this link was weaker than the findings of Lewis and colleagues (1993). This could be explained by other factors that have a stronger impact on adolescents' academic performance, such as peer pressure, extracurricular activities, and more challenging coursework.

A number of ideas, such as behaviour genetics (e.g., Feinberg & Hetherington, 2000) and shared parenting (e.g., Lewin et al., 1993), have been proposed to explain the positive association in academic accomplishment between siblings. These theories' inability to identify the fundamental mechanisms driving sibling similarity is a major

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drawback, too. As a result, a lot of research using these theories has only used them in the past to explain apparent sibling similarities.

On the other hand, social learning theory also referred to as modelling (Bandura, 1969)—stands out as a theory that suggests certain mechanisms that might result in similarities. Although certain sibling similarities have been explained by this idea in the past (e.g., McHale et al., 2009), Whiteman and colleagues' recent study (2007a, 2007b, 2008, 2010) has tried to test these processes explicitly and link them to sibling similarities. Two of these studies, which are covered below, look at the relationship between the similarity in academic performance between younger and older siblings and the modelling impacts that younger siblings report having. In their first investigation, Whiteman,

Younger siblings (average age 13.78 years) from 171 homes were asked by McHale and Crouter (2007a) to rate the frequency of competition between them in different domains and the frequency with which they tried to imitate or diverge from their older siblings. Based on response patterns, three groups were created using cluster analysis: a modelling group (high on both trying to be like and competing with the sibling, with an average on trying to be different from the sibling), a differentiation group (high on trying to be different from and low on both trying to be like and competing with the sibling), and a non-referent group (low on all three ratings). Both older and younger siblings' grades in language arts, math, science, and social studies were collected, and correlations between the grades of each group were computed independently. Significant small to moderate correlations (r =.18 -.36) were found in both the modelling and non-referent groups, suggesting that at least some adolescent sibling pairs had a considerable degree of academic similarity.

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In a subsequent study, Whiteman, Bernard, and McHale (2010) expanded on similar findings by including African-American siblings. The authors postulated that because African-American populations emphasize caring for older siblings and often have more siblings per home, sibling impact may be greater in African-American dyads. 166 African-American younger siblings (average age of 12.59 years) who took a sibling influence exam provided subscale scores that represented attempts to be distinct from or similar to their older brother (differentiation and social learning scores, respectively). Both siblings were asked to rate their commitment to learning (such as their desire to do well in school) and school bonding (such as how close they felt to other students at school), and the difference scores for these outcomes were calculated for each sibling pair. Partial correlations between these difference scores and each of the sibling influence subscale scores (social learning and differentiation) were then computed independently. The findings showed that social learning scores had a little negative connection with commitment to learning differences and school bonding ($r = -.23$ to $-.14$). In essence, lesser gaps between younger siblings' commitment to learning behaviours and school bonding were associated with younger siblings' claims of trying to imitate their older brother.

All things considered, these studies show that teenage siblings' academic performance and behaviours are somewhat to quite similar. There are notable similarities in academic performance between siblings, according to studies by Lewin and colleagues (1993) and Widmer and Weiss (2000). Whiteman and colleagues' work (2007a, 2010) offers more information about the social learning processes that underlie these similarities. Additionally, the study by Whiteman and associates emphasizes how social learning theory may be used to clarify the processes

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underlying sibling influence. This hypothesis is thoroughly explained in the following sections, along with the particular methods of influence that are suggested.

2.18 Summary of Review of Literature

The review of literature delved into the theoretical foundations of birth order, sibling relationships, and student adjustment, providing a detailed exploration of their interconnectedness. In a follow-up study, Whiteman, Bernard, and McHale (2010) added African-American siblings to these findings. According to the authors' hypothesis, sibling impact may be stronger in African-American dyads since African-American communities tend to have more siblings per household and prioritize providing care for elder siblings. A sibling impact test was completed by 166 African-American younger siblings, with an average age of 12.59 years. The results showed subscale scores that reflected attempts to be distinct from or similar to their older sibling (social learning scores and differentiation scores, respectively).

One important aspect impacting and redefining relationship dynamics and behavioural norms was highlighted as the changing nature of families, particularly in nuclear family contexts. The study emphasized the influence of variables on adolescents' social and emotional adjustment, including gender, the number and birth order of siblings, and economic well-being. The discussion of particular characteristics linked to teenagers who are firstborn, later-born, and last-born illuminated possible sources of influence and conflict in sibling relationships.

Parental treatment of individual children emerged as a crucial factor influencing sibling relationships, with fairness in treatment fostering more affectionate and supportive interactions among siblings. The intricate nature of sibling relationships, encompassing hate and love, support and competition, envy and admiration, was

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acknowledged as a significant aspect of children's social worlds. The review also recognized the developmental shifts in sibling relationships during adolescence, ranging from conflictual interactions during early-to-middle adolescence to more supportive, warm, assertive, and democratic relationships in late adolescence.

Conflictual sibling relationships' possible negative effects were examined, and they were connected to emotional issues, dangerous behaviours, low self-esteem, and subpar social and academic performance in school. Nonetheless, the review recognized differing viewpoints that suggested verbal interactions and sibling disputes could improve resilience and developmental abilities.

A noteworthy limitation highlighted in the review was the lack of representation of Ghanaian adolescents in the existing studies, which were predominantly of European or American origin. This gap underscored the need for further research on adolescent-sibling relationships in Ghana to provide insights into the psychological stability of Ghanaian students. The upcoming chapter was set to outline the research methodology.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter explains considerations regarding methodology and theoretical frameworks that underlie the study. It initiates by delineating the ontological and epistemological stance embraced for acquiring knowledge on the subject: birth order, sibling relationships, and school adjustment. The rationale for opting for a mixed methods research approach, along with the selection of instrumentation within a quantitative and qualitative survey design, is explicated. Subsequently, the chapter addresses the study participants and ethical considerations, delving into data collection, which encompasses sampling procedures and determining the sample size. The procedures for data collection, instrumentation, survey administration, statistical data analysis, and the process of recording, coding, and constructing themes from the interview data are also detailed.

3.2 Research Paradigm (Philosophical Underpinning)

The pragmatic paradigm is supported by this study. The term "paradigm" in social research refers to the philosophical presumptions or core beliefs that direct the researcher's conduct and influence their worldview (Lincoln et al., 2011). It represents the system of beliefs and assumptions that the researcher holds regarding the development of knowledge. Among the five research philosophies are Positivism, Critical Realism, Interpretivism, Post Modernism, and Pragmatism. The philosophy chosen for this thesis is Pragmatism, and the rationale for this choice was elaborated in the upcoming sections.

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Coined by Kuhn (1970), the term “paradigm” is employed to denote the collective generalizations, beliefs, and values shared within a community of specialists about the nature of knowledge and reality. "A way of thinking about and making sense of the complexities of the real world" (Patton, 2002, p. 69) is the definition of "worldview," which is equivalent with paradigm (Creswell & Clark, 2011; Lincoln, 1990; Patton, 2002; Rossman & Rallis, 2003). In social research, paradigms are conceptual and practical instruments that are employed to tackle certain study issues; they are essentially heuristics (Abbott, 2004). A unique viewpoint on axiology, ontology, epistemology, methodology, and rhetoric in research is provided by each paradigm. Ontology deals with presumptions about the nature of reality; epistemology deals with presumptions about how humans understand the world, obtain knowledge, and the association between the knower as well as the known; axiology deals with ideas about the role morality in research; Rhetoric denotes common understandings of the language of study, while methodology deals with common understandings of the most effective ways to learn about the world (Creswell, 2009; Lincoln et al., 2011).

The philosophical contributions of pragmatism provide the conceptual underpinnings of pragmatics, a research paradigm that encompasses a range of approaches (Maxcy, 2003). Based on the idea that researchers should employ the philosophical and/or methodological approach that is most effective for the specific research problem at hand, pragmatics is commonly linked to mixed methods or multiple methods (Biesta, 2010; Creswell & Clark, 2011) (Tashakkori & Teddlie, 1998). Because it focuses more on the research topics and their implications than it does on rigorous adherence to certain procedures, this paradigm permits both formal and informal discourse (Creswell & Clark, 2011).

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As a framework for inquiry, pragmatism stays clear of controversial philosophical ideas like reality and truth. Rather, it recognizes that there may be one or more realities that can be investigated empirically (Creswell & Clark, 2011). (Goles & Hirschheim, 2000; Morgan, 2014; Tashakkori & Teddlie, 2008) Pragmatist researchers accept that there is an objective reality outside of human experience, but they believe that this reality is based in the environment and can only be understood through human experience. The claim that socially created beliefs and habits shape reality and knowledge is a cornerstone of pragmatic philosophy (Yefimov, 2004). Most knowledge in our world is socially produced, according to pragmatics, however some forms of this social construction are more in line with people's experiences than others (Morgan, 2014). Thus, the pragmatist paradigm serves as the foundation for the researcher's position on reality and knowledge in this study.

3.3 Pragmatism Philosophical Justification

Pragmatism enables Individual researchers have a freedom of choice. In this way, researchers are at liberty to select the methods, techniques, and procedures of research that best meet their needs and purposes (Creswell and Creswell, 2023). The pragmatic theory of truth serves as the foundation for pragmatics, which is essentially concerned with the concept of "what works." Instead of depending on presumptions about the nature of knowledge, it places a strong emphasis on solving real-world, practical problems (Creswell, 2014; Hall, 2013; Shannon-Baker, 2016). Consequently, action-oriented research methods are guided by pragmatism (Cameron, 2011).

Embracing a pragmatist approach facilitated the formulation of research objectives by initially exploring students' interests and understanding the perceived benefits of the research. This approach involved a thorough examination of both theoretical and grey

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literature to identify knowledge gaps relevant to the study, thereby informing and refining the research objectives. In essence, pragmatism played a great role in dissecting the research problem and pinpointing elements deemed most valuable by the respondents.

Pragmatism played an important role in refining the research problems under examination. Initially, an exploration of the topic revealed distinctions among birth order, sibling relationships, and school adjustment. Furthermore, pragmatism guided the study towards making appropriate methodological choices by unpacking various aspects of the research problem during the design phase. By embracing pragmatism, the study sought methodologies that extended beyond quantitative experiences to capture the lived experiences of students. It highlighted the importance of engaging deeply with students, acknowledging the often subtle, informal, and everyday evaluative practices that occurred without due recognition (Kelly, 2019c). This recognition prompted the inclusion of a qualitative approach, employing interviews to complement the quantitative approach. The integration of diverse methods provided a framework to map, triangulate, and sequence the research problem across various study contexts.

Mixed-methods researchers must explicitly articulate their philosophical or paradigmatic stances to justify their methodological choices (Cameron, 2011). Recognizing this imperative, the researcher formulates the ontological, epistemological, and axiological stances for pragmatism in a manner that integrates both the quantitative and qualitative paradigms' perspectives as two complementary, non-conflicting philosophies.

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3.3.1 Ontology, Epistemology and Axiology

It is first of all essential to understand the assumptions typically used by scholars when investigating which research philosophy to adopt. These assumptions are: ontological, epistemological, and axiological.

Ontology pertains to the assumptions made about reality and how individuals may perceive the same reality differently (Saunders et al. (2016). The acknowledgment that each person experiences things differently introduces the concept of researcher bias, especially when the researcher is closely involved with the research subjects. This awareness influences a researcher's choice of philosophy and methodology. Our assumptions about the nature of reality, our ontology, not only shape our research approach but also guide our selection of research topics. Ontology raises questions such as: What is the nature of reality? (Creswell & Poth, 2018). What is the world like? Example include: What is it like being a student? Answers to these questions fall somewhere on the continuum between objectivism and subjectivism. In the area of this research, respondents are requested to rate their own feelings about the items used for assessment, which is highly subjective. People differ in how empowered they feel, but this difference is not important in this situation, as will be covered later in this section. A five-point Likert scale items were used to ask participants to score their emotions.

Epistemology involves the assumptions we make about knowledge and, consequently, how that knowledge is communicated to others (Burrell and Morgan, 2017). In psychology, various types of knowledge, such as numerical data, visual data, or text, are already utilized. The diversity in epistemologies provides researchers with choices which places a greater responsibility on the researcher to select the

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philosophy and approach that best aligns with the research task. Epistemology raises questions such as: How can we determine what we know? (Creswell & Poth, 2018). What is considered acceptable knowledge? And, critically: What defines good-quality data? What types of contributions to knowledge are possible? As mentioned, all the data collected in this study has been obtained through a combination of different methods, with students serving as participants.

Axiology refers to assumptions made regarding the role of ethics and values (Saunders et al. 2016; Creswell & Poth, 2018). Since human conduct is frequently seen to be guided by our personal ethics and beliefs, it is imperative that researchers understand how these elements affect their study and topic selection. The researcher used a number of research ethics and values in this study to guarantee the participants' anonymity, safety, and confidentiality. Nevertheless, it was deemed extremely important for participants to understand the expectations and how the collected data would be used. The researcher believes that providing reassurances regarding the ethical approach of the research would, at worst, be neutral and, at best, contribute to participants feeling more at ease, thus enhancing their enjoyment of participation and potentially gaining something personal from the experience.

3.4 Research Approach

A research design that combines both methodologies was developed as a result of the need to include both quantitative and qualitative viewpoints in studies. In a single study, mixed-method research focuses on gathering, evaluating, and interpreting both quantitative and qualitative data (Creswell, 2005; Tashakkori & Teddlie, 2003). This design's basic premise is that, when both viewpoints are combined, a more thorough understanding of research problems can be obtained than when either technique is

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used alone (Creswell, 2005; Tashakkori & Teddlie, 2003). It is possible to combine quantitative and qualitative data in one study that address the same or similar subject. This design has remained a strong option for social and health science research despite continuous discussions on its application (Creswell, 2003).

There are benefits and drawbacks to using a mixed-method research approach that should be carefully considered. The capacity to supplement quantitative data with qualitative analysis and vice versa is one noteworthy advantage (Frechtling, Sharp, & Westat, 1997). To clarify or improve their understanding of quantitative study findings, researchers can employ qualitative designs. The time commitment necessary to carry out a study that integrates both quantitative and qualitative data, however, is a major disadvantage of this strategy.

Combining two different research approaches is considered beneficial since it can provide thorough understandings of study phenomena that may not be possible with only qualitative or quantitative approaches. Examining complicated issues is made easier by a mixed-method which enables for the integration and synergy of many data sources (Poth & Munce, 2020). According to Shorten and Smith (2017), the application of Mixed Methods Research (MMR) entails deliberate data integration, which enables researchers to have a comprehensive understanding of their topic by looking at a phenomenon from a variety of angles and research lenses.

Through techniques like interviews, qualitative data adds dimension to the study question and enables the researcher to better comprehend the phenomenon through narratives. On the other hand, the study gained scope thanks to the quantitative method to data collecting, which made it possible to gather information from multiple participants on different facets of the phenomena.

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The idea that each form of research has complimentary elements led to the combination of qualitative and quantitative methodologies (Creswell and Creswell, 2023). By using both data sets to answer the same research issue, the conclusion's ramifications were expanded and certainty increased. Essentially, the combination of two approaches provided a variety of opposing or complementary viewpoints, leading to a more thorough understanding. This method was beneficial since it encouraged more introspection, improved understanding of the phenomenon, and opened the door for further research. Furthermore, the results of mixed-methods research help to create substantial theories by offering a comprehensive understanding of a phenomenon and further insights into its various components. Creswell & Creswell (2023) assert that the use of mixed techniques enables the researcher to incorporate philosophical presumptions and conceptions that guide the research process.

Certainly, the thoughtful integration of both methods facilitated the development of a thorough and holistic understanding of the research phenomenon (Lund, 2012). By using well-defined indicators, the quantitative approach made it possible to operationalize concepts, track trends and relationships, compare them, and use sizable, theoretically representative samples. The qualitative approach, on the other hand, was crucial in researching processes and changes because of its advantages in sensitivity to diverse interpretations, logical foundation, methodological flexibility, and in-depth examination of smaller samples.

This implies that the quantitative approach performs better in domains where the qualitative approach might be less effective, and vice versa. Stated differently, each approach is more appropriate for addressing particular kinds of inquiries. By combining the two approaches, it was possible to take advantage of each one's

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advantages while making up for its shortcomings. Consequently, it is sometimes recommended to combine quantitative and qualitative approaches in order to maximize their advantages, minimize their disadvantages, and produce a more accurate and nuanced result.

In order to validate the results from each separate method, the MMR strategy in this study additionally used data triangulation (Bergman, 2008). The researcher aimed to get convergence and/or divergence for a more legitimate comprehension of the study problem by directly contrasting the results of one approach (qualitative or quantitative) with those of another (quantitative or qualitative) (Plano Clark & Ivankova, 2016). To put it simply, gathering a variety of data types allowed for a better understanding of a phenomenon than could be obtained from a single method alone, leading to more reliable and true conclusions (Teddle & Tashakori, 2009). As a result, data triangulation improved the validity of conclusions drawn from each method and helped to provide a well-validated conclusion (Ventakesh et al., 2013).

n conclusion, the possibility that the current study would improve the efficacy and precision of its findings motivated the choice to combine the two approaches. This involved using the findings from one method (qualitative or quantitative) to guide or influence the use of the other method (qualitative or quantitative), in accordance with the methodology promoted by Plano Clark and Ivankova (2016) (p. 86). For example, the study sought to objectively evaluate relevant factors to comprehend the association between student adjustment, sibling support, and birth order. It then intended to use the quantitative findings to direct a qualitative investigation, possibly involving interviews, to examine the rationale behind the selection of particular

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elements as relevant. A mixed-methods design allowed for the gradual creation of a new approach based on the knowledge gained from the earlier approach.

3.5 Research Design

The Sequential Explanatory Design was used in this investigation. The Sequential Explanatory Design, according to Creswell and Creswell (2023), is a fundamental design in which the researcher performs quantitative research first, evaluates the findings, and then uses qualitative research to elaborate on the findings. For the overall design and implementation of the research, researchers must have a solid understanding of both quantitative and qualitative designs, as described by Creswell (2003). Only one mixed-method design—the Sequential Explanatory Design (Creswell, 2003)—uses qualitative data to thoroughly examine quantitative outcomes out of the roughly forty different designs that have been documented in the literature (Tashakkori & Teddlie, 2003).

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of the quantitative analysis, this study employed qualitative data collecting, which was integrated throughout the interpretation stage.

The researcher aimed to clarify the association between the two themes birth order and sibling relationships and senior high school students' school adjustment during the quantitative phase. The qualitative approach complemented this exploration by adding depth to the existing understanding of these themes, offering contextual details, and expanding the scope of knowledge and comprehension. In order to accomplish this, interview questions were created after quantitative data was gathered and analyzed with the goal of elaborating on any patterns that were found. Although there aren't many research that use a mixed-method approach to look into senior high school students' sibling relationships and birth order, the current study did so in order to shed light on the variables affecting kids' adjustment to school.

As was previously said, in order to provide more detail on the preliminary quantitative findings, the Explanatory Sequential Design in this study began with the collecting and analysis of quantitative data. The results from the quantitative phase were then used to inform the design of the second, qualitative phase (Creswell & Plano Clark, 2018; Schoonenboom & Johnson, 2017; Shorten & Smith, 2017; Wisdom & Creswell, 2013). With this design, the researcher used qualitative data to clarify certain quantitative findings (Wisdom & Creswell, 2013). In order to go deeper and explain the major determinants of adjustment that were found using statistical measures, for example, an interview was developed.

The qualitative element of this design was essential in offering a more thorough justification for some surprising numeric findings (Terrell, 2012). When using this design in a study, a researcher is recommended to switch from a post-positivist to a

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constructivist theoretical assumption (Creswell and Plano Clark, 2018). When it came to choosing instruments, the researcher first followed the post-positivist assumption before switching to a constructivist one that valued in-depth investigation and a variety of viewpoints (Creswell & Plano Clark, 2018).

In this design, a quantitative strand was first developed and put into practice, and then particular quantitative data were examined and interpreted. A qualitative strand was then created in order to clarify the quantitative findings. Lastly, a summary and interpretation of the quantitative results were provided. Integration in this design happens through two main mechanisms, according to Creswell and Plano Clark (2018): a) connecting the quantitative results to the qualitative data collection, and b) creating integrated findings by combining the results from both sets following the conclusion of the qualitative phase.

This design proves beneficial when the researcher and research issue are more inclined toward a quantitative orientation, when a specific variable has been identified for measurement, when there is access to participants for qualitative data collection, when time allows for data collection in two distinct phases, and when the researcher is a sole investigator managing data collection and analysis sequentially. However, Wilkinson and Staley (2019) point out that this design has drawbacks, such as the requirement for thorough sampling strategy consideration and questions over the qualitative sample's representativeness in comparison to the larger quantitative sample. Challenges including the lengthy completion time, the difficulty of pre-specifying the qualitative phase, the need to define quantitative results to be followed up on, and the requirement to designate participants for explanation are also mentioned by Creswell and Plano Clark (2018). Choosing which quantitative

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outcomes to follow up on, establishing criteria for participant sampling, implementing two phases, and pre-specifying the qualitative phase were among the hurdles in the current study (Creswell & Plano Clark, 2018).

For instance, McKim (2017) used an explanatory sequential design to investigate graduate students' perceptions of the benefits of mixed methods research. There were two separate stages to the investigation, with a focus on the quantitative stage. 113 graduate students completed a survey in the first phase, and the results were examined. A small selection of students (n=11) participated in focus group talks in the second phase to clarify the quantitative results using a complementary methodology. Notably, there were two points in time when the two sets of data were linked. Therefore, the first step in integrating the quantitative and qualitative phases of this study was to create the interview guide using the quantitative results. Following the gathering and examination of qualitative data, the second integration occurred. The results were combined to improve understanding of the conclusions drawn from both stages. The aforementioned conversations highlight how the qualitative phase added new insights to the quantitative results while the quantitative phase directed the qualitative phase. As a result, the two data sets worked together to enable a thorough analysis of the research questions in both breadth and depth.

3.6 Study Area

This study was conducted in the Central Region of Ghana. It is located on the southwestern part of the country, bordering the Ashanti, Eastern, and Western Regions, as well as the Gulf of Guinea. It is Known for its historical significance as the former administrative center of the Gold Coast, its beautiful coastline with forts and castles, and its vibrant culture, particularly among the Fante people. The eight (8)

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second cycle institutions for the study are in the Region. The University of Education, Winneba and the Cape Coast University are all located in the Region. The main occupation of the people are farming and fishing. However, other public service workers like Teachers, Lectuerers, Nurses, Bankers, Doctors and others are also there.

3.7 Population

A population is a collection of people who share certain traits (Creswell, 2012). Additionally, it refers to everyone about whom conclusions are intended to be drawn (e.g., all nurses worldwide) (Creswell & Creswell, 2023). Based on data from the Central Regional Education Office and the offices of the various schools from 2021–2022, 11,700 participants were the study's target group. 11,700 senior high school students from the Central Region made up this group. There were 5208 form two students in the accessible population as well. Students registered to study various courses are among the accessible populations from the institutions, as shown in Table 3.1. The study's target population included the eight (8) students chosen for the qualitative phase.

There are 76 senior high schools in the Central Region. The schools were categorized into coastal and interior areas. Coastal schools are those schools located along the coastal belt while interior schools are those schools that are located at places where farming and other services exist. In all there were 40 senior high schools in the interior area and 36 in the coastal area. In selecting the schools, Gay, Mills and Airasian (2012) rule was applied. The simple random sampling was used because it gave equal opportunity to all the schools to be selected for the study. This is represented below in Table 3.1 below.

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Table 3.1: Accessible Population for the Study (Central Region)

Area	No. of Schools	Population	No. of Schools	Sample	Percentage (%)
Coastal Area	36	5702	4	3391	65
Interior Area	40	5999	4	1817	35
Total	**76**	**11,700**	**8**	**5208**	**100**

Source: Filed Survey (2021)

3.8 Sampling and Sample Size

The process of selecting a subset of the research population is known as sampling (Cohen et al., 2007). According to Creswell (2012), a sample is a subset of the target population that the researcher intends to examine in order to draw generalizations about the target population.

3.8.1 Quantitative Sample and Sampling Strategy

According to Creswell and Creswell (2023) sample refers to the sub-group of participants examined in the survey study. Five hundred and twenty-two (522) students were selected out of the five thousand two hundred and eight (5208) to participate in the study. According to Gay, Mills and Airasian (2012) for a population above 100 in a quantitative study, it is convenient to use 10% or more of the population. Therefore, the recommended sample size for a population of 5208 at the confidence level of 95 percent and a margin of error (degree of accuracy) of 0.05% is estimated to be 522. That is more than 10% of the total population which is precise enough to generate confidence in the study.

To ensure a fair representation of schools from the two areas, a simple random sampling strategy was used in selecting four schools each from the two areas namely interior and coastal. According to Gay, Mills and Airasian (2012) random sampling is

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the best way to obtain a representative sample. The proportional stratified sampling method was used in sampling respondents for the study. Proportional stratified sampling is the process of selecting a sample in such a way that identified subgroups in the population are represented in the sample in the same proportion in which they exist in the population (Gay, Mills and Airasian, 2012). The stratified random sample was obtained by separating the population elements into non-overlapping groups, called strata, and then selecting a simple random sample from each stratum. This sampling technique has a number of advantages. First, this sampling technique may produce a smaller bound on the error of estimation that would be produced by a simple random sample of the same size. The result is particularly true if measurements within strata are homogeneous. Second, the cost per observation in the survey may be reduced by stratification of the population elements into convenient groupings. Third, estimates of the population parameters may be desired for subgroups of the population. These subgroups should then be identifiable strata (Richard et al., 2009).

Through the proportional stratified sampling method, Babbie's (2020) formula was used to determine the sample for each school. The formula is:

$$s = \frac{(n)\times k}{N}$$

Where (s) stands for the sample to be selected from a school; (n) stands for the entire population of the school; (N) stands for the size of the entire population (5208); and (K) stands for the sample size (522). After getting the sample for each school the simple random sampling technique was used in the selection of the boys and girls through the lottery method. The Table 3.2 below presents the sample size distribution for the various schools. sample size distribution for the various schools.

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Table 3.2: Sample of the Respondents (Students)

Area	Name of School	Pop.	Sex				Sample	(%)
Coastal Area			**Boys**	**Sample**	**Girls**	**Sample**		
1	Senya Senior High School, Senya	732	330	33	402	40	73	14
2	Winneba Senior High School, Winneba	543	302	30	241	24	54	10
3	Ghana National College, Cape Coast	1036	434	44	602	60	104	20
4	Apam Senior High, Apam	1080	590	59	490	49	108	21
Interior Area								
1	Nyakrom Senior High Tech School, Nyakrom	438	242	24	196	20	44	9
2	Besease Sec/Comm, Besease	538	260	26	278	28	54	10
3	Twifo Hemang Senior High/ Tech School	352	185	19	167	17	36	7
4	Jukwa Senior High School, Jukwa	489	254	25	235	24	49	9
Total		**5,208**	**2597**	**260**	**2611**	**262**	**522**	**100**

Source: Field Survey (2021)

3.8.2 Qualitative Sample and Sampling Strategy

Out of the five hundred and twenty-two students for the quantitative phase, eight (8) of them were selected through convenience sampling method for the qualitative phase. These students were drawn from the schools that participated in the study. Through interviews, the researcher aimed at exploring further these students' perspectives on students' school adjustment. Convenience sampling yields various benefits. First, the researcher can consume less effort to select the participants compared to other non-random sampling techniques. Second, convenience sampling requires the researcher to select participants at a very low cost. Third, the researcher invests less time since the sample taken from the target population is readily accessible. Finally, the researcher does not need to prepare a list of all the population

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elements (Alvi, 2016). It also provides a wealth of qualitative data. This technique can provide a satisfactory sample in several situations despite its potential pitfalls. One of the potential pitfalls is that it is subjected to sampling biases and systematic errors (Alvi, 2016)

Table 3.3 below contains profiles of the participants who were interviewed. Participants who shared their experiences in one-on-one interviews provided the following profiles like sex, age and programme. Invited participants for the second phase of this study were conveniently selected since they were readily available and accepted to grant the interview for the second session of the data collection process. The average age of the participants was between 17 to 19 years old. These participants reported coming from a wide range of field of study from the various schools. Table 3.3 below contains profiles of the participants who were interviewed.

Table 3.3: Profiles of the participants who were interviewed

Pseudonym	Gender	Age	Field of Study
Student 1	M	19	Gen. Science
Student 2	M	17	Gen. Arts
Student 3	M	18	Gen. Art
Student 4	F	16	Agric Science
Student 5	F	17	Gen. Art
Student 6	F	18	Home Economics
Student 7	F	17	Home Economics
Student 8	F	19	Technical

*Pseudonyms were used to ensure the confidentiality of participants and their responses

3.9 Instrumentations

The instruments used in collecting data were a structured questionnaire and a semi-structured interview guide. The questionnaire was used to collect data for the quantitative phase (from five hundred and twenty-two (522) students), while the

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interview schedule was employed to collect data qualitatively from the eight (8) students for the qualitative phase.

3.9.1 Questionnaire

An adapted questionnaire named the Student Adaptation Questionnaire (SAQ) from Baker and Siryk (1989) was employed in the study. Additionally, the Sibling Support Scale (SSC), sourced from Pajoluk (2013), was also utilized. A questionnaire, as noted by Amedahe (2000), is widely employed in educational research for effectively gathering factual information, exploring opinions, and assessing attitudes. The choice of a questionnaire as a data collection tool was motivated by its efficiency in development, the ability to gather data from a large number of respondents, flexibility in posing numerous questions on a subject, ease of data analysis, and cost-effectiveness. Furthermore, the questionnaire facilitated the acquisition of information regarding the thoughts, feelings, attitudes, beliefs, values, perceptions, personality, and behavioral intentions of the research participants. Its utilization enabled the researcher to gather views from a substantial number of respondents in a short period, as emphasized by Bryman (2004). Importantly, the questionnaire helped mitigate interview biases, allowing respondents to reflect on questions before providing answers, thereby reducing interviewer influence for more accurate and in-depth responses (Borteye, Asare-Kyire & Ofori, 2010).

The questionnaire was in two sections. Section A was a demographic survey which obtained information on biographic variables (i.e. gender, age, programme me and birth order). This section was used to provide background information about the kind of respondents whose views were being sought in the study. The second part of the questionnaire was labeled Section B which consisted of statements on school

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adjustment, and Section C dealt with sibling relationship. A five-point Likert scale type questionnaire was used. The respondents were asked to indicate the degree to which the statements are applicable to them by ticking each point under the columns "SA" (Strongly Agree)," A" (Agrsee)," N" (Neutral)," D" (Disagree)," SD" (Strongly Disagree).

3.9.2 Interview guide

The interview guide for the eight (8) students was aimed at helping to probe further on issues emerging from the quantitative data gathered on the topic under investigation. The design of the interview schedule was based on the issues that emerged from the quantitative data. It was conducted around the variables in the study namely birth order, sibling relationship and school adjustment. For example, some of the interview questions were; describe what is meant by birth order? what are some of the characteristics of first borns? middle borns and last borns? how will you describe sibling relationship? what is the association between birth order and social adjustment?

The interviews allowed the collection of data and more information in greater depth regarding senior high school students' birth order, sibling relationship and school adjustment. The interviews also permitted greater flexibility and offered opportunity for follow-up questions, enriching the discussion of findings from the research hypothesis tested. A list of ten (10) lead questions which were used for interview is attached.

Creswell (2012) explained interview as an investigative instrument involving person to person interaction between a researcher and a respondent in which specific responses are sought by asking specific questions. According to Mensah and Dandy

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(2012), the best research instruments that are used to collect data on people's place of work and practices include interviews. This is because interviews help a researcher to gain insights into events in a study. Interview is appropriately used when studying people's understanding of the meaning in their lived world as well as the best technique to use to find out those things we cannot directly observe such as feelings, thoughts, and intentions (Merriam, 1998).

3.9.3 Validity and Reliability of Questionnaire

The degree to which a research conclusion aligns with reality is a measure of validity, according to Mc Burney and White (2007). Validity, according to Cohen et al. (2007), is basically proof that a given instrument actually measures the things it claims to measure. According to Ofori and Dampson (2011), validity also refers to how well a test, scale, or other instrument assesses the things it is supposed to really measure. Three forms of validity were established in this study. These were face validity, content validity and construct validity. Face validity refers to the transparency or relevance of a test as it appears. Face validity of the instrument was established by my supervisor and colleagues with knowledge in guidance and counselling. Indeed, their comments were favourable and did not require any major changes in the instruments. According to Cohen, Manion, and Morrison (2007), content validity requires that the item demonstrate that it thoroughly covers the areas or objects that it claims to cover. In order to test the construct validity of the items, the researcher's supervisor established content validity.

A Pilot study of 150 senior high school students was carried out to verify the validity of the instruments in order to obtain reliable results. It was believed that a pilot test, which is "a small replica of the main study" (Krishnaswami & Ranganatham, 1983),

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would improve understanding of the issue being studied and its scope. Items on the five rating scales were adjusted in accordance with the pilot study's findings.

Cronbach's alpha, a method frequently used to measure the internal consistency of questionnaire items, was utilized to guarantee the questionnaire's reliability for students. When a measurement consistently yields the same result on multiple occasions, it is said to be reliable (Mc Burney and White, 2007). Reliability, as defined by Pervez and Kjell (2005), is the degree to which a measurement technique or instrument yields consistent scores over time or among raters. Coefficient alpha (Cronbach alpha), the most widely used technique for assessing internal consistency, was employed in this study to assess consistency within the instrument and assess how well a group of items captured a specific behavior or trait within the test.

To determine the reliability of the research instruments, therefore, the questionnaire was pilot tested in two senior high schools and three senior high schools in the Central and Greater Accra Regions respectively. These schools were Cape Coast University Practice Senior High School, Swedru School of Business, St. Johns Grammar School, Accra Academy, and finally Legon PRESEC. These schools were considered because the students there were also in the senior high who share common features with those students who were involved in the main study. Moreover, Greater Accra is very close to Central Region when it comes to proximity. The necessity of the Pilot testing was that it helped to establish the validity and reliability of the instruments and also improved the question format.

Before being entered into the computer, the results from the pilot test were coded and scored in order to assess their reliability. The Cronbach's Alpha Coefficient of the

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survey was determined using the Statistical Product for Service Solution (SPSS) Version 22.

3.9.4 Construct validity of the students' adjustment questionnaire

In conducting the factor analysis, the items were subjected to principal component with varimax rotation using SPSS, to ascertain the appropriateness of the hypothesized four- factor model. Factors were accepted based on the content of the items with loadings exceeding .50. A 60-item questionnaire designed to measure the construct of academic adjustment, personal adjustment, social adjustment and institutional adjustment related factors was factor analyzed to assess its factor structure.

In running the factor analysis, the 60-item questionnaire was subjected to principal component with varimax rotation using SPSS, to ascertain the correctness of the hypothesized four- factor model.

Determining whether the data is appropriate for the analysis is the first stage in the process. In order to do this, the Kaiser-Meyer-Olkin (KMO) test was used to assess the sample size's sufficiency; a KMO value of.38 was deemed appropriate for factor analysis (Ofori & Dampson, 2011). Therefore, the test of full model with predictors against a constant (student adjustment) only was statistically reliable (x=3003.083, df=1770, p=.000).

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.381
Bartlett's Test of Sphericity	Approx. Chi-Square	3003.083
	Df	1770
	Sig.	.000

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The second step was the use of principal component analysis to identify the smallest number of factors that should be retained to depict the associations among set of items. The factors that show eigenvalue 1 or greater can be retained (Stevens, 2009). In this study factors were accepted based on the nature of the questionnaire with loadings above .30, the higher the loading, the better the variable's status as the appropriate measure of the factor (Kline 2002).

The third step is rotating the factors using the approach of varimax rotation to evaluate each item loading pattern on the factors, where the loading denotes the correlation between the items and the factors. Rotation converged in this run after 6 iterations with the extraction of four factors with eigenvalues exceeding 3.0 and in total representing or constituting 11.40 percent of the variance in the data. It emerged that items 1,2,3,5,6,7,8,9,10,13, and 15 loaded highest after rotation on factor one (academic adjustment), this factor constituting 11.40 percent of the total variance in the data when rotated. Items 17,18,20,21,22,23,24,25,28, 29,30, 32, and 33 also loaded highly after rotation on factor two (institutional attachments), this factor also constituting 8.61 percent of the total variance in the data when rotated. Items (34, 35, 37, 38, 40, 41, 42, 45, 46, 47 and 48) loaded on factor three (personal/emotional adjustment) constituting 7.80 percent of the total variance in the data when rotated. Items (49, 50, 52, 54, 55, 56, 58 and 59), also loaded highly after rotation on factor four (social adjustment), this factor also representing 7.10 percent of the total variance in the data when rotated. However, the rest of the items (4, 11, 12, 14, 16, 19, 26, 27, 31, 36, 39, 43, 44, 51, 53, 57, and 60) did not load highly and so did not form part of the final pool of questionnaire as only factor loadings above .4 were accepted. These items were therefore deleted from the final pool of statements. The final 43 items with

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their loadings and communality values as well as reliability for the 4- factor principal component solution are presented in the Appendix (A) below.

Cronbach's alpha, a method frequently used to measure the internal consistency of questionnaire items, was utilized to guarantee the questionnaire's reliability for students. The Cronbach alpha produced were Academic Adjustment (alpha = .899), Attachment/Institutional (alpha = .749), Personal/Emotional Adjustment (alpha = .678) and Social Adjustment (alpha = .739). See Appendix (A)

3.9.5 Sibling support scale

The Sibling Support Scale, originally developed by Pajoluk (2013), was chosen for its relevance in assessing the sibling's relationship among siblings in the home environment. Dunn (2002) underscored three crucial dimensions of sibling relationships: the depth and expression of both positive and negative emotions during childhood and adolescence, the proximity of the siblings, often a source of conflict or support, and the variability in relationships based on individual differences among siblings, some displaying positive feelings and affection, while others exhibit hostility, aggression, or ambivalence. After the scales were subjected to factor analysis, an initial analysis showed that there were four easily interpreted components that together accounted for 63.46% of the variance, as shown on the scree plot. Items were allocated to the factor with the highest loading once all of them showed loadings of at least.45 on one or more factors. Both two-factor and three-factor architectures were investigated, and parallel analysis recommended keeping two factors for rotation. The two-factor structure, which accounted for 56.17% of the variance, was composed of items with coefficients of at least.39 on their associated factor; nevertheless, the resulting subscales were difficult to understand. Nonetheless, items having at least.50

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coefficients on the relevant factor were included in the three-factor framework, which explained 60.33% of the variance. Despite this, the first analysis's four-factor structure was deemed logical and acceptable because it was consistent with theory and brought attention to an additional facet of older sibling assistance.

The subscale labels given to each of the four extracted items represented the four facets of sibling support: involvement, OS Academic Engagement, goal setting, and encouragement. Based on the content of the items that stood out on the criteria, these names were selected. Three of the four factors had additional cross-factor coefficients at the |.4| level, ranging from one item on Involvement (Factor 4) to four items on Encouragement (Factor 1). The things were arranged in groups based on the factors that they were most crucial for. There were thirteen items in the Encouragement subscale, eleven of which had coefficients of.50 or higher.

Each of the six items in the Goal Setting subscale had a coefficient of at least.57. Each of the five items in the OS Academic Engagement subscale had a coefficient of at least.53. Lastly, three of the four items on the Involvement subscale had coefficients of.50 or above. Based on the assigned items, Cronbach's α coefficients were calculated for each factor. The reliabilities, which ranged from.75 to.95, were continuously high. Furthermore, as indicated by the factors, the subscales' intercorrelations ranged from.51 to.84, which was exceptionally high and statistically significant.

3.9.6 Trustworthiness of the interview guide

Validity and trustworthiness are crucial concepts in research design, impacting the reliability of conclusions and the credibility of the data. Validity is a multifaceted concept, encompassing the research's ability to yield credible conclusions and

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whether the evidence can support the interpretations placed upon it (Bell, 2005). In qualitative research, validity extends to the honesty, richness, as well as the scope of data, as well as the objectivity of the research (Cohen et al., 2009). It also involves participants recognizing the authenticity of the research (McCormick & James, 1983, as cited in Cohen & Manion, 1994).

In various methodologies and data acquisition techniques, the researcher must maximize validity. Careful interpretation of information is essential, especially when evaluating birth order, sibling relationships, and school adjustment, as it could pose a threat to participants. Establishing a trust relationship between participants and the researcher helps mitigate tensions, creating validity in the data. Methodological trustworthiness criteria, including credibility, transferability, dependability, and confirmability, contribute to ensuring the overall quality and reliability of the research.

Qualitative researchers often rely on four criteria namely credibility, transferability, dependability, and confirmability to uphold the academic standards of their work (Shenton, 2004). Lincoln and Guba (1985) identified four key considerations associated with trustworthiness.

3.9.6.1 Credibility

The semi-structured interview underwent a credibility test to assess the researcher's confidence in the truthfulness of the research findings. Credibility, defined as "the issue of the inquirer providing assurances of the fit between respondents' views of their life ways and the inquirer's reconstruction and representation of same" (Schwandt, 1997, p. 164), was enhanced through member checks and triangulation (Anfara, Brown, & Mangione, 2002). Member checking involved involving

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participants in confirming the researcher's interpretations and conclusions (Lincoln & Guba, 1985). This was accomplished through a peer review process, where recorded interview responses were compared to their corresponding transcriptions. The researcher employed both informal and formal member checks to confirm and clarify meanings derived from the data.

3.9.6.2 Transferability

The semi-structured interview underwent a transferability test to assess how the researcher shows that the study findings are applicable to other contexts. Transferability, defined as "the issue of generalization in terms of case-to-case transfer" (Schwandt, 1997, p. 164), involves the extent to which identical study findings can be derived from populations and settings different from the research itself (Ercikan & Roth, 2009). The researcher enhances transferability by providing thick descriptions, not only of behaviors and experiences but also of their context, making the behaviors and experiences meaningful to an outsider.

3.9.6.3 Dependability

Dependability, in the context of this study, pertains to the process of the inquiry. The data should be traceable, publicly inspectable, and the process of the inquiry should be documented, logical, and traceable (Mertens, 2005; Lincoln & Guba, 1985). Strategies employed to ensure dependability in this study involved using a consistent interview schedule for each student participant, employing uniform methods to collect data from each case, and utilizing a consistent approach to data analysis.

3.9.6.4 Confirmability

Confirmability, within the framework of this study, refers to the extent to which the data and interpretations are rooted in actual events rather than being influenced by the

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personal constructions of the researcher (Lincoln & Guba, 1985). It emphasizes that interpretations and outcomes should derive from the contexts and perspectives of the participants, avoiding undue influence from the researcher's imagination (Guba & Lincoln, 1989; Mertens, 2005). During the interviews, participants were prompted to reflect on and discuss their practices to ensure a grounded understanding of the data.

3.9.7 Procedures for data collection

The University of Education, Winneba's Counseling Psychology Department granted clearance to the researcher. To allow the researcher to conduct the study and obtain agreement from the respondents (form two senior high school students), the department sent permission letters to the various schools and Districts/Municipals. Permission to enter the institution where the research will be conducted gives researchers the chance to "present their credentials as serious investigators and establish their own ethical position with respect to their proposed research," according to Cohen et al. (2007).

Creswell (2012) also emphasized the need to respect the site where research takes place. There was a formal visit to the schools to enhance familiarization and obtain consent from the participants prior to the data collection. This respect, according to Creswell (2012), is shown by gaining permission before entering the site. Form two senior high school students were used in the study because they had done one year in school already and have enough experiences to share on birth order, sibling relationship and school adjustment. During their one-year stay in the school, second year students had a lot to share about school adjustment.

The questionnaires were distributed to the selected respondent in person. To distribute the questionnaire to respondent, permission was taken before researcher entered the

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site to collect data. This approval usually came from head teachers or persons of authority in the schools. Obtaining permissions from organizational management requires contacting them before the start of a study and obtaining their permission to enter and to study their setting (Creswell, 2012). This permission ensured that the selected respondents cooperated in this study and provided data. Besides cooperation, the school permission also acknowledged that they understood the purpose of the study and that researcher guaranteed them certain rights and that request their permission to be involved in the study (Creswell, 2012). In addition, obtaining permission before starting to collect data was not only a part of the informed consent process but was also an ethical practice (Creswell, 2012). Therefore, a permission has been sought from the schools in the region to distribute the questionnaire to the selected respondents.

After getting the approval from the schools, the researcher set appointment with the selected respondents. During the meeting, the researcher briefly explained the purpose of the study and made it clear to the respondents that participation in the research was voluntary and anonymous (the respondent identity was kept confidential by assigning numbers to returned instruments) (Creswell, 2012). This way was very useful to clarify any doubt among respondents in the survey and to motivate the respondents to be more open and honest in his/her answers (Sekaran & Bougie, 2010). In addition, the researcher explained to the respondents how to complete the questionnaire and allowed them to take 15-20 minutes in completing the questionnaire.

Finally, eight (8) students were interviewed after getting to a point of saturation. The interviews were recorded on tape based on the consent of the interviewees. The interviews were conducted at places suggested by the interviewees based on their own

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convenience and time. After each interview, notes were reviewed to prepare a written account for each interviewee.

3.10 Data Analysis

The research employed a blend of the qualitative and quantitative analytical approaches. Due to the fact that both qualitative and quantitative data were collected differently, and so the different aspects were also analysed differently. The quantitative data collected were analyzed using descriptive and inferential statistics.

Research question 1 was analysed using means and standard deviation. For items meant to provide data for research questions, responses were measured on a 5-point Likert Scale. The respondents rated their level of agreement to a number of statements using a 5-point Likert Scale. Data were analysed using Means and Standard deviation. A mid-point of 3 was used as the baseline for comparison. That is, mean value above 3 indicated that most of the participants were in agreement to the statement. Conversely, a mean value less than 3 showed that most of the respondents were in disagreement to the statement. However, a mean of 3 depicted that the greater proportion of the respondents were neutral about the statement.

Six main hypotheses were raised. One-way between groups ANOVA was used in testing hypothesis one. Correlation analysis using Pearson correlation (r) was used to test the hypotheses two. The step-wise multiple regression was also used in testing hypothesis three. Pearson's r correlation measures the power of the linear relationship between two variables at a time (Gelman, 2008). Pearson's r will always consist of -1.00 and 1.00 (Gelman, 2008)." Hypotheses four and five were tested using the independent samples t-test. Hypothesis six was tested using the One-Way Analysis of Variance, ANOVA. It was used to test for differences.

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The use of the t-test was justified as all the necessary assumptions had been satisfied. This test specifically evaluates the disparity between two groups and falls under the category of parametric tests. Prior to its application, the prerequisites for parametric testing were confirmed. The data underwent scrutiny to ensure normal distribution, and any identified outliers were either removed or transformed before proceeding with the analysis. The dependent variable was measured at the interval or ratio level, while the independent variable, categorized with only two levels, was examined. Additionally, ANOVA was employed to assess differences among three or more levels of the independent variable, as it was the targeted objective. It is important to note that all relevant assumptions for ANOVA were also adequately met.

Also, the qualitative data obtained from the written data was analyzed thematically with verbatim quotations from respondents were extracted and used as vignettes and to supports the quantitative data. Thematic analysis is an analytical strategy which requires the researcher to organize or prepare the data, immerse himself or herself in and transcribe the data, generate themes and code the data, and describe them (Kusi, 2012). Using a phenomenological method, the qualitative data was analyzed with an emphasis on senior high school students' sibling relationships, birth order, and school adjustment. The following research questions were addressed in the qualitative section of this analysis using a Sequential Explanatory design (Creswell, 2003; Tashakkori & Teddlie, 2003):

1. How does birth order relate school adjustment of senior high school students?
2. How does sibling relationship relate school adjustment of senior high school students?

In order to assess qualitative data, this study developed textural descriptions of the experience, clustered all similar categories, and horizontalized the data (Moustakas,

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1994). The technique of analysing data and giving each distinct element equal weight is known as horizontalization of the data (Creswell, 1998). This procedure made it possible to examine the data objectively, giving each component of the data equal weight. After the data was horizontalized, any recurring themes or categories were grouped together to create textual summaries of the experiences of the majority of students (Moustakas, 1994).

One of the recurring themes throughout the investigation was significant elements that students linked to their experiences. The data contained two tiers of codes. The primary "umbrella" categories—also known as themes—were revealed by the initial coding level. In order to comprehend the fundamental ideas behind each theme, these main themes were further examined throughout the second coding level. Finding patterns or similarities in the data that helped create the primary themes with subcategories was the main goal of the second coding level. Codes and categories were examined in this investigation until saturation, or when no new categories could be discovered (Creswell, 1998).

The process of analysing unprocessed qualitative data—which can take the shape of words, phrases, sentences, or paragraphs—and allocating codes or labels is known as coding. Themes pertaining to interview questions were identified through thematic analysis. One comment that was tagged as "parenting style" was, for instance, "Parenting styles and the nature of siblings' parental behaviour affect their level of school adjustment." Axial and open coding were the two categories of coding that Strauss and Corbin (1990) distinguished. Axial coding was utilized in this investigation. Axial coding is the process of grouping codes or labels assigned to words and phrases to create themes or groups. This helped to cluster the emerging

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ideas into coherent units, allowing the emerging themes to stand out. Moreover, to attribute comments to the individual students, the interview transcripts were assigned some serial numbers. For example, interviewee students were assigned (student1 to 8). This helped to ensure confidentiality.

3.11 Ethical Issues Considered

To ensure ethical conduct in the study, the researcher followed stringent practices, as outlined by Yin (2009), especially when studying a contemporary phenomenon in its real-life context. Confidentiality, anonymity, informed consent, and consideration of power relations were prioritized. Confidentiality was maintained by safeguarding the privacy and trust of participants, allowing them to share experiences freely while ensuring that harmful or sensitive information was not disclosed to others. Participants were informed about the limits of confidentiality, ensuring transparency about when such limits would come into play.

Privacy was upheld by not disclosing the real names of respondents or research sites in reports, safeguarding their identities and preventing potential harm. The research instrument, specifically the questionnaire, was designed to avoid invading participants' privacy or critiquing their teaching methods. Consequently, no field for the names of respondents was included in the questionnaire.

Informed consent was diligently obtained, involving procedures in which individuals could choose to participate after being fully informed about the study's nature, social value, and potential benefits. Participants were provided with a clear explanation of the procedures and purposes of the study. They received assurances that their involvement in the study was entirely voluntary and that they could decline or leave at any moment without suffering any repercussions. This approach aimed to respect the

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privacy and interests of the respondents while maintaining ethical standards in research.

Neuman (2011) emphasizes the moral and professional responsibility of social research to consistently adhere to ethical standards. Researchers must carefully balance the pursuit of knowledge with the rights of research participants and others in society. The study followed regulations governing research conduct in the country, obtaining research clearance from the University of Education, Winneba. Institutional and respondents' consent was diligently sought, allowing the researcher to engage with the participants. The obtained research clearance facilitated access to schools and secured official permission to carry out the study. This approach ensured that ethical considerations were prioritized throughout the research process.

3.12 Chapter Summary

The research techniques and protocols that were employed to gather and examine field data have been covered in this chapter. The chapter specifically addressed the demographic, sample, sampling methodology, study design, and study region. This chapter's next sections addressed data gathering tools, field data collection protocols, and ethical considerations. Data presentation and analysis are covered in the following chapter.

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CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The study examined the impact of birth order and sibling relationship on school adjustment in senior high schools in the Central Region of Ghana. The previous chapter dealt with the methodology used in the conduct of the study. The sequential explanatory design of the mixed method approach was used. The study covered eight (8) senior high schools in the Central Region. Students were selected from various programmes and class employing both probability and non-probability sampling procedures. Questionnaire and interview guide were the main tools used in gathering data from the respondents. Throughout the conduct of the study ethical issues were strictly followed.

This chapter presents the analysis of the results and followed it up with the discussion. It must be indicated that 100% return rate of the questionnaire was achieved. Data analysis in this chapter is categorised into two parts: demographic characteristics of respondents and the main data analysis in relation to the research objectives.

4.2 Demographic Characteristics of Respondents

The demographic characteristics of the respondents is represented in Table 4.1 below.

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Table 4.1: Bio Data of students

Variable	Frequency	Percentage
Gender		
Male	251	48.1
Female	271	51.9
Total	522	100.0
Age		
below 13 years	5	1.0
betwween 14 to 16 years	219	42.0
between 17 to 19 years	276	52.9
20 years and above	22	4.2
Total	522	100.0
Programme		
General Arts	154	29.5
Visual Art	39	7.5
Agric Science	29	5.6
Business	91	17.4
Gen Science	141	27.0
Home Economics	68	13.0
Total	522	100.0
Birth Order		
Oldest Child/First Born	149	28.5
Middle Child / Second Born	234	44.8
Youngest Child/ Last Born	139	26.6
Total	522	100.0

Source: Field Survey (2023)

Table 4.1 revealed that male students in the study were (N=251, 48.1%) whiles their female counterparts were (N=271, 51.9%). On age, A greater percentage of the respondents were between the ages of 17-19 years (N=276, 52.9%), followed by age range of 14-16 years (N=219, 42.0%), 20 years and above (N=22, 4.2%), and finally below 13 years (N=5, 1.0%). Very few respondents were found to fall within 13 years

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and below and above 20 years (N=22, 4.2%). The data revealed that greater proportion of the students were in their adolescence stage and fall within the exact age bracket for senior high school. With regards to programme offered, most of the respondents were General Arts students (N=154, 29.5%), General Science (N=141, 27%), Business (N=91, 17.4%) Home Economics (N=68, 13.0%), visual Art (N =39, 7.5%) and only few respondents in Agric Science (N=29, 5.6%). For birth order, it is noted that most of the respondents were middle child /second borns (N=234, 44.8%), Oldest Child/First Born (N=149, 28.5%) and Youngest Child/ Last Born (N=139, 26.6%). This indicate that in terms of birth order, most people are Middle Child / Second Born as indicated in table 4.1 above.

Part B

4.3 Analysis of Research Question and Hypotheses

4.3.1 Research Question 1

1. What are the components of school adjustment in senior high school students in the Central Region of Ghana?

Table 4.2: Components of school adjustment among senior high school students

School Adjustment	Minimum	Maximum	Mean	Std. Deviation
Academic Adjustment	1	5	4.13	0.511
Social Adjustment	1	5	3.56	0.770
Personal/emotional Adjustment	1	5	3.23	0.659
Institutional Adjustment	1	5	3.07	0.749
Overall School Adjustment	2	5	3.50	0.442

Source: Field Survey (2023)

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Table 4.2 presents responses of respondents on which indicators of school adjustment are most prevalent among senior high school students. From the table, the highest mean was (M=4.13, SD=0.51) indicating that academic adjustment most prevalent among senior high school students. The second highest mean was social adjustment (M=3.56, SD=0.77), the third was personal /emotional adjustment (M=3.23, SD=0.66) and institutional adjustment (M=3.07, SD=0.75) being the last. In all, the overall school adjustment was (M=3.50, SD=0.44) meaning all the components of school adjustment were found not to exist among senior high school students.

4.3.2 Hypothesis 1

There is no statistically significant difference in school adjustment in terms of birth order of students. This hypothesis sought to find out if there is any statistically significant difference in school adjustment in terms of birth order of students.

To test this hypothesis, the one-way between groups ANOVA analytical test was used to analyse the data. Birth order was categorised into three, including first born, middle born and last born while school adjustment has four components, comprising emotional, social, academic, and institutional adjustment. The findings are shown in Table 4.3.

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Table 4.3: Birth order and school adjustment of senior high school students

School Adjustment	Birth order	N	Mean	Std. Deviation	F	Sig.
Academic Adjustment	Oldest Child	149	4.13	0.566	0.261	0.770
	Middle Child	234	4.11	0.504		
	Youngest Child	139	4.15	0.458		
	Total	522	4.13	0.511		
Institutional Adjustment	Oldest Child	149	3.05	0.813	1.421	0.243
	Middle Child	234	3.12	0.714		
	Youngest Child	139	2.99	0.733		
	Total	522	3.07	0.749		
Personal/emotional Adjustment	Oldest Child	149	3.16	0.690	1.548	0.214
	Middle Child	234	3.28	0.641		
	Youngest Child	139	3.21	0.651		
	Total	522	3.23	0.659		
Social Adjustment	Oldest Child	149	3.58	0.776	0.297	0.743
	Middle Child	234	3.58	0.780		
	Youngest Child	139	3.52	0.748		
	Total	522	3.56	0.770		
Overall School Adjustment	Oldest Child	149	3.48	0.484	0.821	0.440
	Middle Child	234	3.52	0.435		
	Youngest Child	139	3.47	0.407		
	Total	522	3.50	0.442		

Source: Field Survey (2023)

One-way between group ANOVA was conducted to test the hypothesis that there is no statistically significant difference in school adjustment (emotional, social, academic and institutional adjustment) in terms of birth order (first born, middle born and last born) of students.

The results revealed that there were no statistically significant differences among the groups in relation to the overall school adjustment (F= 0.821, p>0.05). There were no statistically significant differences in academic adjustment among the three groups, namely, First Born, Middle Born and Last Born (F= 0.261, p>0.05). There were no

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statistically significant differences in institutional adjustment among the three groups as in the Oldest Child, Middle Child and Youngest Child (F= 1.421, p>0.05). Additionally, no statistically significant differences were observed among the students in relation to personal/emotional adjustment as in the First Born, Middle Born and Last Born (F= 1.548, p>0.05). Likewise, no statistically significant differences were observed in students' social adjustment in terms of their birth order position in the family (F= 0.297, p>0.05). The results of the study imply that birth order differences among respondents do not account for academic, institutional, personal/emotional and social adjustment among the students. Therefore, birth order of students did not matter in the discourse of factors that determine differences in students' academic, institutional, personal/emotional and social adjustment in the Central Region. Therefore, the null hypothesis that "there is no statistically significant difference in school adjustment (emotional, social, academic and institutional adjustment) in terms of birth order (first born, middle born and last born) of students was supported while the alternative hypothesis was not supported.

4.3.3 Hypothesis 2

There is no statistically significant correlation between sibling relationship and student school adjustment of senior high school students in the Central Region of Ghana. This hypothesis sought to find out the correlation between sibling relationship and student school adjustment of senior high school students in the Central Region of Ghana

The Pearson Product Moment correlation was deployed to analyse the data. The correlation coefficients were interpreted based on the recommendation of Cohen

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(1988) that ±0.10 to ±0.29 is weak, ±0.30 to ±0.49 is moderate, and ±0.50 to ±1.0 is strong. The findings are presented in Table 4:4

Table 4.4: Relationship between sibling relationship and student school adjustment

		1	2	3	4	5	6	7	8	9	10
1	Overall School Adjustment	1									
2	Academic Adjustment	.571* (.000)	1								
3	Institutional Adjustment	.562* (.000)	.031 (.476)	1							
4	Personal/emotional Adjustment	.787* (.000)	.287* (.000)	.349* (.000)	1						
5	Social Adjustment	.699* (.000)	.372* (.000)	-.001 (.979)	.421* (.000)	1					
6	Encouragement	.383* (.000)	.326* (.000)	.048 (.278)	.233* (.000)	.419* (.000)	1				
7	Goal Setting	.407* (.000)	.279* (.000)	.083 (.059)	.270* (.000)	.440* (.000)	.790* (.000)	1			
8	Academic Engagement	.332* (.000)	.258* (.000)	.030 (.499)	.222* (.000)	.374* (.000)	.676* (.000)	.662* (.000)	1		
9	Involvement	.312* (.000)	.255* (.000)	.049 (.262)	.192* (.000)	.336* (.000)	.555* (.000)	.552* (.000)	.529* (.000)	1	
10	Overall Sibling Relationship	.423* (.000)	.328* (.000)	.062 (.155)	.271* (.000)	.462* (.000)	.885* (.000)	.889* (.000)	.847* (.000)	.774* (.000)	1

*p<0.05 Note: P-values in parentheses

Source: Field Survey (2023)

The Pearson correlation results in Table 4.4 revealed that generally, there was a moderate statistically significant positive relationship between school adjustment and sibling relationship (r=0.423, p<0.05, two-tailed). The study further examined the relationship between each of the school adjustment components and sibling relationship. The findings established that, there was moderate and statistically significant positive relationship between academic adjustment and sibling relationship

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(r=0.328, p<0.05, two-tailed). Furthermore, the findings indicated that there was a weak relationship between institutional adjustment and sibling relationship but this relationship was not statistically significant (r=0.062, p>0.05, two-tailed), while the relationship between personal/emotional adjustment and sibling relationship was weak but statistically and positively significant (r=0.271, p<0.05, two-tailed). Additionally, the findings established that there was a moderate and statistically significant positive relationship between social adjustment and sibling relationship (r=0.462, p<0.05, two-tailed). Based on these findings, the null hypothesis that "There is no statistically significant relationship between sibling relationship and school adjustment of senior high school students in the Central Region of Ghana" was not supported while the alternative hypothesis was supported.

4.3.4 Hypothesis 3

Sibling relationship will not statistically significantly predict school adjustment of senior high school students in the Central Region of Ghana.

The purpose of this hypothesis was to examine the extent to which sibling relationship predicted school adjustment. In this analysis, sibling relationship comprised four components; involvement, academic engagement, goal-setting, and encouragement. Sibling relationship was the predictor variable (independent) while school adjustment was the outcome (dependent) variable. The step-wise multiple regression analysis was conducted, and the findings are presented in Table 4.5.

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Table 4.5: Model Summary for sibling relationship as a predictor of school adjustment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.407[a]	.166	.164	.404	.166	103.454	1	520	.000
2	.421[b]	.177	.174	.402	.011	6.916	1	519	.009
3	.428[c]	.183	.178	.401	.006	3.865	1	518	.050

a. Predictors: (Constant), Goal Setting
b. Predictors: (Constant), Goal Setting, Involvement
c. Predictors: (Constant), Goal Setting, Involvement, Encouragement
d. Dependent Variable: School Adjustment
Source: Field Survey (2023)

Table 4.6: ANOVA Table for Final Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.897	1	16.897	103.454	.000[b]
	Residual	84.933	520	.163		
	Total	101.830	521			
2	Regression	18.014	2	9.007	55.773	.000[c]
	Residual	83.816	519	.161		
	Total	101.830	521			
3	Regression	18.635	3	6.212	38.676	.000[d]
	Residual	83.195	518	.161		
	Total	101.830	521			

a. Dependent Variable: Overall School Adjustment
b. Predictors: (Constant), Goal Setting
c. Predictors: (Constant), Goal Setting, Involvement
d. Predictors: (Constant), Goal Setting, Involvement, Encouragement
Source: Field Survey (2023)

The findings in Tables 4.5 and 4.6 showed that, goal setting predicted 16.6% variance to school adjustment which was statistically significant [R^2=0.166, F (1,520) = 103.454, $p<0.05$] in Model 1. In Model 2, the findings revealed that when involvement was added to goal setting, both components of sibling relationship

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accounted for 17.7% variance in school adjustment which was statistically significant [R^2=0.177, ΔR^2 = 0.011, F (2,519) =55.773, p<0.05] which implied that involvement added a significant 1.1% to the contribution of goal setting to school adjustment. With the introduction of encouragement to goal setting and involvement in Model 3, the findings showed that, encouragement increased the variance of goal setting and involvement where the three variables jointly contributed a statistically significant 18.3% variance to school adjustment [R^2=0.183, ΔR^2=0.006, F (3,518) = 38.676, p<0.05]. This suggested that, encouragement added a significant 0.6% variance to the variance contributed by goal setting and involvement in Model 2. The findings suggested that, academic engagement, which was a component of sibling relationship, did not contribute statistically significantly to school adjustment, hence the analysis eliminated it from the model.

The study further examined the contributions of each component of sibling relationship to school adjustment in each block, and the findings are presented in Table 4.7.

Table 4.7: Standardised and Unstandardised Coefficients for Components of Sibling Relationship as Predictors of School Adjustment

Model		Unstandardised Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.853	.066		43.405	.000		
	Goal Setting	.179	.018	.407	10.171	.000	1.000	1.000
2	(Constant)	2.758	.075		36.938	.000		
	Goal Setting	.148	.021	.338	7.078	.000	.695	1.438
	Involvement	.060	.023	.126	2.630	.009	.695	1.438
3	(Constant)	2.679	.085		31.695	.000		
	Goal Setting	.108	.029	.247	3.712	.000	.357	2.804
	Involvement	.049	.023	.103	2.109	.035	.658	1.520
	Encouragement	.068	.034	.131	1.966	.049	.355	2.816

Source: Field Survey (2023)

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The findings in Table 4.7 showed that, goal setting made a unique and statistically significant contribution to school adjustment (β=0.407, t=10.171, p<0.05) in block 1. Even though both goal setting and involvement contributed statistically significantly to school adjustment in block 2, the findings revealed that goal setting contributed more to school adjustment (β=0.338, t=7.078, p<0.05) than involvement (β=0.126, t=2.630, p<0.05). Furthermore, the findings discovered that among the three components of sibling relationship in block 3, goal setting contributed most to school adjustment (β=0.247, t=3.712, p<0.05) as compared to involvement (β=0.103, t=2.109, p<0.05) and encouragement (β=0.131, t=1.966, p<0.05) respectively even though all the components of sibling relationship contributed statistically significantly to school adjustment. Therefore, the null hypothesis that "Sibling relationship will not statistically significantly predict school adjustment of senior high school students in the Central Region of Ghana" was not supported in relation to goal setting, involvement and encouragement while the alternative hypothesis was supported. However, the null hypothesis was supported in relation to academic engagement while its corresponding alternative hypothesis was not supported.

4.3.5 Hypothesis 4

There is no statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana.

This hypothesis sought to investigate differences in the sibling relationship among the students based on their gender. Gender was categorized as male and female, hence the independent samples t-test was applied to analyse the data, and the findings are presented in Table 4.8. The findings from the Levene's test to examine the assumption of homogeneity/equality of variance revealed that variances between the two groups were assumed (p>0.05).

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Table 4.8: Testing significant difference in sibling relationship based on gender

				Levene's Test for Equality of Variances		t-test for Equality of Means		
Gender		Mean	Std. Deviation	F	Sig.	T	Df	Sig. (2-tailed)
Encouragement	Male	3.74	.835	.218	.641	-2.265	520	.024
	Female	3.91	.866					
Goal Setting	Male	3.55	.955	3.165	.423	-1.051	520	.294
	Female	3.64	1.053					
Academic Engagement	Male	3.62	.917	1.146	.285	-1.231	520	.219
	Female	3.73	.988					
Involvement	Male	3.32	.926	.003	.959	-1.955	520	.051
	Female	3.48	.918					
Overall Sibling Relationship	Male	3.56	.767	1.483	.224	-1.883	520	.060
	Female	3.69	.814					

Source: Field Survey (2023)

The information in Table 4.8 showed that female students recorded higher mean score on encouragement (M=3.91, SD=0.866) than male students (M=3.74, SD=0.835), but the difference in the mean scores was not statistically significant [t(520)=-2.265, p>0.05, 2-tailed]. For goal setting, even though the female students recorded higher mean score (M=3.64, SD=1.053) than male students (M=3.55, SD=.955), the findings revealed that there was no statistically significant difference in the mean scores for the two groups [t(520)=-1.051, p>0.05, 2-tailed]. Likewise, the findings indicated that there was no statistically significant difference between female students' mean score (M=3.73, SD=.988) and male students' mean score (M=3.62, SD=0.917) for academic engagement [t(520)=-1.231, p>0.05, 2-tailed]. The information further revealed that even though female students recorded higher mean score (M=3.48, SD=.918) than male students (M=3.32, SD=0.926) in involvement, the difference was not statistically significant [t(520)=-1.955, p>0.05, 2-tailed]. On the overall sibling relationship, the male students recorded lower mean score (M=3.56, SD=.767) than the female students (M=3.69, SD=.814), but the difference in the means was not statistically

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significant [t(520)=-1.883, p>0.05, 2-tailed]. Based on these findings, therefore, the null hypothesis that "There is no statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana" was supported while the alternative hypothesis was not supported.

4.3.6 Hypothesis 5

There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana. This hypothesis compared the school adjustment for male and female students using the independent samples t-test, and the findings are shown in Table 4.9. The findings showed that the assumption of homogeneity/equality of variance was sustained (p>0.05).

Table 4.9: Statistically significant difference in students' school adjustment based on gender in senior high schools

					Levene's Test for Equality of Variances		t-test for Equality of Means		
Variable	Gender	N	Mean	Std. Deviation	F	Sig.	T	df	Sig. (2-tailed)
Academic Adjustment	Male	251	4.03	.546	2.413	.121	-4.628	520	.000
	Female	271	4.23	.455					
Institutional Adjustment	Male	251	3.12	.722	.824	.365	1.464	520	.144
	Female	271	3.02	.771					
Personal/emotional Adjustment	Male	251	3.24	.674	.225	.636	.226	520	.821
	Female	271	3.22	.645					
Social Adjustment	Male	251	3.55	.711	1.337	.101	-.235	520	.814
	Female	271	3.57	.821					
Overall School Adjustment	Male	251	3.48	.453	.002	.968	-.710	520	.478
	Female	271	3.51	.432					

Source: Field Survey (2023)

The information in Table 4.9 showed that male students recorded lower mean score (M=4.03, SD=.546) than the female students (M=4.23, SD=.455) in their academic adjustment, and the difference in the mean scores was statistically significant

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[t(520)=-4.628, p<0.05, 2-tailed]. For institutional adjustment, the findings showed that male students recorded higher mean score (M=3.12, SD=.722) than female students (M=3.02, SD=.771) but the difference in the mean scores was not statistically significant [t(520)=1.464, p>0.05, 2-tailed]. Additionally, the findings pointed that even though male students recorded higher mean score (M=3.24, SD=0.674) than female students (M=3.22, SD=0.645) on personal/emotional adjustment, there was no statistically significant difference in the mean scores based on gender [t(520)=0.226, p>0.05, 2-tailed]. Furthermore, the findings revealed that there was no statistically significant difference between the mean score of male students (M=3.55, SD=0.711) and female students (M=3.57, SD=0.821) in relation to their social adjustment [t(520)=-0.235, p>0.05, 2-tailed]. Finally, the male students recorded lower mean score (M=3.48, SD=.453) than female students (M=3.51, SD=0.432) on their overall school adjustment, but this difference in the mean scores was not statistically significant [t(520)=-0.710, p>0.05, 2-tailed]. Therefore, the hypothesis that "There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana" was not supported in relation to academic adjustment while the alternative hypothesis was supported. However, the null hypothesis was supported in relation to institutional adjustment, personal/emotional adjustment, social adjustment as well as the overall school adjustment while the alternative hypothesis not supported.

4.3.7 Hypothesis 6

There is no statistically significant difference in school adjustment of senior high school students based on age. This hypothesis sought to find out if there any statistically significant difference in school adjustment of senior high school students based on age.

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The one-way between group ANOVA was used to analyse this hypothesis. Age was the independent variable while school adjustment was the dependent variable. The results of the analysis are presented in Table 4.10.

Table 4.10: Age and school adjustment

		N	Mean	Std. Deviation	F	Sig.
Academic Adjustment	below 13 years	5	4.24	.679	.172	.916
	between 14 to 16 years	219	4.14	.443		
	between 17 to 19 years	276	4.12	.557		
	20 years and above	22	4.16	.533		
	Total	522	4.13	.511		
Institutional Adjustment	below 13 years	5	3.08	.874	.838	.473
	between 14 to 16 years	219	3.04	.681		
	between 17 to 19 years	276	3.07	.794		
	20 years and above	22	3.30	.792		
	Total	522	3.07	.749		
Personal/emotional Adjustment	below 13 years	5	3.29	.711	2.881	.035
	between 14 to 16 years	219	3.13	.656		
	between 17 to 19 years	276	3.29	.639		
	20 years and above	22	3.42	.819		
	Total	522	3.23	.659		
Social Adjustment	below 13 years	5	3.53	.518	.133	.941
	between 14 to 16 years	219	3.55	.749		
	between 17 to 19 years	276	3.58	.787		
	20 years and above	22	3.50	.841		
	Total	522	3.56	.770		
Overall School Adjustment	below 13 years	5	3.53	.560	.909	.436
	between 14 to 16 years	219	3.46	.396		
	between 17 to 19 years	276	3.51	.460		
	20 years and above	22	3.60	.604		
	Total	522	3.50	.442		

Source: Field Survey (2023)

The ANOVA results revealed that there were no statistically significant differences among the students in relation to academic adjustment [F (3,518) =0.172, p>0.05],

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institutional adjustment [F (3,518) =0.838, p>0.05], personal/emotional adjustment [F (3,518) =2.881, p>0.05], social adjustment [F (3,518) =0.133, p>0.05] as well as the overall school adjustment [F (3,518) =0.909, p>0.05] due to their age. Based on these findings, the hypothesis that "There is no statistically significant difference in school adjustment of senior high school students based on age" was supported while the alternative hypothesis was not supported. Hence, the findings suggested that age was not among the factors that accounted for differences in the students' school adjustment.

4.4 Analysis of Qualitative Data

This section is dedicated to describing the themes that were generated through the one-on-one interviews to capture experiences and thoughts of students. During the research synthesis, five main themes emerged regarding birth order, sibling relationship and school adjustment. After multiple cycles of coding, the emergent themes were: relationship, adaptation, behaviour and parental attitude, siblings support and lastly environment. Nature of upbringing and personality, and orientation emerged as subthemes under birth order. The subtheme, learning to adjust to situations and environment emerged as specific element under the adaptation. Parenting styles was subtheme under behaviour and parental attitude. Home support and interactions emerged as a subtheme under siblings' support. Home environment and home engagement emerged as subthemes under environment. The themes with subthemes have been discussed with excerpts from the interviews supporting the findings. A summary of the thematic findings is outlined in Table 4.11 below.

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Table 4.11: Emerging Themes and Subthemes from Data Source

THEMES AND SUB-THEMES EMERGING FROM THE QUALITATIVE DATA	
THEMES	**SUB-THEMES**
1. relationship	1a. Nature of upbringing and personality 1b. Orientation
2. Adaptation	2a. Learning to adjust to situations and environment
3. Behaviour and Parental Attitude	3a. Parenting styles
4. Siblings Support	4a. Home support and interactions
5. Environment	5a. Home Environment 5b. Home engagement

Source: Field Survey (2021)

4.5 Description and Analysis of Identified Themes according to Research Questions

Research Question 1: How does birth order relate to school adjustment of senior high school students?

Data was derived through interview with students on how birth order relates to school adjustment of senior high school students. Themes and the subthemes that emerged from the interview have been discussed below to support the quantitative findings in accordance with the mixed method explanatory design.

Theme 1: Relationship

Study participants underscored how birth order relates to school adjustment. Birth order is the biological position to which one is born in terms of first born, middle born or last born. Interviewees looked at the issue from the angle of the nature of upbringing and personality as well as one's own orientation. They reported that birth may not have any direct relationship with how they adjust in school but rather mentioned other factors that could inform or relate their level of adjustment in school.

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Sub-theme: Nature of upbringing and personality

Many participants emphasized that whether a student is a first-born, second-born, or last-born has no direct impact on their ability to adjust in school. According them the crucial factors are the upbringing, personality of the student, and their response to the demands of school. This was what student 2 said:

> *"Birth order is not related to school adjustment; rather, a student's ability to adjust is influenced by his nature of their upbringing and personality. For instance, those raised in democratic homes tend to be more submissive and adaptable in school, while individuals from autocratic homes may show resistance in terms of emotional and physical adjustment to the school environment." (student 2).*

Similarly, student 3 argued that being a first-born does not guarantee successful adjustment, as some first-borns adjust well, while others struggle. This was what he said to support his point:

> *"Well, I have a different perspective on the concept of birth order because I don't believe there is a relationship between birth order and school adjustment. In my opinion, students' emotional adjustment is more influenced by nature of upbringing by their caregivers and their level of exposure. Those with higher levels of exposure tend to develop stronger emotional stability compared to individuals who haven't had similar opportunities."* (*student 3).*

Sub-Theme: Orientation

Another sub theme that merged from the discussion is the issue of orientation. Some students maintained the position of the earlier interviewees that indeed there is no relation between birth order and school adjustment of senior high school students. These students maintained that it is rather the kind of orientation that a student has undergone that affects his or her level of adjustment in school. These were comments advanced by one of them:

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> *"Certainly, there is no connection between birth order and school adjustment. Consider institutional adjustment, it depends on the orientation provided by the school to assist students in adjusting properly. This aspect is unrelated to a student's birth order. In my school, for instance, every newly admitted student undergoes an orientation that covers the school's policies, programmes, and structures. This process aims to help students know the school environment and functions properly" (student 6).*

Another participant who shared similar view maintained that birth order does not really have any relationship with school adjustment of senior high school students whether one is born first, middle and last. He remarked thus:

> *"For me, hmm I think there is no relationship at all but I think I will rather say it is the kind of orientation that my school gives me that actually makes me to adjust well in the school. Thank you." (Student 4)*

Theme 2: Adaptation

Adaptation refers to the process of changing to suit different conditions. All the study participants felt that the level of school adjustment engagement is rather shaped by how effectively they adapt to their new environment which actually has nothing to do with their order of birth. Students underscored the need to learn to adjust to situations especially their new environment.

Sub-Theme: **Learning to adjust to situations and environment**

Student 7 shared the perspective that birth order does not play a role in school adjustment. According to the interviewee, a student's ability to adjust effectively in school is influenced by various factors such as the school environment, family dynamics, and the impact of social media. She emphasized that schools with well-established systems and structures tend to positively impact students' adjustment. Conversely, in schools lacking these essential elements, students may struggle to

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adjust. Additionally, she provided an example, highlighting that a student who lacks proper guidance and has the freedom to act without constraints may face challenges in adjusting, as the absence of rules and regulations could hinder their adaptability in the school environment. The following remark was made to buttress her point:

> *"I strongly believe that birth order does not have any relationship or impact on the school adjustment of senior high school students. While all students have specific birth order or were born on particular day, this alone does not tell how a child should adjust in school but rather I believe it is the student's ability to adjust so situations and his or her own environment. Therefore, birth order simply shows a position in the family and holds no importance to the process of school adjustment." (student 7).*

Theme 3: Behaviour and Parental Attitude

Students looked at the issue from the perspective of behaviour and parental attitude. They believed one's birth order is important but does not in any way relate to how they adjust in school and indicated that it depends on their own behaviour patterns and the attitude of parents in shaping their lives.

Sub-Theme: Behaviour

During the interview a participant emphasized that there was no correlation between birth order and school adjustment. According to her, birth order simply signifies the sequence in which a child is born within a family. She pointed out that children with different birth orders may exhibit varied behavioral traits, and these traits do not necessarily influence their ability to adapt in school. As an illustration, she made the following categorical statement:

> *"In my perspective, I do not see any link between the school adjustment of senior high students and their birth order. A student's position in a family, I believe, cannot determine their level of adjustment in school. What I understand is that children with various birth orders within a family may exhibit distinct*

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> *behavioral tendencies or patterns, but these traits do not show how they adjust in school. If we want to talk of parental attitude and training, they give children, fine, it can have impact on how students adjust in school." (student 4).*

Sub-Theme: Parenting style

Closely related to this was a perspective akin to student 7 who asserted that birth order and school adjustment are distinct variables, as birth order pertains to a child's position within a family, school adjustment involves the psychological, academic, social, and emotional adaptability of a student in the school environment. She continued to explain that a person's birth order constitutes unique characteristics determined by the parenting style experienced during one's upbringing. That I to say, school adjustment is more closely related to parenting styles and how children have been raised. She argued that children raised under autocratic, democratic, or laissez-faire parenting styles experience implications that affect their adjustment in school. This was her statement:

> *"I am firm in my belief that there is no relationship between birth order and school adjustment. Birth order simply signifies the position of a child's birth within a family, and it does not influence how the child adjusts in school. If we were to consider parenting style, I might acknowledge a link. For instance, a student raised by an autocratic parent would likely experience a different school life compared to those raised by democratic or laissez-faire parents. However, when it comes to birth order, I completely disagree with the notion that there is a relationship between the two." (student 5).*

However, a few interviewees presented a divergent perspective. To them, birth order does play a role in how students adapt to school. They recontended that, in general, first-borns tend to be academically intelligent but reserved, affecting their academic pursuits and social and emotional adjustments in school. One of them described instances where first-borns displayed academic excellence but faced challenges in

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social, emotional, and behavioral aspects, requiring serious attention. Additionally, he recounted encountering last-borns who, while not academically strong, demonstrated sociability and emotional stability. In his opinion, first-borns tend to excel academically but struggle with emotional and social adjustment, while last-borns are more socially and emotionally stable but face academic challenges as evidenced in the statements below.

> *"In my perspective, there is a relationship between birth order and the school adjustment of senior high school students. Generally, first-borns tend to exhibit higher intelligence in school compared to middle and last-borns, owing to the circumstances of their upbringing. First-borns often arrive when their parents are at the peak of their careers, providing them with more resources and advantages that positively impact their academic performance. This contributes to their ability to cope well in the school." (student 1).*

> *"As a student, I see a relationship between the two because birth order imparts unique characteristics to individuals, influencing their behavior in various ways. As a result, these unique behavior patterns play a role in shaping how students adapt in the school setting." (student 8).*

The import of these statements by these interviewees is that birth order plays a role in shaping one's behavior, which, in turn, influences one's reactions to environmental stimuli. Consequently, these behavior patterns are reflected in a student's conduct within the school environment, impacting his/her overall adjustment. According to these observations, a significant proportion of first-borns tend to be calm and dedicated to their studies, although they may be less sociable. In contrast, middle-borns and last-borns generally exhibit emotional stability and are more adept at adjusting well in the school setting.

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Research Question 2: How does sibling relationship relate to school adjustment of senior high school students? This research question sought to find out how sibling relationship relate to school adjustment of senior high school students

Data analysis generated two themes under this research question. Both themes and their

subthemes that emerged from the data have been discussed below to further explain and support the quantitative findings in accordance with the mixed method explanatory design.

Theme 1. Siblings Support

Students underscored the relationship between siblings' relationship and school adjustment from the perspective of siblings' support. Siblings support according to interviewees is a significant factor in school adjustment and transforms how students' interactions and subsequently, impact on their adjustment in school. They looked at the issue from the perspective of home support and interactions which they believe are fundamental to their level of adjustment in school.

Sub-theme: Home support and interactions

The first subtheme revolves around the connection between sibling relationships and school adjustment, expresses the notion that there is direct correlation between the two aspects. In their view, siblings exhibit unique behaviors and dispositions in their perception of home-related issues, and these impact the way they adjust in school. One of them had this to say:

> *"In the area of the relationship between school adjustment and sibling relationships, I am of the belief that there is direct relationship between the two. Siblings tend to develop unique behaviors based on their interactions at home, and these influence their adjustment in school. Factors of sibling*

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> *relationship like involvement, academic engagement, goal setting, and encouragement, enhance the bond among siblings which influence their adjustment in the school environment." (student7)*

In agreement with the perspective presented by student 7, student 6 held a similar view. Student 6 emphasized that factors such as involvement, academic engagement, goal setting, and encouragement within these relationships can indeed play a significant role in shaping the nature of school adjustment. As an illustration, she pointed out that the academic support provided among siblings at home could potentially influence the student's academic adjustment at school. She remarked:

> *"In my view, there exists a relationship between sibling relationships and school adjustment. A positive and supportive sibling relationship can lead to the development of strong school adjustment in students. When students receive assistance from their siblings in areas such as goal setting, encouragement, care, and academic engagement, they are more likely to achieve social, academic, emotional, and institutional adjustment in school." (student 6)*

Theme 2. Environment

The experiences and successful adjustment of students were shaped by their environment. The kind of environment one comes from was viewed by study participants as advantageous to their school adjustment. The students looked at the issue from the perspective of the home environment and home engagement. Participants thought that positive home environment and engagement among siblings was beneficial to students' successful adjustment.

Sub-theme: Home Environment

On this matter, a participant affirmed that there was a relationship between sibling relationships and school adjustment. According to him, school adjustment encompasses how a student adjusts academically, socially, and psychosocially to the

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school environment. He emphasized that the psychosocial dimension of student adjustment is not independent of sibling relationships, emphasizing that it is rooted in the individual development, growth, and interactions of siblings within the home environment. These factors, he contended, significantly shape a student's level of adjustment in school, through the dynamics of sibling relationships:

> *"I believe that school adjustment and sibling relationships connect. School adjustment, in my view, has a linked with a student's ability to adjust socially, academically, and emotionally to both the home and the school environment. That relationship is influenced by sibling relationship especially from the home point of view," (student 1).*

Sub-theme: **Home engagement**

Student 3 concurred with previous students, who asserted that there is correlation between sibling relationships and the school adjustment of senior high school students. And added that the existing relationship dynamics among siblings at home influence how these siblings adjust in school. He emphasized that involving siblings in activities at home automatically translate to school adjustment, be it socially, emotionally, academically, or institutionally. Similarly, he stated that the presence of encouragement among siblings has a bearing on school adjustment as he made the following comment:

> *"Hmm, it's quite interesting. I see a relationship here. Siblings engaging in activities together at home which can lead to school adjustment. For instance, activities like encouragement, involvement, and goal setting among siblings influence learners' school adjustment" (student 3).*

However, student 5, when addressing the matter, emphasized that sibling relationships, particularly in terms of academic engagement, involvement, goal setting, and encouragement, do not impact how students adjust in school. She asserted that these variables specifically pertain to the academic adjustment aspect and not the

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overall adjustment process. In her holistic perspective, she contended that sibling relationships, in their entirety, do not play a role in school adjustment, as the two variables are not interconnected or associated in any meaningful way. He remarked:

> *"Alright, in my perspective, the question you've brought up seems to indicate that these factors don't have a relationship. When we talk about encouragement, goal setting, academic engagement, and involvement within the context of sibling relationships, I believe none of these factors truly relate with school adjustments." (student 5)*

In summation, for research question one, most interviewees in this study contended that there was no direct relationship between birth order and school adjustment. For research question two, interviewees revealed that there was a relationship between sibling relationship and school adjustment of senior high school students. The outcome of the interview data confirmed the findings of the quantitative data analysis which suggest that there was no relationship between birth order and school adjustment but confirmed the quantitative finding that there was a relationship between sibling relationship and school adjustment of senior high school students.

4.6 Discussion of Findings

This section delves into the analysis of the findings presented in chapter four. The first research question was analysed using means and standard deviation. Additionally, seven (7) hypotheses were formulated and tested to provide guidance for the researcher in investigating the specified objectives: exploring the existing components of school adjustment among senior high school students, examining the relationship between birth order and the school adjustment of senior high school students, exploring the relationship between sibling relationships and school adjustment of senior high school students, and finally, assessing which set of sibling relationships predicts student school adjustment.

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1. **To explore which indicators of school adjustment are most prevalent among senior high school students in the Central Region of Ghana**

Regarding which indicators of school adjustment are most prevalent among senior high school students, the current study discovered that academic adjustment is most prevalent among students followed by social adjustment, personal/emotional adjustment and finally, institutional adjustment. This finding diverges from the assertions of Chin and Yu (2008) and Liebkind et al. (2004), who proposed that school adjustment involves adapting to the intellectual, socio-emotional, and behavioral demands of the school. Instead, the study revealed that adolescents in school demonstrate positive academic adjustment but negative socio-psychological adjustment. This suggests an incomplete adjustment because a comprehensive school adjustment should entail a balance between academic and socio-psychological aspects. It is essential for adolescent adjustment in school to encompass equilibrium in both academic and socio-psychological dimensions, not favoring one over the other. In line with this perspective, Fan and Wolters (2014) noted that difficulties in adjusting to the school curriculum contribute to individual factors leading to school dropouts.

2. **To examine the relationship between birth order and school adjustment of senior high school students**

The results of the hypothesis 1 imply that birth order differences among respondents do not account for academic, institutional, personal/emotional and social adjustment among the students. Therefore, birth order of students did not matter in the discourse of factors that determine differences in students' academic, institutional, personal/emotional and social adjustment. The same was found when the interview data was analyzed. This finding is consistent with that of Waghmare (2016), who

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found no discernible differences between first-born, second-born, and third-born people in terms of Home Adjustment, Social Adjustment, Emotional Adjustment, and Health Adjustment. Regarding birth order variables, Esposito, Kumar, and Villaseñor (2020) found negative and very significant coefficients on adjustment, which corroborated the findings of the current study. The results of this study are in line with Borne and Mears' (2009) finding that sibling ordinal position had no discernible impact on children's conduct. Similar to the current findings, Ekeh and Iyomatere (2016) found no discernible impact of first and second-born positions on pupils' social adjustment. Consistent with the current study, Kanu and Gayatri (2018) found that birth order has no discernible effect on teenagers' emotional adjustment. In a similar vein, Ramesh (2018) discovered no appreciable variations in the adjustment of first-, second-, and third-born students in terms of their homes, social lives, emotions, and health. It was shown by Kaemra and Singh (2021) that first-borns and second-borns do not differ in their adjustments. Additionally, Hoang and Quang (2021) found that, although this effect lessens with the youngest sibling, birth order has a considerable detrimental impact on a child's educational performance.

The current study's findings, however, deviate from William's (1959) assertion that being the last child in large families, the middle child in a family of three, or the firstborn, particularly in households of two, is positively correlated with excellent adjustment. In contrast, Hotz and Pantano (2013) observed that children born first have higher adjustment scores, but children born last have the lowest adjustment scores. They ascribed this to a decrease in the severity of parental disciplinary measures. According to Preeti and Navin (2016), first-born children are also more likely to exhibit perfectionistic tendencies, and paternal effects are more significant

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when it comes to making decisions and demonstrating conscientiousness in interviews.

Similarly, Joy and Mathew (2018) found that teenagers of diverse birth orders, including first-borns, differed significantly in their emotional maturity and overall well-being. These results are supported by Easey et al. (2019), who claimed that first-born children are better adjusted and linked greater birth order to lower adjustment levels. Birth order variables had negative and very significant coefficients on adjustment, according to another study by Esposito et al. (2020). According to Hoang and Quang (2021), birth order has a considerable detrimental impact on a child's educational attainment, albeit this effect lessens with the youngest sibling. Lastly, Alabbasi et al. (2021) agreed that first-borns were more adjusted than later-born youngsters, as shown by divergent thinking. However, there was no discernible difference between first-born children with siblings and only children. As siblings vie for parental attention by claiming particular positions within the home, this finding supports Adler's (1964) theoretical assumption that birth order inequalities affect kids' adjustment levels.

Once more, the results contradict Alfred Adler's (1964) theory that pupils' adjustment levels are influenced by birth order disparities. Birth order has a lasting impact on a person's way of living, according to Adler, who first proposed a theoretical analysis of birth order impacts in 1928 (Srivastava, 2011). Adler (1928) asserts that a child's place in the family creates unique issues that call for particular kinds of answers. According to Adler, a child's character and, in turn, their ability to adapt to new situations are influenced by the events surrounding their birth and how they interpret them. Additionally, Adler posited that even though children share the same parents

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and grow up in nearly identical family settings, their social environments are not identical (Srivastava, 2011).

3. To explore the relationship between sibling relationship and school adjustment of senior high school students

Hypothesis 2 sought to find if there is no statistically significant relationship between sibling relationship and student school adjustment of senior high school students was not accepted while the alternative hypothesis was accepted. This result shows that there was a relationship between sibling relationship school adjustment of senior high school students. The analysis of interview did not prove otherwise. The results of the current study align with the findings of Soonyoung and Shinhong (2016), Vasuki and Micheal-Raj (2015), Van-Geel and Vedder (2011), Lee, Hamman, and Lee (2007), as well as Kemjika and Gladys (2017). These researchers, in their respective studies, also identified a positive correlation between sibling relationships and school adjustment in students.

The findings of the current study are consistent with available literature that sibling relationships serve as predictors of adolescents' adjustment in school. The study's results indicated a positive nature in sibling relationships, characterized by cooperation, warmth, support, commitment, and responsiveness. These findings align with the research conducted by Oliva and Ananz (2005), suggesting that having a supportive sibling relationship correlates with positive social and personal adjustment in adolescents. Teti (2002) also supports these results by emphasizing the significant role of sibling relationships in developing social skills, given that children spend a considerable amount of time interacting with their siblings and learning social interaction patterns. Pike et al. (2005) further noted that sibling relationships are

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linked to the development of pro-social skills like empathy and cooperation, contributing to the psychosocial competence of children and fostering positive outcomes. This underscores the idea that siblings' commitment, cooperation, and support not only nurture positive relationships but also equip siblings with the skills and resilience needed to adapt to various life situations, facilitated through parental guidance and the influence of older siblings within the family.

The results of this study align with the research conducted by Branje et al. (2004), which demonstrated that sibling support is primarily inversely correlated with externalizing problems, while sibling problem behavior is strongly linked to internalizing problems. The adjustment that adolescents develop over time is associated with either supportive sibling relationships or problematic behaviors among siblings. The findings suggest that a positive and supportive sibling relationship is connected to positive adjustment, whereas problematic behaviors among siblings are linked to poorer adjustment outcomes.

As a prerequisite for proper adjustment in school, Brody (2004) and Milevsky and Levitt (2005) emphasized that adolescents are more likely to develop a mature identity status essential for school adjustment when their siblings offer warmth, support, intimacy, caring, and encouragement in their pursuit of independence.

While siblings have been relatively understudied by developmental and family scholars, they play a distinctive role in adolescents' adjustment. However, existing research in this field is primarily focused on European and European American families (McHale et al., 2012). This research tradition, often grounded in a social learning model, underscores the significance of reinforcement and modeling processes in explaining the connection between negativity in sibling relationships and youth

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adjustment problems. Seminal work by Patterson (1984), for instance, revealed that sibling relationships can act as training grounds for aggressive and deviant behaviors. Brothers engaged in coercive and hostile interactions, which were subsequently reinforced and escalated.

Consistent with these social learning processes, other researchers found that sibling negativity during middle childhood and adolescence, including conflict, aggression, and coercive exchanges, was associated with concurrent and later externalizing problems such as deviance, bullying, and substance use (Bank, Burraston, & Snyder, 2004; Criss & Shaw, 2005; Solmeyer, McHale, & Crouter, 2014; Stocker, Burwell, & Briggs, 2002). Notably, research using genetically informed designs revealed that the links between sibling negativity and externalizing behaviors emerged independently of other influences, including shared genes and shared parenting (Natsuaki, Ge, Reiss, & Neiderhiser, 2009).

In addition to externalizing problems, sibling negativity also predicted adolescents' internalizing symptoms, such as anxiety and depression, while controlling for parent-child relationship qualities and earlier adjustment (Kim, McHale, Crouter, & Osgood, 2007; Stocker et al., 2002). Finally, using a pattern analytic approach and drawing on the first phase of data from the current sample, McHale et al. (2007) found that African American sibling relationships characterized by a combination of high negativity, high control, and low positivity were linked concurrently to more depressive symptoms in older and younger siblings and more risky behavior in older siblings.

A limited body of research indicates that positive qualities in sibling relationships act as a protective factor for youth adjustment. For instance, in a cross-sectional study

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involving British siblings in middle childhood, Pike, Coldwell, and Dunn (2005) discovered that sibling positivity correlated with more prosocial behaviors and fewer behavioral problems in older siblings. This correlation persisted even after considering parent-youth relationship qualities and sibling negativity. Another longitudinal study in the United States demonstrated that sibling affection during early adolescence predicted increased prosocial behaviors and reduced externalizing behaviors one year later (Padilla-Walker, Harper, & Jensen, 2010). Similarly, a study involving Dutch youth found that sibling support was associated with lower levels of internalizing and externalizing problems in early adolescence (Branje, van Lieshout, van Aken, & Haselager, 2004). Importantly, the latter study revealed that the impact of sibling support persisted even after controlling for support received from mothers, fathers, and friends. Lastly, in a representative sample of British families, Gass, Jenkins, and Dunn (2007) found that sibling positivity mitigated the effects of stressful life events on internalizing symptoms, with adjustments and parent-child relationships taken into account.

Existing evidence underscores both the risk and protective functions of sibling negativity and positivity during adolescence, although the majority of research has been concentrated on European and European American families. A notable limitation is that many studies have explored the correlates of either positivity or negativity independently, analyzing these two relationship dimensions separately. However, in the day-to-day experiences of youth, positivity and negativity do not exist in isolation, and the impact of one may either mitigate or intensify the effects of the other. Utilizing pattern-analytic or person-centered techniques, researchers have demonstrated that specific combinations of sibling positivity and negativity have distinct implications for adolescents' adjustment (Buist & Vermande, 2014; McHale et

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al., 2007; McGuire, McHale & Updegraff, 1996; Whiteman & Loken, 2006). While few variable-oriented studies have compared the correlates of sibling positivity and negativity, one study found that conflict, not warmth, was associated with adolescent antisocial behavior (Criss & Shaw, 2005), while two others indicated that positivity consistently showed stronger links than negativity to adjustment in both middle childhood (Pike et al., 2005) and adolescence (Padilla-Walker et al., 2010). The present study seeks to enhance understanding by employing longitudinal data to investigate the relationship between sibling positivity and negativity and the adjustment of African American adolescents, focusing on markers of internalizing (e.g., depressive symptoms) and externalizing (e.g., risk-taking) behaviors, both of which tend to manifest and increase during adolescence (Cicchetti & Toth, 1998; Steinberg, 2004, 2007).

Siblings play a crucial role in human development, serving as a platform for honing interpersonal skills, providing role models, and serving as a primary source of both emotional and instrumental support. Past research has identified a connection between life satisfaction and the strength of sibling relationships (Hollifield & Conger, 2015; Ponti & Smorti, 2019).

Sethi's (2022) study on the correlation between sibling relationships and life satisfaction among college students found a positive relationship, aligning with the findings of the current study. According to Dirks et al. (2015), sibling relationships offer a distinctive and influential context for student development, encompassing both positive elements like warmth and intimacy and negative aspects such as intense and potentially detrimental conflicts. The research explores the evidence linking sibling interactions to internalizing and externalizing symptoms, delving into the potential

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reasons behind these associations. Sibling conflict contributes uniquely to symptomatology, especially when accompanied by a lack of warmth, which is associated with fewer internalizing and externalizing issues. Conversely, greater warmth has been linked to increased externalizing symptoms, particularly among later-born children who may emulate the behavior of their older siblings. While increased sibling collusion should be monitored, intervention studies demonstrate the feasibility of reducing conflict and enhancing warmth between siblings. Improving sibling interactions through such interventions can equip children with social-cognitive skills beneficial for other relationships, such as friendships.

4. To examine which set of sibling relationship predict student school adjustment in the Central Region of Ghana

The null hypothesis that "Sibling relationship will not statistically significantly predict school adjustment of senior high school students" was not supported in relation to goal setting, involvement and encouragement while the alternative hypothesis was supported. However, the null hypothesis was supported in relation to academic adjustment while its corresponding alternative hypothesis was not supported.

The current study supports the findings of Milevsky and Levitt (2005), who found that teenage boys who received support from their siblings had superior academic accomplishment than girls. However, Bouchey and colleagues (2010) found that adolescents' academic achievement declined when they received support from an older sibling. Positive school adjustment is a crucial outcome of interest for researchers and professionals in education, and it is a desirable outcome for both parents and youth. Educators, parents, and society, at large, often pose the important

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question of how to promote positive school adjustment in students and identify factors or contexts influencing adjustment throughout a child's development.

According to Bronfenbrenner (1986), a variety of micro and macroenvironmental factors influence a child's development. One context that has been thoroughly researched for its impact on adjustment is the family. The importance of parents in helping children adjust to school has been the subject of many studies, but surprisingly, little research has been done on the impact of siblings, who are essential family members.

Most children live with at least one sibling, according to the literature, and there are many opportunities for sibling influence because of the close proximity and frequent interaction between an older and younger sibling. Older siblings who are close in age, for instance, may serve as role models for their younger siblings to follow or set apart during adolescence. This phenomenon is supported by a number of research findings, which show that younger siblings frequently behave similarly to their older siblings in a variety of areas, such as substance use (Fagan & Najman, 2005), risky sexual behavior (McHale et al., 2009), delinquency (Craine, Tanaka et al., 2009), and social competence (Kim et al., 2007). Furthermore, there is proof that siblings typically attain similar academic results (Widmer & Weiss, 2000), and teenagers believe that they are similar to their siblings in the academic realm (Watzlawik, 2009).

While some siblings share similarities in behavior and academic achievement, it's crucial to note that not all siblings experience similar outcomes. There may be specific processes within sibling relationships that either foster or hinder such similarities. A social learning paradigm has been used in recent studies to pinpoint

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aspects of sibling interactions that may help younger siblings achieve outcomes more similar to those of their older siblings (e.g., Whiteman, Becerra, & Killoren, 2009).

Adjusting to school environments affects career chances, post-secondary education access, and eligibility for advanced courses, all of which have a substantial impact on educational and professional prospects. Elderly siblings have the power to encourage or discourage their younger siblings' academic success. Therefore, this dissertation expands on earlier studies by examining the elements of sibling relationships that predict adolescents' school adjustment.

Bandura's (1969) earlier version of social learning theory, which has been used in sibling research, is consistent with the current finding. Although the core concepts of social learning theory have been applied in sibling studies (Whiteman et al., 2007a, 2010), social cognitive theory, which is an evolution of social learning theory, places an emphasis on human agency (Bandura, 2001). According to the social learning theory, people might pick up behaviours by watching others engage in them. Siblings' similarities in risky conduct, psychological adjustment, and academic achievement have been attributed by numerous researchers to social learning processes (Bouchey et al., 2010; Craine et al., 2009; Kim et al., 2007). Self-reported sibling influence and behavioural outcomes have been directly examined in a few research (Whiteman & Christiansen, 2008; Whiteman et al., 2010).

Younger siblings are presumed to see older siblings as role models, leading to similar behaviors and outcomes. Bandura (1969) identified four crucial variables influencing behavioral imitation: nurturance, vicarious reinforcement, status, and similarity. These variables have been examined to varying extents in the context of sibling relationships, as detailed below. It is assumed that younger siblings emulate their

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older siblings' actions and results because they view them as role models. Four key factors influencing behavioural imitation were identified by Bandura (1969):

This recent discovery contradicts literature proposing that negative sibling relationships improve positive developmental outcomes in adolescence (Kramer, 2010). Instead, it aligns with attachment theory, which argues that positive relationships promote the development of social competence and reduce individuals' vulnerability to risks. Bowlby (1969) suggests that positive relationships offer resources that bolster individuals' capacity to navigate future challenges and adversities.

According to Dunkel-Schetter et al. (1987), social assistance can be divided into four different categories: evaluation, informational support, instrumental support, and emotional concern. There has been no previous research on whether there are distinct kinds of sibling academic support, despite some evidence that suggests that particular aspects of support from different sources (parents, siblings, teachers, classmates, and friends) may have different effects on student adjustment outcomes (Malecki & Demaray, 2003). Furthermore, if there are such different kinds, it is unknown if they have different effects on siblings' results when it comes to adjusting to school. Four different sibling relationship types such as encouragement, goal-setting, academic engagement, and involvement were examined in the current study.

Interestingly, the four dimensions described in the social support literature (e.g., Dunkel-Schetter et al., 1987) did not exactly match the four parameters that were found. Encouragement included elements of both instrumental support (e.g., "My brother/sister helps me when my school work is difficult") and evaluation (e.g., "My brother/sister praises me when I do well in school"). Nevertheless, none of the

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anticipated aspects of social support were exactly matched by the other elements. For example, goal planning involved the elder sibling helping the younger sibling set deadlines, schedule time, and make a strategy to accomplish academic goals—actions that offer structure and organization instead of providing practical assistance. The modelling component of social learning theory (e.g., Bandura, 1969) and the younger sibling's assessment of the older sibling's image (e.g., Widmer & Weiss, 2000) were more strongly associated with academic engagement than with social support.

Hypothesis 4. There is no statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana

Based on these findings, the null hypothesis stating that "There is no statistically significant difference in sibling relationships based on the gender of senior high school students in the Central Region of Ghana" was supported, while the alternative hypothesis was not supported. This outcome contradicts Öz Soysal (2016), who observed that gender and sibling dyads (sisters, brothers, and siblings of the opposite gender) were associated with significant differences in life satisfaction and sibling relationships. Specifically, students with siblings of the same gender tended to exhibit more positive attitudes toward sibling relationships compared to those with siblings of the opposite gender, aligning with the findings of earlier studies (Oliva & Arranz, 2005).

Furthermore, Buhrmester and Furman (1990) found that siblings of the same gender tended to be closer to each other than those of the opposite gender. Tucker, Barber, and Eccles (1997) noted that same-gender sibling dyads exhibited greater openness, support, and influence on each other. In contrast, female students with same-gender siblings experienced lower levels of loneliness, while male students with opposite-

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gender siblings reported decreased loneliness. Milevsky (2011), in his study on sibling relationships, emphasized that adolescent females demonstrated more care and companionable behavior toward their siblings compared to adolescent males. In light of these findings, it can be inferred that having female siblings contributed to a reduction in loneliness.

According to Dunn et al. (1994), there is a perception that females are more involved in intimate sibling relationships compared to males, with the bond between sisters being described as the most intense among sibling relations. Hetherington (1988) demonstrated that boys consistently have more negative relationships with their siblings and tend to exhibit more aggression towards them than girls, as highlighted by Milevsky (2011). In terms of emotional dynamics, females are perceived to receive more advice, feel more satisfied with support, and be more deeply influenced by their siblings than males, as noted by Tucker, Barber, and Eccles (1997). Additionally, female siblings have been found to have a higher potential to generate emotionally supportive outcomes during the adolescent years (Howe, Aquan-Assee, Bukowski, & Rinaldi, 2001).

In research focused on siblings during childhood and adolescence, it was discovered that the gender constellation of siblings has an impact on their relationships, with same-sex siblings reporting higher levels of intimacy and lower levels of hostility than opposite-sex siblings (Buhrmester & Furman, 1990). Specifically, sister-sister relationships were found to exhibit the highest levels of warmth, intimacy, and closeness (Buhrmester & Furman, 1990; Dunn et al., 1994; Riggio, 2000). Sisters, when compared to other sibling gender constellations, were shown to feel most similar to each other and served as close companions (Buhrmester & Furman, 1990).

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Hypothesis 5. There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana.

Therefore, the hypothesis that "There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana" was not supported in relation to academic adjustment while the alternative hypothesis was supported. However, the null hypothesis was supported in relation to institutional adjustment, personal/emotional adjustment, social adjustment as well as the overall school adjustment while the alternative hypothesis not supported. Manju (2011) examined adjustment among high school students based on gender and found no significant differences in emotional, social, educational, and total adjustment. Ganai and Mir (2013) reported no significant difference between male and female college students in total scores on the adjustment scale, and the two groups did not differ in scores on individual dimensions of the adjustment scale or in terms of academic achievement. Additionally, Paramanik, Saha, & Mondal, (2014) study revealed no significant difference in the adjustment of students residing in urban or rural areas, though girls had a higher mean adjustment score than boys, suggesting better adjustment among girls. On the other hand, Sangeeta and Chirag (2012) found that male college students experienced fewer adjustment problems compared to female college students. Furthermore, Kaur (2012) found that girls demonstrated higher adjustment power than boys, with no influence of locality on adjustment power.

The results of this research question indicate that male and female individuals born later in the birth order exhibited higher academic adjustment, but no significant differences were observed in terms of institutional adjustment, personal/emotional

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adjustment, and social adjustment. Additionally, the findings suggest that male last-born individuals were more socially adjusted than their female counterparts. However, the statistical results of hypothesis three showed that the influence of middle and last-born positions on social adjustment was significant for both male and female students. This outcome might be attributed to the fact that the early-formed patterns of behavior and attitudes, as observed in both male and female students in this study, remained consistent, leading to differential effects of middle and last-born positions on the social adjustment of male and female students. It may also indicate that, regardless of birth order, male and female students in this study had diverse experiences with their peers. Furthermore, this finding aligns with Onyekuru's (2009) discovery that female adolescents who are middle-borns exhibit significantly higher social adjustment compared to their male counterparts.

The research conducted by Chi, Kim, and Kim (2018) found that when considering gender, no statistically significant associations were observed with the Overall Index of Adjustment. However, male students exhibited higher adjustment scores than female students in Academic and Personal Adjustment, whereas female students showed higher scores in the scales of Social Adjustment and Attachment to the university. Overall, female students had a higher Overall Index of Adjustment compared to male students.

Hypothesis 6. There is no statistically significant difference in school adjustment of senior high school students based on age

Based on these findings, the hypothesis that "There is no statistically significant difference in school adjustment of senior high school students based on age" was supported while the alternative hypothesis was not supported. Hence, the findings suggested that age was not among the factors that accounted for differences in the

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students' school adjustment. The current finding contradicts the research of Dawborn-Gundlach and Margetts (2018), which identified age as a clear and influential factor in university adjustment. Kantanis (2002) and Cushman (2004) highlighted that mature-age students, though facing similar challenges as those who enter university directly from secondary school, may encounter additional issues. This group is more likely to have a partner, dependent children, or aging parents, impacting their ability to manage competing demands on their time. Balancing these responsibilities can affect their campus time, participation in on-campus activities, and potentially hinder their sense of belonging to the university.

The findings of the present study are inconsistent with the research conducted by Chi, Kim, and Kim (2018). According to their study, the mean Overall Index of Adjustment was higher for students aged over 40 years compared to those in the age group of 23–40 years. Additionally, adjustment scores for the over 40 age group were higher on all scales except for Social Adjustment when compared to students aged between 23 and 40 years. However, the study did not find statistically significant relationships between age (within the mature-age category) and the Overall Index of Adjustment.

4.7 Chapter Summary

The present chapter has dwelt on the data presentation and analysis of study variables. Firstly, the chapter dealt with descriptive analysis of sample characteristics, as well as the means and standard deviations of study variables. Then, data presentation and analysis focused on testing the seven research hypotheses to achieve the desired objectives of the study. Correlation analysis using Pearson Product-Moment was used to examine the relationship among the variables of interest.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The primary objective of this study was to investigate the impact of birth order and sibling relationships on school adjustment, focusing on selected senior high schools in the Central Region of Ghana. This chapter provides a comprehensive overview of the study, summarizes the key findings, and draws conclusions based on the research outcomes. Additionally, it offers recommendations for administrative interventions and suggestions for future research. The chapter concludes with a summary of its main points.

5.2 General Summary

This research focused on senior high school students and investigated the impact of two independent variables, namely birth order and sibling relationship, on a dependent variable called school adjustment. School adjustment, in this context, encompassed academic adjustment, social adjustment, personal emotional adjustment, and institutional adjustment. The study aimed to identify the components of school adjustment present among senior high school students, explore the relationship between birth order and school adjustment, investigate the connection between sibling relationship and school adjustment, and determine which aspects of sibling relationships predict students' school adjustment in the Central Region of Ghana. The research formulated four main research questions and tested seven hypotheses. The study drew on Adler's theory of birth order to provide a theoretical framework for understanding the relationships between the variables under investigation. A mixed-method approach, incorporating both quantitative and qualitative research methods,

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was employed. The research used a sequential explanatory mixed method design to comprehensively explore the specified variables.

The participants in this study were randomly selected from various senior high schools in the Central Region of Ghana, totaling 522 respondents. Data collection involved the use of rating scales and interviews. A structured questionnaire, incorporating a five-point Likert scale, was utilized to gather information from students about birth order, sibling relationships, and school adjustment. The obtained responses were manually coded and subjected to analysis using the Statistical Package for Social Sciences (SPSS version 21). The analysis included generating frequencies, percentages, means, and exploring relationships among the study variables. To assess the significant relationships among variables, the Pearson Moment Product Coefficient (r) and step-wise multiple regression were employed. Additionally, the independent samples t-test and One-Way Analysis of Variance (ANOVA) were utilized to test supplementary hypotheses.

The study outcomes indicated that the birth order of students did not play a significant role in influencing variations in academic, institutional, personal/emotional, and social adjustment among students. Additionally, there was a moderate and statistically significant positive correlation between school adjustment and sibling relationships. Moreover, the research findings highlighted that, concerning sibling relationships, factors such as sibling goal setting, involvement, and encouragement had a significant predictive influence on school adjustment, whereas academic engagement did not.

This research aimed to contribute to the existing literature by exploring the dynamics of social adjustment, academic adjustment, personal/emotional adjustment, and institutional adjustment, particularly in relation to birth order and sibling relationships

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among senior high school students. Given the expansion of senior high school education in Ghana and the increased enrollment in schools, the study's findings provide insights into the intricate challenges students face in adjusting, within the cultural context of Ghana. The results can serve as valuable information for senior high school administrators, enabling them to develop targeted intervention programme s to support students in coping with the demands and challenges encountered in the educational environment. These programmes may include strategies to identify and assist students at risk of adjustment issues, ultimately working to prevent psychological disorders that could lead to attrition.

5.3 Key Findings

5.3.1 To explore which indicators of school adjustment are most prevalent among senior high school students in the Central Region of Ghana

The current study discovered that academic adjustment was most prevalent among senior high school students followed by social adjustment, personal/emotional adjustment and institutional adjustment.

5.3.2 To examine the relationship between birth order and school adjustment of senior high school students

The results obtained through one-way between-group ANOVA indicated that variations in birth order among the respondents did not play a significant role in accounting for differences in academic, institutional, personal/emotional, and social adjustment among the students.

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5.3.3 To explore the relationship between sibling relationship and school adjustment of senior high school students

The results obtained from this study indicated a statistically significant relationship between sibling relationships and school adjustment. These findings lead to the conclusion that sibling relationships serve as a consistent predictor of school adjustment among senior high school students.

5.3.4 To examine which set of sibling relationship predict student school adjustment in the Central Region of Ghana

The findings revealed that goal-setting made a distinctive and statistically significant contribution to school adjustment. Consequently, it can be concluded that goal-setting consistently predicts school adjustment, suggesting that students who effectively adapt to their academic environment are likely to set clear goals for their studies.

There is no statistically significant difference in sibling relationship based on gender of senior high school students in the Central Region of Ghana

The data analysis, utilizing the independent samples t-test, indicated that there was no substantial difference in sibling relationships concerning the students' gender. Consequently, it can be inferred that gender does not consistently determine sibling relationships among senior high school students.

There is no statistically significant difference in students' school adjustment based on gender in senior high schools in the Central Region of Ghana

The data analysis, utilizing the independent samples t-test, revealed a significant difference in academic adjustment between male and female senior high school students. However, no significant gender-based differences were observed in institutional adjustment, personal/emotional adjustment, and social adjustment.

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Consequently, it can be concluded that gender consistently influences academic adjustment among senior high school students.

There is no statistically significant difference in school adjustment of senior high school students based on age

The analysis, conducted using one-way between-group ANOVA, indicated that there is no statistically significant difference in school adjustment among senior high school students based on age. This suggests that age is not a contributing factor to differences in the students' school adjustment.

5.4 Conclusion

The research findings suggest that the order of birth does not have a significant impact on the adjustment of senior high school students, encompassing academic, social, emotional, and institutional aspects. Consequently, birth order does not contribute significantly to the variability observed in the overall adjustment of senior high students. The study concludes that an individual's birth order does not play a crucial role in shaping their ability to adapt to new environments, such as the senior high school setting. Specifically, no noteworthy distinctions were identified among first-borns, second-borns, and last-borns concerning school adjustment. Likewise, first-born students do not exhibit a distinct internal readiness, involving cognitive, behavioral, psychological, and emotional strategies, for adapting to new environments and challenges when compared to their counterparts.

This study presents compelling evidence that sibling relationships are complex and have a significant correlation with school adjustment, particularly in academic outcomes for siblings. Among the various factors analyzed, sibling academic engagement emerged as the most influential aspect of sibling relationships associated

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with academic outcomes. The study also identified additional factors such as parent expectations of achievement and differentiation that had a notable impact on siblings' academic outcomes, especially when the sibling is a high achiever.

In summary, the study concludes that birth order differences among respondents do not play a substantial role in explaining variations in academic, institutional, personal/emotional, and social adjustment among students. Additionally, it asserts that sibling relationship consistently predicts school adjustment among senior high school students. Specifically, goal setting and sibling encouragement were identified as key contributors to school adjustment, suggesting that siblings who mutually encourage and set common goals tend to adapt more effectively in the school environment. Furthermore, the study dismisses the notion that birth order, particularly middle-borns and last-borns, significantly influences students' school adjustment, implying that birth order does not enhance school adjustment in senior high school students. Moreover, the study concludes that gender does not consistently determine sibling relationships among senior high school students but does play a consistent role in academic adjustment. Lastly, the study findings indicate that age is not a significant factor influencing differences in students' school adjustment.

In conclusion, the findings of this study underscore the insufficient exploration of birth order's implications for school adjustment. Recognizing the potential impact on individual students and tailoring educational approaches to meet their specific requirements, it becomes crucial to equip teachers and administrators with appropriate training to facilitate students in reaching their maximum potential.

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5.5 Counselling and Educational Implications

In the contemporary era, dynamic changes are occurring across various fields, necessitating the need for adjustment. To align with the evolving society, individuals must adapt themselves or their environments. Failure to keep up with the changing times can result in an individual being marginalized in society. Therefore, continuous self-improvement is essential. In psychology, adjustment refers to the behavioral process through which humans and animals maintain equilibrium among their diverse needs or between their needs and environmental challenges.

The process of adjustment begins when a need is recognized and concludes when that need is satisfied. For instance, hungry individuals are driven by their physiological state to seek food. Once they eat, they alleviate the stimulating condition that prompted their activity, achieving adjustment to that specific need. However, challenges may arise in making emotional, social, institutional, and educational adjustments. These adjustments are crucial for personal and social peace and harmony. In the educational context, learners actively engage with the school environment, contributing to the process of adjustment rather than passively adhering to the school's programme.

Adjustment is fundamentally a process of re-learning, influenced by various factors. Many maladjustments stem from unfortunate learning experiences. There are two perspectives to consider when examining adjustment. Firstly, adjustment can be seen as an achievement, assessing how well an individual manages conflicts and alleviates resulting tension. Secondly, adjustment can be viewed as a process, evaluating how an individual adapts or compromises with their situations.

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In essence, adjustment fosters peace and harmony in homes, schools, societies, and countries. It is a psychological process that requires a supportive environment and equal opportunities for exploration, particularly in educational settings. The initial concept of adjustment was biological, referred to as adaptation. The implications of the present study extend to teachers, educational administrators, curriculum developers, and parents. Parents and teachers bear the responsibility of identifying areas where students struggle with adjustment and creating favorable conditions for proper adjustment in all spheres. It means, therefore, that, Guidance and counseling services should be offered to students at all levels of education, addressing various aspects of adjustment.

Sensitive parenting involves employing age-appropriate strategies when interacting with children of different age groups. Effective parental strategies for navigating sibling relationships, especially emphasizing constructive approaches such as negotiated resolutions and prosocial behaviors, are crucial for fostering positive social skills and the ability to interact harmoniously with others. On the contrary, discouraging destructive strategies like coercion and aggression is equally important.

The implications for services and policies suggest that certain parents may require assistance in handling these issues. Therefore, there is a pressing need for the development of parent education programme s and interventions specifically targeting sibling dynamics. Research indicates that interventions aimed at training parents to mediate sibling behavior can be successful. However, it’s noteworthy that reducing conflicts does not necessarily lead to an increase in prosocial interactions among siblings.

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Several intervention programme have been designed, some focusing on enhancing parents' guidance strategies without directly involving the siblings. On the other hand, a promising social skills intervention programme that directly addresses siblings has shown success in improving the quality of sibling relationships and enhancing emotion regulation skills. Moreover, this programme has demonstrated positive outcomes in improving parental emotional regulation. Nevertheless, further refinement and development of intervention programme dedicated to enhancing sibling relationships represent an important area for future work, both in terms of services and policy perspectives.

5.6 Recommendations

Based on the findings and conclusions of this study, the following recommendations are presented:

1. The study found that academic adjustment was most prevalent among senior high school students followed by social adjustment, personal/emotional adjustment and institutional adjustment. The study therefore emphasizes the need for school authorities to implement adjustment programme for secondary school students. It recommends the organization of orientation programme social activities, and student organizations within the school environment to enhance overall adjustment in students by school authorities. This can be done by creating of a positive, open, and friendly atmosphere that encourages free interaction between students and teachers. Maintaining a favorable school climate is deemed significant in shaping students into individuals capable of meeting life's challenges effectively. Senior high schools play a crucial role in helping students identify and overcome potential obstacles to both social and academic adjustment. Utilizing effective counseling-based interventions has

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proven to be beneficial for students facing adjustment challenges. Additionally, planning appropriate interventions tailored to individual needs can aid students in coping with the demands of the school environment. School staff, including tutors and academic advisors, should actively participate in orientation programme s to offer essential guidance and support, thereby enhancing students' adjustment skills and abilities.

2. The study found no relationship between birth order and school adjustment of senior high school students. Even though no relationship was found between birth order and school adjustment of senior high school students, it is recommended that schools will also consider birth order of students when taking decisions about the welfare of students especially in their academic and social lives. This can be done when teaching, doing admissions, offering counselling to students, designing programme s and others. The essence of this is that it enables students not be denied any opportunity as a result of their birth order.
3. The study found a significant relationship between sibling relationships and school adjustment. It is recommended that families prioritize effective communication and building effective relationship among siblings. Additionally, training programmes should be organized for counselors and para-counselors (secondary school teachers) on principles that contribute to peaceful and harmonious family living to enable them operate effectively. Stakeholders such as teachers, counselors, and school authorities should encourage families to provide support to children facing school adjustment challenges, given the observed connection between sibling relationships and students' school adjustment. This plays a crucial role in fostering positive

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bonds among family members, promoting understanding, and reducing conflicts among siblings. School adjustment relies significantly on social support, emphasizing the importance of robust student support services for fostering a positive campus environment. Recommendations include an ongoing commitment from school administrators and stakeholders to create a conducive atmosphere and ensure the availability of social support for students.

4. The study aimed to identify the sibling relationship components predicting students' school adjustment, and it was found that goal setting significantly contributed to school adjustment. The recommendation is for senior high schools to eliminate barriers hindering students' full engagement in the academic domain. Aside the schools eliminating barriers hindering students' full engagement in the academic domain, schools and parents should also help their children set simple, measurable, achievable realistic and timebound goals that is linked to their future goals and aspirations. Providing students with essential skills for academic goal setting can enhance decision-making and goal involvement, potentially improving overall educational outcomes.
5. The study indicated that there was no difference in sibling relationships based on students' gender. The study therefor recommends that since gender does not determine sibling relationships among senior high school students, parents should create an enabling environment for their children to explore and to enjoy healthy relationship among their siblings. Then again, schools must equally create similar enabling environment for students to explore without any gender discrimination,

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6. Results indicated significant differences in school adjustment, particularly in academic adjustment, based on gender among senior high school students. This suggests that gender is a consistent factor influencing academic adjustment, making it one of the predictors of this aspect. Recommendations include implementing measures to enhance gender roles, exposure, and involvement in the college environment. Strategies such as fostering positive staff-student interactions and encouraging participation in extracurricular activities may contribute to improving academic adjustment for college students.
7. The study showed no significant difference in school adjustment of senior high school students based on age. The results suggest that age is not a factor to differences in the students' school adjustment of senior high school students. It is therefore recommended that counsellors should not give much consideration to age when providing counselling services to students when it has to do with school adjustment. Also, ministries, department, agencies as well as Non-Governmental Organisations should enroll programmes that provide equal opportunities to all age groups in senior high schools.

5.7 Suggestions for Future Research

Firstly, it's important to note that this study adopted a cross-sectional design, limiting the ability to draw conclusions about the long-term impact of sibling relationships on later outcomes. Future investigations should take into consideration employing longitudinal studies, similar to studies carried out by Bouchey and colleagues (2010), to give a more comprehensive meaning of how sibling relationships impact outcomes over time and the underlying mechanisms involved.

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Secondly, the data in this study were solely obtained from younger siblings, introducing the possibility of any bias. While previous research has indicated the validity of self-reported predictors, future studies could enhance objectivity by incorporating more scientific measures of outcomes, such as obtaining academic grades from school records rather than relying solely on self-report questions.

Thirdly, the study utilized a diverse sample, which may have masked potential differences in ethnicity among the achievement groups. Future research should explore these potential ethnic differences with enough statistical power to detect significant variations among iverse ethnic groups.

The study also emphasizes the necessity of further research that examines issues at the family and sibling relationship levels. A longitudinal study may shed light on the ways in which these variables interact over time to affect sibling adjustment. A multilevel method utilizing data from various informants would be beneficial to distinguish between sibling, parent, and family influences because sibling relationships are nested within families and have unique influences. This method might also look at the contributions made by each sibling and evaluate the relative effects of having several sibling relationships within the same household.

Additionally, future research should consider a wider geographical scope and a broader age span to enhance the generalizability of findings. A qualitative analysis of student and teacher responses to the birth order inventory is recommended, as the study did not find a predictive relationship between birth order and student school adjustment. Continued exploration of this area could yield valuable insights for families, school counseling, and the broader community.

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Additionally, this research was conducted as a sectional study, specifically in senior high schools in the Central Region of Ghana. To enhance the generalizability of the findings to the entire country, future research should employ sampling groups with participants from different regions of Ghana, taking into account diverse cultural features.

Considering the outcomes of the research, it is evident that the quantity of research on the quality of sibling relationships and birth order in Ghana is insufficient. Therefore, it is recommended that future studies investigate sibling relationships in Ghanaian culture across various age groups and explore different variables, examining their psychosocial consequences. Longitudinal studies could provide insights into the developmental outcomes of sibling relationships. Furthermore, research on the relationship between sibling relationships and family dynamics under various parenting styles would be valuable. Such studies could serve as a foundation for guidance services provided by psychological and family advisors, offering support and insights into strengthening sibling relationships, a crucial source of social support for their clients

5.8 Limitations of the Research

This study has a limitation because it exclusively focused on birth order and sibling relationships, overlooking other potential factors that might influence the school adjustment of senior high school students. Subsequent research endeavors could explore a broader range of factors that play a role in students' adjustment.

Another limitation is the oversight of the age difference between siblings, a factor emphasized by Milevsky and Levitt (2005) as significant in understanding sibling

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relationships. Future studies would benefit from considering the age difference between siblings to provide a more nuanced perspective.

5.9 Chapter Summary

This chapter has dealt with the summary, conclusions, and made recommendations based on the findings. Summary and conclusions of findings were presented in line with the four research objectives. Recommendations for management actions have been given, as well as areas for further research endeavors.

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APPENDICES

APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA
FACULTY OF EDUCATIONAL STUDIES
DEPARTMENT OF COUNSELLING PSYCHOLOGY
QUESTIONNAIRES FOR STUDENTS

I am a post-graduate student in the Department of Counselling Psychology, UEW. I am conducting a study on the topic **"impact of birth order and sibling relationship on school adjustment in senior high schools in the Central Region of Ghana."** This questionnaire is designed to measure birth order, sibling support and the quality of students' adjustment to school. This study will help to learn and know more about birth order, sibling support and its importance to school adjustment in Ghana. I therefore would like you to provide some information about yourself, your siblings and how well you have adjusted in school. It will take about 20 minutes to answer the questions. Your answers, together with others, will help family scientists, counsellors, policy framers and researchers to come up with remedial interventions, programmes and textbooks that will help educate the public on issues concerning school adjustments. Students who are experiencing difficulty adjusting to college may benefit from some of these interventions. You will remain anonymous and the information you provide will be kept confidential. Participation in this study is voluntary and you may decide to withdraw at any time without any penalty. Thank you for your cooperation.

Godfred Agbakplor

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SECTION A: BIO DATA

Instruction: Please tick (√) the best option that applies to you.

1. Gender (Please tick one)

   Male ☐

   Female ☐

2. Age (Please tick one)

   a) Below 13 years ☐

   b) Between 14 to 16 years ☐

   c) Between 17 to 19 years ☐

   d) 20 years and above ☐

3. Programme being pursued (Please tick one)

   a) General Arts ☐

   b) Visual Art ☐

   c) Agric Science ☐

   d) Business ☐

   e) Gen. Science ☐

   f) Home Economics ☐

4. (Birth Order) Position among your brothers and sisters? (Please tick one)

a) Oldest Child/ First Born ☐
b) Middle Child/ Second Born ☐
c) Youngest Child ☐
d) Only Child ☐
e) Twins ☐
f) Other, please specify……..

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SECTION B:

STUDENT ADAPTATION TO SCHOOL QUESTIONNAIRE (SASQ)

The SASQ is utilized to measure the quality of students' adjustment to school. It is used as a diagnostic tool for identifying students experiencing difficulty adjusting to college and who may benefit from remedial interventions, and as an assessment tool in research. Just indicate your extent of agreement or disagreement with the items. Circle one of the following five choices for each item: **5 represents Strongly Agree (SA), 4 represents Agree (A), 3 represents Neutral (N), 2 represents Disagree (D), and 1 represents Strongly Disagree (SD). Thank you!**

Academic Adjustment

This questionnaire asks you about your extent of satisfaction with academic adjustment in school.

S/N	List of Statements	SA	A	N	D	SD
1.	I need to improve my study skills.	5	4	3	2	1
2.	I should be working harder in school.	5	4	3	2	1
3.	I have confidence that I will perform well academically at this school.	5	4	3	2	1
4.	I am confident that I have the study skills to do well in school.	5	4	3	2	1
5.	I expect to stay at this institution to complete a course of study (for example: WASSCE).	5	4	3	2	1
6.	I am keeping up with my school work.	5	4	3	2	1
7.	I feel that my future looks hopeful and promising.	5	4	3	2	1
8.	I haven't been very efficient in my use of study time.	5	4	3	2	1
9.	I am satisfied with the number of courses available here.	5	4	3	2	1
10	I am motivated in my studies.	5	4	3	2	1
11	I am satisfied with the tutors I have in my courses.	5	4	3	2	1

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Institutional Attachment

This questionnaire asks you about your extent of satisfaction with institutional adjustment.

S/N	List of statements	SA	A	N	D	SD
1.	I am dissatisfied with the variety of courses available at this school.	5	4	3	2	1
2.	I feel lonely when I'm on campus	5	4	3	2	1
3.	I haven't been mixing well with other people on campus.	5	4	3	2	1
4.	I've been giving a lot of thought to transferring to another school.	5	4	3	2	1
5.	I am meeting my schoolwork schedules	5	4	3	2	1
6.	I haven't had many satisfying, informal contacts with other students at this school.	5	4	3	2	1
7.	I wish I had chosen to go to another school.	5	4	3	2	1
8.	I feel lonely when I'm on campus	5	4	3	2	1
9.	I don't think that I will be able to meet as many people as I want here.	5	4	3	2	1
10.	I am dissatisfied with the quality of my courses.	5	4	3	2	1
11.	I wish I felt closer to other students here	5	4	3	2	1
12.	I am dissatisfied with my social life here.	5	4	3	2	1
13.	I am satisfied with how my life is going.	5	4	3	2	1

Personal/Emotional Adjustment

This questionnaire asks you about your extent of satisfaction with your personal /emotional adjustment in school.

S/ N	List of statements	SA	A	N	D	SD
1.	I feel I have control over my life.	5	4	3	2	1
2.	I enjoy my life and things that I do.	5	4	3	2	1
3.	My daily life is usually full of personal things.	5	4	3	2	1

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4.	I haven't been able to control my emotions very well.	5	4	3	2	1
5.	I have been thinking about seeing someone for psychological counseling or therapy.	5	4	3	2	1
6.	I usually feel happy.	5	4	3	2	1
7.	My appetite has been good.	5	4	3	2	1
8.	I have been feeling blue and moody.	5	4	3	2	1
9.	I usually wake up feeling fresh and rested.	5	4	3	2	1
10.	I have been feeling in good health.	5	4	3	2	1
11.	I feel that I have nothing to look forward to in life.	5	4	3	2	1

Social Adjustment

This questionnaire asks you about your satisfaction with social adjustment in school.

S/N	List of statements	SA	A	N	D	SD
1.	I have good relationships with other students on campus	5	4	3	2	1
2.	I am making as many friends as I would like at this school.	5	4	3	2	1
3.	I feel accepted by other students here.	5	4	3	2	1
4.	I have confidence that I will be able to form close friendships with other students here.	5	4	3	2	1
5.	I am meeting as many people as I would like here.	5	4	3	2	1
6.	I have some good friends or acquaintances at this institution with whom I can talk about any problems I may have.	5	4	3	2	1
7.	There are other students I can call on for help when I am having difficulty with my course work.	5	4	3	2	1
8.	My daily life is usually full of interesting things.	5	4	3	2	1

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SECTION C:

SIBLING SUPPORT QUESTIONNAIRE (SSQ)

The questionnaire consists of specific questions about sibling support characteristics as in encouragement, goal setting, academic engagement, and involvement. Circle one of the following five choices for each item: **5 represent Strongly Agree (SA), 4 represents Agree (A), 3 represents Neutral (N), 2 represents Disagree (D), and 1 represents Strongly Disagree (SD).**

Encouragement

S/N	List of statements	SA	A	N	D	SD
1.	My brother/sister helps me feel confident that I can overcome obstacles to my academic goals.	5	4	3	2	1
2.	My brother/sister praises me when I do well in school.	5	4	3	2	1
3.	My brother/sister would help me get support with a difficult class.	5	4	3	2	1
4.	My brother/sister praises me when I accomplish a goal.	5	4	3	2	1
5.	My brother/sister helps me think ahead about problems I might face in my school performance.	5	4	3	2	1
6.	My brother/sister shows me the correct way of doing something when I make a mistake.	5	4	3	2	1
7.	My brother/sister is involved in many aspects of my life.	5	4	3	2	1
8.	My brother/sister helps me when I have a problem at school.	5	4	3	2	1
9.	My brother/sister asks me about school.	5	4	3	2	1
10.	My brother/sister helps me when my school work is difficult.	5	4	3	2	1
11.	My brother/sister talks to me about my school performance.	5	4	3	2	1
12.	My brother/sister is helping me think about activities that are related to my school performance.	5	4	3	2	1
13.	My brother/sister talks to me about what I am learning in my classes.					

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Goal Setting

S/N	List of statements	SA	A	N	D	SD
1.	My brother/sister reminds me about important deadlines.	5	4	3	2	1
2.	My brother/sister helps me schedule my time when I need it.	5	4	3	2	1
3.	My brother/sister helps me create a plan to do well in school.	5	4	3	2	1
4.	My brother/sister reminds me to finish tasks on time.	5	4	3	2	1
5.	My brother/sister asks about my homework assignments.	5	4	3	2	1
6.	My brother/sister is helping me set goals for my school performance.	5	4	3	2	1

Academic Engagement

S/N	List of statements	SA	A	N	D	SD
1.	My brother/sister sets goals for his/her academic plans with parent(s)/guardian(s).	5	4	3	2	1
2.	My brother/sister frequently discusses his/her academic plans with parent(s)/guardian(s).	5	4	3	2	1
3.	My brother/sister completes tasks on time.	5	4	3	2	1
4.	My brother/sister has achieved all or most of what he/she has set out to accomplish.	5	4	3	2	1
5.	My brother/sister frequently talks to me about his/her academic achievement.	5	4	3	2	1

Involvement

S/N	List of statements	SA	A	N	D	SD
1.	My brother/sister knows my teachers.	5	4	3	2	1
2.	My brother/sister attends school events related to my classes and activities.	5	4	3	2	1
3.	My brother/sister knows which course combination I am taking.	5	4	3	2	1
4.	My brother/sister is or was actively involved in school activities.	5	4	3	2	1

THANK YOU

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KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.381
Bartlett's Test of Sphericity	Approx. Chi-Square	3003.083
	Df	1770
	Sig.	.000

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Item listings, factor loadings and communalities for the three factor PC solution

Factor		FACTOR LOADING COMMUNALITIES				
Factor 1- Academic Adjustment (alpha = .899)		**1**	**2**	**3**	**4**	
	I need to improve my study skills.	.826				.696
	I should be working harder in school.	.794				.656
	I have confidence that I will perform well academically at this school.	.791				.669
	I am confident that I have the study skills to do well in school.	.768				.593
	I expect to stay at this institution to complete a course of study (for example: WASSCE).	.715				.526
	I am keeping up with my school work.	.713				.516
	I feel that my future looks hopeful and promising.	.698				.638
	I haven't been very efficient in my use of study time.	.641				.464
	I am satisfied with the number of courses available here.	.599				.373
	I am motivated in my studies.	.548				.396
	I am satisfied with the tutors I have in my courses.	.495				.314
	Factor 1- Attachment/Institutional (alpha = .749)					
	I am dissatisfied with the variety of courses available at this school.		.650			.457
	I feel lonely when I'm on campus.		.639			.354
	I haven't been mixing well with other people on campus.		.618			.399

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	I've been giving a lot of thought to transferring to another school.		.556			.366
	I haven't had many satisfying, informal contacts with other students at this school.		.552			.328
	I wish I had chosen to go to another school.		.523			.359
	I feel lonely when I'm on campus		.478			.354
	I don't think that I will be able to meet as many people as I want here.		.476			.241
	I am dissatisfied with the quality of my courses.		.466			.287
	I wish I felt closer to other students here.		.433			.253
	I am dissatisfied with my social life here.		.427			.215
	I am satisfied with how my life is going.		.411			.233
	Factor 1- Personal/Emotional Adjustment (alpha = .678)					
	I feel I have control over my life.			.659		.547
	I enjoy my life and things that I do.			.624		.466
	My daily life is usually full of personal things.			.594		.226
	I haven't been able to control my emotions very well.			.566		.637
	I have been thinking about seeing someone for psychological counseling or therapy.			.550		.534
	I usually feel happy.			.533		.493
	My appetite has been good.			.528		.436
	I have been feeling blue and moody.			.502		.445

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	I usually wake up feeling fresh and rested.			.484		.410
	I have been feeling in good health.			.422		.344
	I feel that I have nothing to look forward to in life.			.403		.284
	Factor 1- Social Adjustment (alpha = .739)					
	I have good relationships with other students on campus.				.593	.512
	I am making as many friends as I would like at this school.				.588	.383
	I feel accepted by other students here.				.560	.360
	I have confidence that I will be able to form close friendships with other students here.				.544	.358
	I am meeting as many people as I would like here.				.540	.320
	I have some good friends or acquaintances at this institution with whom I can talk about any problems I may have.				.517	.348
	There are other students I can call on for help when I am having difficulty with my course work.				.505	.306
	My daily life is usually full of interesting things.				.455	.226

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Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Sibling Support

	Items	Encouragement	Goal Setting	Academic Engagement	Involvement
1.	My brother/sister helps me feel confident that I can overcome obstacles to my academic goals.	**.73**	.33	.19	.23
2.	My brother/sister praises me when I do well in school.	**.70**	.34	.25	.08
3.	My brother/sister would help me get support with a difficult class.	**.70**	.24	.29	.23
4.	My brother/sister praises me when I accomplish a goal.	**.69**	.26	.28	.14
5.	My brother/sister helps me think ahead about problems I might face in my school performance.	**.66**	.34	.25	.30
6.	My brother/sister shows me the correct way of doing something when I make a mistake.	**.62**	.31	.27	.18
7.	My brother/sister is involved in many aspects of my life.	**.59**	.22	.19	.34
8.	My brother/sister helps me when I have a problem at school.	**.58**	.37	.18	.44
9.	My brother/sister asks	**.57**	.40	.32	.16

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	me about school.				
10.	My brother/sister helps me when my school work is difficult.	**.53**	.38	.20	.37
11.	My brother/sister talks to me about my school performance.	**.52**	.40	.36	.03
12.	My brother/sister is helping me think about activities that are related to my school performance.	**.49**	.48	.25	.23
13.	My brother/sister talks to me about what I am learning in my classes.	**.45**	.37	.33	.38
14.	My brother/sister reminds me about important deadlines.	.35	**.76**	.20	.18
15.	My brother/sister helps me schedule my time when I need it.	.27	**.70**	.17	.32
16.	My brother/sister helps me create a plan to do well in school.	.41	**.69**	.31	.12
17.	My brother/sister reminds me to finish tasks on time.	.40	**.69**	.25	.07
18.	My brother/sister asks about my homework assignments.	.35	**.60**	.17	.34
19.	My brother/sister is helping me set goals for my school performance.	.50	**.57**	.34	.03

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20.	My brother/sister sets goals for his/her academic plans with parent(s)/guardian(s).	.21	.18	**.81**	.26
21.	My brother/sister frequently discusses his/her academic plans with parent(s)/guardian(s).	.18	.24	**.73**	.27
22.	My brother/sister completes tasks on time.	.33	.15	**.67**	.14
23.	My brother/sister has achieved all or most of what he/she has set out to accomplish.	.30	.22	**.67**	.16
24.	My brother/sister frequently talks to me about his/her academic achievement.	.34	.36	**.53**	.24
25.	My brother/sister knows my teachers.	.10	.03	.19	**.77**
26.	My brother/sister attends school events related to my classes and activities.	.21	.31	.09	**.55**
27.	My brother/sister knows which classes I am taking.	.27	.14	.40	**.50**
28.	My brother/sister is or was actively involved in school activities.	.18	.14	.35	**.49**

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APPENDIX B

INTERVIEW GUIDE FOR STUDENTS

1. What is your understanding of the term school adjustment?
2. What do we mean when we say a student has successful adjustment in school?
3. How does sibling relationship affect school adjustment of students academically, socially, emotionally, and institutionally?
4. In your opinions, what is the importance of social adjustment to students' college life?
5. Is there any possible relationship between students' birth order and adjustment (academical, social, emotional, and institutional) in school?
6. Describe what is meant by birth order
7. What are some of the characteristics of first borns, middle borns and last borns?
8. How will you describe sibling relationship?
9. Briefly describe the nature of sibling relationships?
10. How will you describe your relationship with your siblings?

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APPENDIX C

INTRODUCTORY LETTER

UNIVERSITY OF EDUCATION, WINNEBA
FACULTY OF EDUCATIONAL STUDIES
DEPARTMENT OF COUNSELLING PSYCHOLOGY
P. O. Box 25, Winneba, Ghana psychology@uew.edu.gh
030 298 0904

15th February, 2022.

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you, **GODFRED AGBAKPLOR,** the bearer of this letter who is a student in the Department of Counselling Psychology of the University of Education, Winneba. He is reading Master of Education in Counselling Psychology with index number 200020542.

He is conducting a research on the topic: **BIRTH ORDER, SIBLING RELATIONSHIP AND SCHOOL ADJUSTMENT: A STUDY AMONG SELECTED SENIOR HIGH SCHOOLS IN THE CENTRAL REGION.** This is in partial fulfillment of the requirements for the award of the above mentioned degree.

He is required to administer questionnaire to help him gather data for the said research and he has chosen to do so in your outfit.

I will be grateful if he is given permission to carry out this exercise.

Thank you.

Yours faithfully,

MRS. PATRICIA MAWUSI AMOS, PH.D
AG. HEAD OF DEPARTMENT