Parental Differential Treatment and Adolescents' Adjustment: The Moderating Effects of Sibling Relationship Quality and Adolescents' Personality

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Acronyms

PDT -------parental differential treatment

SRQ: ------sibling relationship questionnaire

QSR -------Quality of sibling relationship

PI ----------Personality inventory

AI----------Adjustment inventory

PaDT -----Paternal differential treatment

MaDT----- Paternal differential treatment

MoH-------- Minestry of health

SCT---------Social Comparison Theory

Abstract

The study examined the moderating role of sibling relationship quality and adolescents' personalities in the link between parental differential treatment and adolescents' adjustment. Additionally, it aimed to investigate the adjustment status of adolescents and explore its relationship with parental differential treatment, sibling relationship quality, and adolescents' personality. The data were collected from 537 randomly selected adolescents from Addis Ababa. The Sibling Inventory of Differential Experience, Adjustment Inventory, Sibling Relationship Questionnaire, and Personality Inventory were used to gather data from the study participants. A correlational research design was employed to address the objectives of the study. The results indicated the prevalence of emotional, social, and educational adjustment problems among adolescents in Addis Ababa, particularly among males. Perceived Parental differential treatment was evident, with parents exhibiting differential control towards males and differential affection towards females. The correlation analysis revealed that parental affection, sibling warmth, conscientiousness, and openness to experience were negatively related to adjustment problems, whereas differential parental control, sibling conflict, and neuroticism were positively linked to poor adjustment. The finding also indicated that parental differential control negatively predicted adjustment, while openness to experience and parental affection positively predicted positive adjustment. Moreover, the study found that sibling relationship quality and adolescents' personality moderated the relationship between adjustment and parental differential treatment. Neurotic adolescents with differentially controlling parents were more susceptible to social, emotional, and educational adjustment problems. Similarly, parental control has an adverse effect on adolescents who have conflicting relationships with their siblings. Furthermore, age was found to moderate the link between parental differential treatment and adolescents' adjustment, but gender did not. Overall, the findings underscore the importance of interventions aimed at improving parent-child and sibling relationships to mitigate the impact of sibling conflict and differential parental control. The findings also suggest the need for further research in this area and have practical implications for the parental treatment of siblings and counseling.

Keywords: adjustment, adolescents, sibling relationship, personality, parental differential treatment

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Chapter 1: Introduction

In this introductory section of the report, issues pertaining to the background of the study, description of the problem statement, research questions, significance of the study, scope of the current study, and operational definitions of key variables are presented.

1.1.Background of the Study

Parenting is a great responsibility and children grow into what they get from their parents. Parents' behaviors have effects on the way children behave at home and the relationships they establish with their parents and eventually with others (Maccoby, 2000). A study revealed that children of parents who are both involved and supportive tend to have high self-esteem and are less depressed than children of parents who are less involved (Bireda & Pillay, 2017). Reasonable and decent parenting style is positively related to psychological adjustment of adolescents (Yirdaw & Rao, 2018). The quality of the relationship and responsiveness of parents for effective adjustment of children are also given due attention by theorists including Freud, Erikson, and Adler. So much attention is given to parenting due to the fact that it is one of the most important determinant factors in adolescents' psychosocial adjustment (Lengua & Kovacs, 2005; Rodríguez-Fernandez et al., 2012).

Adolescence is a stage with high risks in terms of adjustment problems (Compas et al., 2017). The psychological adjustment problems of adolescents refer to the mental health concerns that include problems with the school and conduct, as well as peer relationships (Ilioi &

Golombok, 2015). Many adolescents have problems adjusting to the developmental and social changes that accompany the stage, which increases the risks of mental health concerns (Goldbeck et al., 2007). Adolescence is a prime time for heightened psychosocial vulnerability and the majority of mental illnesses begin at this stage (Patel et al., 2007; WHO, 2014). Studies estimated that 75% of mental illnesses occur before the age of 25 (McGorry & Van, 2013) and 10 – 20% of adolescents globally experience mental health conditions and adjustment problems (WHO, 2018).

During the adolescence stage, children need to make an effective adjustment to the developmental changes they are undergoing, the new social roles they are exposed to, and the educational demands that determine their future careers and lives (UNICEF, 2021). The increasing attention towards the welfare of young individuals in Ethiopia is motivated by several factors. Firstly, this demographic represents a significant portion, accounting for 42% of the nation's population (CSA, 2016). Secondly, their wellbeing plays a fundamental role in shaping social, political, and economic development, particularly as they enter the workforce. Lastly, the vitality of adolescents is a valuable asset, possessing immense potential to contribute to their families, communities, and the country at large, not solely as beneficiaries of social programs but as agents of social transformation (Belay & Yekoyealem, 2015; MoH, 2016).

Studies on the association between parenting and adolescent adjustment have shown that high parental involvement or acceptance is significantly linked to better adjustment (Garcia & Serra, 2019; Pinquart, 2017; Valente et al., 2017) including psychological adjustment (e.g., Muñiz-Rivas et al., 2019), behavioral adjustment (e.g., Garcia et al., 2020) and school adjustment (e.g., Fuentes et al., 2019; Serna & Martinez, 2019). Poor adjustment during the adolescence stage is linked to increased behavioral problems (e.g. aggression and violence)

(Donahue et al., 2014), emotional turbulences (e.g., feelings of distress and fear) body health complaints (e.g., headache and stomach pain) (Ordóñez et al., 2014) and decline in subjective well-being (González-Carrasco et al., 2017).

According to WHO (2018) considerable number of adolescents globally experience adjustment problems and mental health issues as a result of multiple determinant factors including parenting and relationship with significant others. Although the social norms of various cultures promote equitable treatment of offspring, Parental Differential Treatment (PDT) is common since parents observe differences among their children in their personalities, needs and behaviors (Atzaba-Poria & Pike, 2008). This none-shared family experience (Plomin & Daniels, 1987) makes siblings raised in the same family different from one another in behavioral problems and personalities as children raised in different families (Daniels & Plomin, 1985; Dunn & Stocker, 1989).

PDT is siblings' perception of parental behaviors being directed unequally towards them and their siblings and that parents show more affection and lesser control towards one child and have stricter rules or have more conflict and lesser affection towards the other child (Shanahan et al., 2008). PDT occurs in up to 65% of families (Ng et al., 2020), and multiple investigations suggest that PDT of offspring plays a distinct role in adolescent development by promoting social comparison among siblings (Jensen et al., 2020).

The theory of social comparison, as posited by Festinger (1954), is a crucial framework for comprehending parental differential treatment. According to this theory, PDT is a type of comparison whereby adolescents evaluate their treatment by parents in relation to that of their siblings. By engaging in such comparisons, children can develop a sense of self-worth and

establish their respective roles and responsibilities within the family unit. Throughout adolescence, these comparisons assume particular significance, given the cognitive and perspective-taking changes that occur during this developmental phase. Adolescents navigate transitions and construct their identities using heightened social comparisons. Perception of inequity in treatment (PDT), regardless of whether it is deliberate or not, has been linked to adjustment problems during adolescence (Rolan & Marceau, 2018).

Under certain circumstances, the differential treatment of children may demonstrate appropriate and sensitive parental behavior when it is tailored to the unique needs and characteristics of each child, such as their age, gender, and temperament (Kowal & Kramer, 1997). Within this context, PDT is likely to be perceived as normative and fair when parents direct more attention and care towards younger children than older ones, for girls than boys, or towards children with developmental disorders than children with typical development. However, unfair and pronounced levels of differential parenting are likely to be pathogenic (Suitor & Pillemer, 2006).

Studies consistently indicated that PDT is a deleterious phenomenon for the disfavored child (Arshad et al., 2018; Jensen & McHale, 2015). Receiving less favorable treatment than a sibling (that is, being the subject of more parental control and less affection or receiving less support and more discipline) is positively associated with externalizing behavior, aggression, depressed mood, anxiety, and low self-esteem (Feinberg & Hetherington, 2001; McHale et al., 1995; Shanahan et al., 2008). Additionally, extant research work highlighted that PDT is negatively linked to adolescents' academic achievement (Barrett & Weinstein, 2000; Jensen &

McHale, 2015) as well as mental health (Shanahan et al., 2008), and is positively associated with problem behaviors (Scholte et al., 2007).

PDT is also related to greater conflict and less affection between siblings (Richmond et al., 2005). Unfair unfavorable behavior of parents toward the child is also observed to be directly linked to emotional (e.g., stress, low self-esteem) and behavioral (e.g., delinquency, aggression) problems among adolescents (Finkenaour et al., 2005). Consistent with this perspective, parenting behaviors such as coercion and harshness are associated with children's oppositional behaviors (Scholte et al., 2007), behavioral problems (Eddy et al., 2001), self-regulatory deficits and psychopathology (Larsson et al., 2008).

Previous studies examined the main effects of differential parental treatment, especially with respect to internalizing behavior, rejection sensitivity (Arshad et al., 2018), psychological wellbeing (Suitor et al., 2015), and health-related behavior (Jensen et al., 2019), and reported similar findings that PDT is related to poor behavioral outcomes. Different studies also delineated the link between PDT with sibling dyad-specific characteristics (e.g., sibling age gap, sex constellation, and temperamental difference) (Atzaba-Poria & Pike, 2008). Literature also indicated that the quality of dyadic relationships is influenced by the personalities of the relationship partners plus their corresponding interaction history (Asendorpf, 2002).

Some studies have attempted to identify factors that moderate the relationship between PDT and children's adjustment. It is reported that the link is moderated by stressful family environment, marital dissatisfaction, large family size, single parenthood, low SES (Jenkins et al., 2003); personality (conscientiousness and agreeableness) (Jensen et al., 2019); age range, birth order, (Rolan & Marceau, 2018); self-control (Finkenauer et al., 2005) and perception of

fairness (Loeser et al., 2016). However, possible moderators of the effect of PDT on adolescents' adjustment outcomes have received far less attention in research. The issue is relevant, given that the direct effects of PDT usually account for only a small percentage of the explained variance in adjustment measures (Turkheimer & Waldron, 2000). The direct link between differential parental treatment and outcomes is usually rather weak and inconsistent (Kowal et al., 2002), and the prediction of adjustment may be enhanced by exploring other family contexts and personal factors such as sibling relationship quality and personality.

Sibling relationship is a construct that is expressed in dimensions of sibling warmth and sibling conflict in which sibling warmth indicates positive aspects of the relationship, such as affection, intimacy, companionship, support,and closeness whereas sibling conflict consists of negative aspects such as quarreling, fighting, aggression, hostility, and coercion (Sanders, 2004). On the other hand, studies conducted for decades consistently confirmed that, across different cultures, personality could be described comprehensively in terms of five vigorous personality dimensions (Big Five Factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) (John et al., 2008; Knyazev et al., 2008; McGrath, 2012; Slobodskaya, 2007). The big five-factor is an empirically compelling model that provides an imperative framework for understanding personality (McGrath, 2012).

Considering adolescents' personality types and the quality of sibling relationships as possible moderators is critical since they affect the family dynamics and adolescents' behavioral outcomes. The assumption on the moderating roles of personality is based on previous literature which claims that some adolescents adjust to transitions effectively and grow into a decent adult life regardless of the perceived unfair treatment they received from parents. Missotten et. al. (2016) reported that some adolescents are more sensitive to particular parenting practices and

behaviors than others. Similarly, Luthar (2003) found that not all children demonstrate negative behavioral outcomes as a result of the persistently high level of stress since some children are resilient to negative developmental experiences. Fayombo (2010) found significant positive relationships between the four of the big five traits (conscientiousness, agreeableness, openness to experience, and extraversion) and psychological resilience. Neuroticism was negatively correlated with psychological resilience. Personality traits jointly contributed 32% of the variance being accounted for in psychological resilience. These may be explained, at least partly, by the notion that adolescents differ strongly in their appraisals (i.e., interpretations) and reactions to specific situations of parental treatment (Kakihara & Tilton-Weaver, 2009). Thus some adolescents may demonstrate better adjustment to poor parental treatment while others are affected negatively by the same situation.

Since, siblings serve as important sources of social comparison regarding parental treatment (Jensen & McHale, 2017), PDT is found to be associated with the quality of the sibling relationship in childhood, adolescence, and adulthood (e.g., Boll et al., 2003; Brody et al., 1992; McHale et al., 1995). Sibling relationships play a paramount role in the daily life of adolescents. Sibling relationships have been identified as a potential source of affection, intimacy (Buist et al., 2013), support, fondness, or companionship (Noller, 2005), as well as a potential source of discord (Buist et al., 2013; Ripoll-Núñez & Carillo, 2014). Previous research typically concludes that proximity among siblings is linked with superior mental health (fewer inward-looking difficulties) and fewer externalizing problems (e.g., Buist et al., 2013).

In addition to personality traits and sibling relationship quality, the relationship between PDT and adolescents development outcomes seems to be influenced by demographic factors

including birth order, age and gender (Daniels & Plomin, 1985). Some investigations have been conducted on the phenomenon of parental differential treatment, focusing on variables such as gender, age, and birth order as potential factors that moderate the relationship between parental differential treatment and adolescent adjustment. It has been found that same-gender siblings are more affected by parental differential treatment during childhood and adolescence (Jensen et al., 2019), and brother-brother dyads exhibit more internalizing problems in relation to parental differential treatment compared to mixed-gender and sister-sister dyads (Hibbard & Buhrmester, 2010). However a substantial number of researchers have documented variations in parental treatment based on gender, birth order; age (Jensen et al, 2014)

The main purpose of this study is, therefore, to explore the moderating effects of sibling relationship quality, adolescents' personality and some demographic variables on the relationship between PDT and adolescent adjustment. Additionally, it also aimed at assessing the status of adjustment among adolescents and examining its link with the PDT, sibling relationship quality, and adolescents' personality.

1.2.Statement of the problem

Adolescents are currently at higher risk of adjustment problems and mental health concerns. Adolescent mental health problems have been recognized as a major issue in low-income countries (Beattie et al., 2019). Ethiopian MoH (2016) estimated that 12% to 25% of adolescents in Ethiopia have mental health problems. Thus mental health concerns and adjustment problems are serious problems that need to be considered for health development. Failing to address mental health issues and adjustment problems not only impairs mental and

physical health but also yields adverse effects extending to adulthood by contributing to unhappy and unfulfilled lives (WHO, 2018).

Adjustment during the adolescence stage is multi-feasted and complex in nature that has to be approached from various perspectives. However, most of the previous studies failed to approach adjustment inclusively from various domains (social, emotional, and educational). The majority of these studies scrutinized the association between PDT and externalized and internalized behavioral outcomes with the assumption that the manifestation of internalized and externalized problems indicates adjustment problems among adolescents in general (Ashad et al., 2018; Jensen et al., 2019; Larsson et al., 2008). A meta-analysis of 34 studies indicated that less differential treatment was significantly associated with less internalized and externalized problems (Buist et al., 2013).

In Ethiopia, despite its importance for the overall functioning of adolescents the issue of adjustment is not well explored. The existing scant studies focused on the adjustment of university students (Adem et al., 2018; Aklilu, 2018; Getu et al., 2018; Tamirat et al., 2022;) and found that the issue of adjustment is prevalent among first years students attributed to factors including living far away from home, homesickness, and difficulties in socializing or making friends (Getu, 2018; Tamirat 2022). This study explored the adjustment status of adolescents in Addis Ababa inclusively from educational, social, and emotional aspects to provide a general picture regarding the trend and magnitude of adjustment problems.

Parental treatment is one of the determinant factors in adolescents' adjustment. Perception of unfair differential treatment affects behavioral outcomes, particularly during the adolescence stage because adolescents critically observe social interactions (Feinberg &

Hetherington, 2001). More importantly, investigating the issue of PDT is vital since parental treatment can be assumed to have an implication on parental investments (Danielsbacka & Tanskanen, 2015) and unequal parental treatment could be considered as an unequal parental investment. Hence, PDT could compromise adolescents' effective social, emotional, and educational adjustment. Studying adjustment problems of adolescents in relation to parental treatment could contribute a lot to exploring risk factors and generating areas of intervention that could help adolescents at risk of adjustment problems develop into healthy adults.

Although prior studies have confirmed the negative effects of PDT on adolescents' adjustment in general, the issue is hardly understood in non-western cultures (Buist et al., 2013). The existing Western studies even have limited insights into the effect of PDT on the general adjustment of children (Oliver & Pike, 2018). Many previously published studies in Ethiopia explored the relationship between parenting styles and adolescents' sexual behavior (for example Cherie & Berhanie, 2015; Fanta et al., 2016; Yimer & Ashebir, 2019). There are also studies that focused on parenting practices and values, parenting styles, parent-adolescent communication, family relationships, level of parental involvement, and parental behavior as main factors in determining children's behavioral outcomes (e.g., Bireda & Pillay, 2017; Bireda & Pillay, 2018; Cherie & Berhanie, 2015; Sileshi & Sintayehu, 1998; Yibrehu & Mbwele, 2020). However, to the knowledge of the researcher, no study was conducted on differential treatment of siblings by parents although it appears to have a significant negative impact on the behavioral, social, and emotional adjustment of adolescents. This study assesses the status of perceived PDT among adolescents of Addis Ababa to shed light on adolescents' adjustment status from a different developmental perspective (i.e. PDT).

Despite the inconsistencies in findings, since the seminal work of Daniels and Plomin (1985), PDT has been related to child adjustment. However, less work has been done considering potential moderators, including whether the sibling relationship quality and/or adolescent's personality exacerbate (or mitigate) the link between PDT and adolescents' social, emotional, and educational adjustment. Identifying potential moderators is important for understanding which adolescents are most at risk of PDT-related adjustment problems, and thus could inform areas of interventions intended to reduce risk factors for poor adjustment.

According to social comparison theory, individual (personality) and social (sibling relationship quality) factors are crucial in exacerbating or mitigating the outcome of sibling comparison. Additionally as stated by Asendorpf (2002), the impact of parenting on children is influenced by the personalities of the relationship partners plus the quality of interaction history in the family. Therefore, this study would further extend the studies on PDT by examining the extent to which sibling relationship quality and adolescents' personality (conscientiousness, neuroticism, and openness to experience) serve as an additional influential variable that may either enhance or mitigate the hypothesized relationship between differential treatment and adolescents' adjustment.

Fistinger (1954) posited that family context variables including age, sex, and birth order notably affect the nature of social comparison and its effect on siblings' adjustment. Previous studies have examined the effects of individual factors of gender, birth order, and age of the child on the PDT - adolescence adjustment link, and their findings are inconsistent. For example, although studies confirmed that the effect of PDT is apparent among children with same-sex siblings, no clear evidence is found yet regarding the dyads that are affected more. Hibbard and

Buhrmester (2010) reported that brother-brother dyads experience PDT-related problems more than sister-sister dyads. On the contrary, other studies show that gender does not seem to affect the link between PDT and adjustment (Loeser et al., 2016).

Conflicting findings have also been reported concerning the impact of birth order and age. Some studies indicate that the effect of PDT is more significant on older children than younger ones (Shanahan et al., 2008) while others report that the negative effect of PDT decreases with age (McHale et al., 2000) and that younger children are more sensitive to the existing PDT than older children. Since younger offspring are more likely to engage in social comparison than older siblings (Jensen et al., 2015) the association between perceptions of PDT and adjustment problems would be stronger among younger ones. Although there is a lack of clarity in the conclusions of research findings, in line with the majority of the studies, it seems that the link between PDT and adolescents' adjustment would be stronger among brother-brother dyads and siblings with small age gaps. Additionally, the effect of PDT would likely be stronger for younger children than the old ones.

To sum up, the main purpose of the present study was to assess the adjustment of status of adolescents in Addis Ababa and to examine its association with parental differential treatment and also to determine the moderating effects of sibling relationship quality and adolescents' personality on the link between PDT and adolescents' adjustment. This would add valuable information to bridge the identified gaps in the existing literature as well as provide important input to parental education and intervention programs in contexts where PDT is found to have a negative effect on adolescents' adjustment.

1.3.Research Questions

Thus, based on the gaps observed in the PDT and adjustment literature, social comparison theory as well as the context of the present study the following research questions are drawn:

1. What is the status of adjustment of adolescents in Addis Ababa?
2. Do adolescents in Addis Ababa experience higher parental differential treatment at home?
3. What is the relationship between parental differential treatment, sibling relationship quality, personality traits and adolescents' adjustment?
4. Do sibling relationship quality and personality traits moderate the link between parental differential treatment and adolescents' adjustment?
5. Do gender and age moderate the relationship between parental differential treatment and adolescents' adjustment?

1.4.Significance of the Study

The current study has both theoretical and practical significance. It can help to bridge some of the gaps observed in the literature in terms of explaining possible factors that contribute to effective adjustment in the life transition of adolescents. The findings of the study would also provide some explanation regarding the adjustment problems of adolescents from a different perspective involving PDT, personality, and sibling relationship quality. It would also be helpful to identify adolescents at risk of adjustment problems by analyzing parental treatment, quality of sibling relationships and personality traits. This study could also inspire other researchers to conduct additional studies in the area.

The study's practical contribution is connected to improving parental skills in nurturing and guiding children thereby helping them to effectively adjust to transitions and related changes during the adolescence stage. The findings can help parents evaluate their practices so that they can bring some modifications in their parenting skills to accommodate the needs and interests of every child in the family. Similarly, social workers, psychologists, and other practitioners of parenting education could use the findings to evaluate and intervene in specific dyadic relationship problems in a family to improve siblings' relationships and the well-being of the family as a whole. The findings could also help to identify the adolescent at risk of adjustment problems so that relevant intervention measures could be taken to ameliorate the situation.

1.5.Operational Definition of Terms

The following are the main variables in the study and they are conceptualized as follows in the current study

Parental Differential Treatment (PDT): Perceptions of adolescents regarding parental behavior (i.e. affection and control) that are directed unequally towards them and their sibling as measured by the Sibling Inventory of Differential Experience (Daniels, & Plomin 1985). A high score indicates that the adolescents perceive the existence of high PDT in the family.

Adolescents' Adjustment: Perception of adolescents regarding their level of social, emotional, and educational adjustment to conditions inside and outside the school. The three aspects of adjustments (social, emotional, and educational) were measured by the Adjustment

Inventory (Sinha & Singh, 1971) and high scores in each sub-scales indicate poor social adjustment, unstable emotion, and inadequate educational adjustment respectively.

Sibling Relationship Quality: the degrees of warmth/closeness and conflict the adolescent experiences in a relationship with his or her sibling. It is measured by a Sibling relationship questionnaire (Furman, & Buhrmester, 1985) and a good quality sibling relationship is characterized by high warmth/closeness and less frequent conflict.

Personality: an individual's behavior based on the five-factor model of personality, as conceptualized by Costa and McCrae (1985). Studies depicted that conscientiousness (Jensen et al., 2019; Kotov et al., 2010); openness (Kotov et al., 2019) and neuroticism (Jensen et al., 2019; Kotov et al, 2010) are the three main traits that predict adolescents' adjustment. Hence in this study, only the three traits were considered and measured by Personality Inventory 3 (NEO-PI-3) and based on the scores they got, adolescents were labeled into three major dimensions: conscientiousness, neuroticism, and openness to experience.

- Conscientiousness: a propensity to show self-discipline and act dutifully manifested by factors such as competence, order, dutifulness, achievement striving, self-discipline, and deliberation.
- Neuroticism: a tendency to experience negative emotions that are characterized by factors such as anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.
- Openness to Experience: a general appreciation for art, emotion, adventure, unusual ideas, imagination, curiosity, and a variety of experiences.

1.6.Delimitation of the Study

This study is aimed at exploring the relationship between PDT and adolescents' adjustment and examining the main and interaction effects of moderator variables of adolescents' personality and siblings' relationship quality. Although the effect of differential treatment is inevitable among children at different stages of development, the current study is delimited to the adolescence stage (14-18 years old) of development with the assumption that the effect is considerably apparent at this stage (McGuire et al. 1995).

Additionally, the psychological, physical, and social developmental changes are likely to create uncertainty among adolescents, and exposure to additional environmental strains such as PDT could further complicate the process of making an effective adjustment to the changes and new roles of the stage. Moreover, given that sibling comparison is prevalent among adolescents of the same sex and similar age groups, this study is delimited to adolescents with intact families and who have at least one same-sex adolescent sibling at home. Moreover, although adolescents' personality is commonly characterized by the big five traits, this study is delimited to conscientiousness, openness and neuroticism since they are mainly related to adolescents' adjustment (Jensen et al., 2019; Kotov et al., 2010).

Chapter 2: Review of Related Literature

In this section, the nature of adjustment during the adolescence stage, its link with PDT, personality and the quality of sibling relationships, as well as the presumed moderating role of adolescents' personality, sibling relationship quality, and family context variables, are explained from the perspective of SCT and the corresponding previous studies.

2.1.Adjustment During Adolescence Stage

The developmental stage of adolescence is often described as a 'stage of turbulence', a 'period of storm and stress, of 'emotional instability, and a 'problem age' to signify the importance of effective adjustment to the biological and social changes these emerging adults experience at this phase of development. Adolescence is the time when extensive biological, cognitive, psychological, and social changes are experienced in an interrelated manner (Lerner, 2009). These changes are greatly significant that they transform a person from childhood to maturity (Lerner, 2009).

As a transition period (Kaplan, 2004; Lerner, 2009; Steinberg, 2002), adolescents struggle for identity formation, attainment of independence, assuming adulthood status, and gaining matured social position (Learner & Steinberg, 2004). Moreover, adolescence is a crucial lifetime transition where significant decisions about one's job, social role engagement, and interpersonal relationships may need to be made. Because of the potential consequences of their choice, this age group is commonly regarded as a problem age (Learner & Steinberg, 2004) that urges parental care and support.

Adolescents' adjustment problems could be described as an inability to respond effectively and adequately to one's social, emotional, and educational demands that accompany developmental changes. The issue of adjustment, particularly during the adolescence stage, is critically important since adolescents are expected to act in a "new normal scenario" introduced because the developing child is getting into a completely different stage of development. Unlike the childhood stage, adolescents are moving towards more autonomy and less closeness and interdependence (Collins & Steinberg, 2006). Thus, adolescents become increasingly agentic in making life decisions that may compromise their move towards effective adjustment to the developmental and social changes. Studies indicated that vulnerability to adjustment problems and risk-taking behavior are prevailing among these young adults more than among individuals in any other stage of development (Steinberg, 2002). Hence the issue of adjustment is typically fundamental at this phase of development.

2.2. Parental Differential Treatment and Adolescents' Adjustment

Parental treatment has been consistently related to adolescents' adjustment outcomes. Adolescents who perceive that their parents treat them differently from siblings have manifested adjustment problems (Jensen et al., 2020; Shanahan et al., 2008). Adolescents with poor adjustment are more likely than others to experience adverse behavioral and developmental outcomes such as substance abuse, school failure, dropout, delinquent behavior, teenage pregnancy, self-harm, or suicide (Ng, 2007; Lalayants, & Prince, 2014; Thompson et al., 2018). PDT is allied to indicators of adolescent problematic adjustment outcomes, including low self-esteem, anxiety, suicidal ideation, and delinquency (Sheehan & Noller, 2002).

Findings indicate that when parenting is low in warmth or high in negativity, PDT becomes a predictor of an adolescent's poorer adjustment (Boyle et al., 2004; Feinberg & Hetherington, 2001). When parenting is good (high warmth, low negativity), the association between differential parenting and adolescent adjustment becomes weak. A longitudinal study confirmed that when children are disfavored over time, externalizing behaviors increase, whereas more favored children demonstrate a decline in externalizing problems (Richmond et al., 2005). In research that examined the link between PDT and children's internalizing behaviors, Shanahan and colleagues (2008) reported that girls and older-aged children who received less parental warmth demonstrated stronger depressive symptoms than did their siblings who received more parental warmth.

A study that aimed to investigate the relationship between PDT and the adjustment of adolescent twins found that twins who were unfavored compared to their siblings were linked to attachment insecurity, anxiety, and lower personal self-esteem (Sheehan & Noller, 2002). Adolescents subjected to PDT were more likely than other adolescents to show depression symptoms. In a twin study, children perceiving greater differences in PDT than other children showed more internalizing disorders (Long et al., 2015). Moreover, compared to other children, those who had more differential parenting were more likely to exhibit psychopathology (Long et al., 2015), lower self-esteem, or decreased relational trust (Rauer & Volling, 2007).

2.3.Sibling Relationship and Adolescents' Adjustment

In adolescents' daily lives, siblings play important roles. Siblings consider each other as important sources of companionship, attachment, and nurturance (Lempers & Clark-Lempers, 1992). Sibling relationships are often among the most enduring relationships in an individual's

life. The relationship can be characterized by a wide array of emotional responses ranging from warmth and affection to hostility and conflict. Siblings have major and unique effects on each other's development (Furman & Buhrmester, 1985), thus it can significantly predict adolescents' emotional, and behavioral adjustment (Noller, 2005). Siblings have the capabilities to alleviate or intensify stress and adjustment problems since they are very present and engaged in each other's lives and impact one another's daily sense of well-being (Criss & Shaw, 2005).

Warmth and conflict are basic aspects to describe sibling relationships and predict adjustment in adolescence (Stocker, 1994). The impact of the high quality of sibling relationships (more affection and less conflict) on adolescents' adjustment is consistently positive across the literature. Children who reported better sibling relationships in a family tend to demonstrate higher scores in well-being measures (Stocker, 1994), less risky sexual behavior, and lower substance use (East & Khoo, 2005). On the other hand, poor quality of sibling relationships (high conflict and less affection) is associated with several negative outcomes including greater antisocial behavior (Criss & Shaw, 2005), higher risky sex behavior (East & Khoo, 2005), lower self-esteem, and greater loneliness (Sherman et al., 2006). Studies show that in a family environment where there is a noticeable PDT, sibling relationships would be impaired (Meunier et al., 2012; Scholte et al., 2007) and this may, in turn, hamper the adjustment of adolescents.

Studying the influence of sibling relationships on adolescent adjustment is imperative given that adolescents often do not establish high-quality sibling relationships. In a study conducted on 116 Israeli adolescents and emerging adults, more intense conflict and rivalry in sibling relationships were reported by adolescents than emerging adults (Scharf et al., 2005). In

this context adolescents' healthy adjustment could be compromised since they lack the emotional support, companionship, and guidance they could receive from their siblings.

Critical analyses of literature notify that sibling relationship in a family is complex that could not merely be dichotomized into the low-high quality relationship due to the existence of various constellations in it. Some sibling relationships exhibit both high levels of affection and high levels of conflict, whilst some others are characterized by low affection and low conflict, or high affection and low conflict, or low affection and high conflict (McGuire et al., 1996; McHale et al., 2007; Sherman et al., 2006). Indeed it is worth considering sibling relationship quality as a variable that has various characteristics in various families depending on individual and social factors such as children's behavior and PDT. Since PDT has an impact on the quality of sibling relationships, it may be one of the factors that could be attributed to the existence of these forms of sibling relationship quality. Thus it is possible to claim that PDT is related to specific forms of sibling relationship quality and this, in turn, may have an impact on the adjustment of adolescents.

2.4.Parental Differential Treatment, Adolescents' Personality, and Adolescents' Adjustment

When it comes to assessing personality, most personality psychologists see dispositional traits (Big Five traits) as the basic layer of analysis (Caspi et al., 2005). Based on the Big 5 factor model of personality (McCrae & Costa 1987), it is assumed that the three factors (Conscientiousness, , neuroticism, openness to experience) may moderate PDT-adolescents' adjustment link.

Conscientiousness appears to be an important feature for maintaining satisfying interpersonal relationships because conscientious adolescents are better able to inhibit aggressive responses when faced with interpersonal conflicts (Jensen-Campbell et al., 2007), and control their behavior when they are frustrated (Jensen-Campbell et al., 2007), and score higher on affect regulation (Ahadi & Rothbart, 1994), which might explain why they have a lesser chance to be affected by PDT. Findings indicated that more conscientious children are less vulnerable to the effects of unsupportive parenting (Prinzie et al., 2004; Van Leeuwen et al., 2004). It may be that high-conscientious persons are naturally better at shifting their attention away from frustrating situations and toward pro-social thoughts, which in turn leads to avoidance of aggressive confrontations (Jensen-Campbell et al., 2007).

In the existence of differential treatment, rather than being more affected by differences due to heightened social comparison, more conscientious adolescents are better at taking the perspectives of others (Song & Shi, 2017), and thus may be more aware of the reasons why they are treated differently by their parents (Jensen et al., 2019). In one study, the researchers reported a positive relationship between conscientiousness and compliance and they speculated that conscientious adolescents adopt compliance with their parents to prevent possible escalation of the conflict (Missotten et al., 2016). This maybe one of the possible explanations for finding that high conscientiousness is associated with better adjustment during the adolescence stage (Feinberg et al., 2000; Jensen et al., 2019).

The evidence presented above implies that adolescents with high conscientiousness demonstrate better adjustment compared to less conscientious adolescents in the presence of PDT. In contrast, perception of PDT would compromise less-conscientiousness adolescents'

attempt to make effective adjustments partly due to their less inclination to understand and justify why they are being treated differently (Jensen et al., 2019).

Relatively, studies have given more attention to conscientiousness as very important personality traits in determining interpersonal relationships (e.g., Jensen-Campbell & Malcolm, 2007; Jensen-Campbell et al., 2007; Jensen et al., 2019). The direct and indirect effects of emotional stability and openness to experience on parental behavior – children's behavioral outcomes link are found to be less investigated. However, inferences could be drawn from meager related studies that emotional stability and openness to experience have implications for the nature of adjustment adolescents may adapt given that there is a problematic parenting environment at home.

Adolescent's degree of emotional stability (inversely called neuroticism) may shape the links between PDT and adolescents' adjustment. Adolescents with a high degree of neuroticism are more emotionally reactive, struggle with self-regulation, and tend to react negatively to challenging situations (Danielsson et al., 2010). Neuroticism is found to be negatively related to problem-solving and positively to withdrawal and focus on negative emotions (Connor-Smith & Flachsbart, 2007). Neurotic adolescents, in this regard, may exhibit a greater inclination to respond emotionally to relatively inferior parental care, even in the presence of legitimate reason for such treatment (Jensen et al., 2019), thereby intensifying the associations between Parental PDT and the adjustment problem of adolescents. Adolescents scoring high on neuroticism and who experience PDT tend to struggle more in adjustment processes due to their heightened sensitivity to negative affect and lower impulse control (McCrae & Costa 1987). In contrast, individuals with lower levels of neuroticism might exhibit more self-control and potentially a

higher level of comprehension when faced with inconsistent treatment (Jensen et al, 2021), thereby lessening the negative effects of the unequal treatment on their overall adjustment.

Finally, openness to experience is a factor that refers to the complexity of an individual's mental life and has been conceptualized as involving a high level of cognitive activity, indicated by having a broad, deep, and permeable consciousness (McCrae & Costa, 1997). Openness to Experience (sometimes called Intellect or Imagination) refers to how willing people are to make adjustments in notions and activities following new ideas or situations (Goldberg, 1992). The characteristics encompassed within this category consist of a broad range of interests, a propensity for creativity, the ability to perceive deeply, a heightened awareness of one's internal emotions, a predilection for diversity, and a curiosity driven by intellectual pursuits (Fayombo, 2010). (Costa & McCrae, 1992). Researchers have showcased that youths who are highly open to experience inclined to be politically liberal and tolerant to diversity (McCrae, 1996). Research disclosed that adolescents high in openness tend to demonstrate the least susceptibility to the impacts of inconsistent parental discipline (Goldberg, 1992). Based on the presented limited empirical evidence, it is likely that openness helps adolescents to develop a better adjustment to the existence of PDT because open-minded people have the cognitive capacity to take on different perspectives when facing a conflict (McCrae & Costa 1997).

2.5.PDT and Demographic variables

Since children differ in many ways—such as in their personalities, interests, abilities, and maturity levels—parents may have good reasons for treating their children differently. However, the differential treatment seems to be under the influence of norms and values in the culture. A cultural-ecological perspective suggests that cultural processes are central in shaping family

values and practices (Spencer, 2007). For example, apart from gender and birth order or other dimensions, there are children in Ethiopia that enjoy the privilege of special treatment called "Yeslet Lij" (literally in English "a child born by a divine intervention"). Sometimes a couple may have to wait anxiously for a prolonged period and may feel that they need divine intervention to get a child. In this regard, a woman who believes that she will get a child through the work of a holy entity makes a sacred pledge to present some offering or undertake an activity for the entity, and hence the begotten child (Yeslet Lij) receives special attention and affection even in the presence of later-born children in the family.

Across cultures first and last-born children are also highly valued for various reasons. First-born children are bestowed with greater favoritism compared to their later-born counterparts due to the eldest child possessing the utmost significance in terms of reproductive value (Sulloway, 1995). Similarly, last-born children are also more likely to enjoy favored parental treatment because parents are most emotionally connected to last-borns (Suitor & Pillemer, 2007). However, what is important for PDT is not the actual practices parents exercise at home but rather how siblings perceive the fairness of parental attention and care directed towards them compared to other siblings.

Parental differential treatment arises when a parent direct a lesser degree of affection or a greater extent of negativity upon one child compared to their sibling, either subjectively or objectively perceived. Studies on PDT revealed that the effect of PDT on children's adjustment varies as the function of some individual and family context variables. For example, Social Comparison Theory (Festinger, 1954) suggests that sibling competition is prevalent among children of the same age (narrow age gap), same gender, and same developmental level. Siblings

with a wider age gap, different sex, and different developmental level (children with typical development Vs. atypical development) tend to have lesser competition among themselves that the child who is older, male, and with typical developmental considers the fairness of the existing differential parental warmth and affection towards a younger child or female child or a child with developmental disabilities (Kowal & Kramer, 1997). In social psychology, there is an assumption that social influence gets stronger with greater similarity (Whiteman et al., 2007) and hence, PDT as a factor in family dynamics could be assumed to have a greater impact on siblings with greater similarities.

Parents have more conflicting relationships with their children from same-sex dyads than with children from opposite-sex dyads (Stocker, 1995). This may be attributed to the fact that parents may have expectations that children with same-sex dyad behave and develop more similarly to one another. A handful of studies reported consistent findings concerning the correlation between PDT and Gender that same-gender siblings experience the greater impact of PDT during childhood and adolescence (Hibbard & Buhrmester, 2010; Jensen et al., 2019; Shanahan et al., 2008). Generally, brother-brother dyads experienced more problems in association with parental differential treatment compared to mixed-gender and sister-sister dyads (Hibbard & Buhrmester, 2010). Males seem to compare themselves more to their siblings, and they experience anxiety and/or depression more often if they receive different treatment from their parents. This is maybe due to the differential normative parenting that encourages girls to have interpersonal relationships, whereas boys to pursue instrumental achievements (Coser, 1991). However, some researchers have reported contradicting findings regarding gender and fail to identify any gender constellation effects on the link between PDT and adolescents' adjustment (Kowal & Kramer, 1997; Loeser et al., 2016).

Birth order (being a young or older child) determines children's role and relationships in the family. Almost in every community in the world, older siblings have often delegated responsibilities for the care of their younger siblings. In European American societies, such delegation tends to be carried out informally by parents, primarily to give the parent freedom to pursue other activities (Cicirelli, 1994). In the non-industrialized Asian and African communities, much greater importance is attached to the importance of socializing older children to take care of and guide the youngsters (Wenger, 1989) to the extent that they could play a full parental role in the absence of parents for example due to death (Ervin-Tripp, 1989). Older siblings also serve as models for the younger ones to imitate important physical, social and intellectual skills (Cicirelli, 1994). In both communities, it seems that the role of older children in executing parental roles by guiding and supporting younger ones goes smoothly when there is wider age spacing among themselves (Teti et al., 1989).

Prior findings regarding the role of sibling birth order and age gap on adolescent adjustment and PDT link have been mixed; some studies indicate that the effects of PDT are more pronounced for older children than younger children (Campione-Barr, 2017; Shanahan et al., 2008). A recent study indicated that higher levels of differential parenting predicted increased externalizing behavior for older adolescents (Rolan & Marceau, 2018). Older siblings have more power in the sibling relationship (Campione-Barr, 2017), often report more parental differential treatment, are more sensitive to differential treatment, and invest more energy trying to understand why differences occur (Kowal & Kramer, 1997). On the other hand, the negative effects of differential treatment may weaken with increasing age as siblings are better able to rationalize its occurrence and widen their social circles beyond the family (McHale et al., 2000).

According to some research, the detrimental impacts of social comparisons are particularly pronounced among siblings who are closer in age (Forgas, & Fitness, 2008). A meta-analysis study revealed a stronger association of sibling conflict with internalizing problems for sibling pairs with smaller age differences (Buist et al., 2013). This may be attributed to the fact that siblings who are closer in age tended to compete with each other more often (Buhrmester & Furman, 1990). On the other hand, it is also observed that PDT has a stronger impact on siblings with wider age ranges than on closer age ranges (Rolan & Marceau, 2018).

2.6. Methods Used in PDT Studies

Various designs, methods, and procedures have been used in previous PDT studies. Researchers on PDT used both longitudinal and cross-sectional study designs to assess its relation and impact on behavioral outcomes. In a Meta-analysis study among the 34 studies, 17 of them used a longitudinal study design while the remaining studies applied a cross-sectional design (Buist et al., 2013). The main intention of researchers who applied longitudinal study was to track the effect of PDT on children's overall behavioral outcomes through time. A considerable number of these studies reported consistent findings that the majority of the participants who reported perceived differential treatment at time 1 tend to report persistent PDT against them at time 2 and exhibited poor developmental outcomes in both measures (Buist et al., 2013; Rolan & Marceau, 2018). Studies that applied cross-sectional design measured children perceived PDT at the time of assessment and reported that perceived PDT related to poor psychological wellbeing and adjustment problems (Ashad et al., 2018; Jensen et al., 2019; Sheehan & Noller, 2002).

The majority of the previous studies focused on adolescent stage children (Ashad et al., 2018; Jensen et al., 2019; Rolan & Marceau, 2018; Sheehan & Noller, 2002). Most of the family studies conducted on PDT gathered data from pair participants in the family and the result is determined for maternal and paternal differential treatment separately from reports of the respondent children (e.g. Rolan & Marceau, 2018; Sheehan & Noller, 2002; Jensen et al., 2019).

Previous studies applied quantitative research methods to assess PDT and determine its relationship with various predictive variables. The measure used to study PDT was mainly the Sibling Inventory of Differential Experience (SIDE) (e.g. Ashad et al., 2018; Richmond et al., 2005; Rolan & Marceau, 2018; Sheehan & Noller, 2002). Researchers measured PDT via one of the two broad categories, measuring perceptions or determining difference scores.

Perception-based measures address PDT explicitly by assessing adolescents' perceptions of how he or she is treated compared with a brother or sister. For example in a study conducted by Arshad et. al. (2018), adolescents were asked to report how their parents have treated them compared to other siblings. In contrast, difference score measures address PDT implicitly by using reports from different siblings including parents and children on how parents treat each sibling without regard to the parental treatment other siblings may receive. The separate reports are then used to create a discrepant treatment. For example, Shanahan et al. (2008) asked firstborn and second-born children to separately rate their relationship quality with their parents to calculate the differential treatment. Younger sibling reports of dyadic parent-child relationships were subtracted from older sibling reports for the older sibling and vice versa for the younger sibling. This provides the result of differential treatment difference scores for each

sibling on a scale including negative values (meaning, less favored treatment), zero (referring to equal treatment), and positive values (indicating favored treatment).

However, using different scores could produce misleading results. An individual respondent may perceive himself as a less favored child but the respondent could be considered as a favored child just because the other child scored less on the measure. Additionally, the difference scores measure the PDT of a given child without a given reference for comparison. The comparison is done by the researcher by subtracting the score of one sibling from the other. But, based on SCT, since comparison and competition are part of the sibling relationship in a family, it would be a reflection of a natural relationship at home if children were directly asked to rate how they were treated by their parents in relation to the other potential competitor sibling in a family.

2.7.Theoretical and Conceptual Framework of the Study

The theoretical and conceptual framework of the current study is described hereunder.

2.7.1. Theoretical Framework

There are a number of theories that could inform the theoretical bases for this study. Ecological theory, for example, emphasized the role of environmental and cultural factors in influencing human development. Within the ecological perspective, an important focus of the inquiry is on how, and the extent to which, different settings are linked, and the impact of these links on individual behavior (Bronfenbrenner, 1979). The developmental niche theory, on the other hand, provided theoretical justifications for how the family environment influences children's development (Harkness & Supper, 1985). The developmental niche is conceptualized

in terms of three major subsystems which function together as a larger system, each of which operates conditionally with other features of the culture. The three components are (1) the physical and social setting in which the child lives; (2) culturally regulated customs of child care and child-rearing; and (3) the psychology of the caretakers. However, the ecological perspective and developmental niche provide a conceptual framework within which to investigate more complex interactions between persons and environments *(*Steinberg, 2001). Since this study focuses on the interaction between personal factors of the adolescents, siblings, and parents, it is primarily guided by social comparison theory.

Social Comparison Theory (SCT; Festinger, 1954) is used as a theoretical framework to understand the relationship between PDT and adolescents' adjustment and other moderator variables. The model can be used to argue that the perception of PDT affects adolescents' social, emotional, and educational adjustment. SCT asserts that siblings are not passive recipients of parental treatment but actively construct their own experiences. SCT theory posits that individuals engage in comparison with others as a way of gathering information about and evaluating aspects of the self (Suls et al., 2002) and their social position (Festinger, 1954; Suls et al., 2002). Through these comparisons, children begin to develop a sense of self and associated feelings of self-worth (Feinberg et al., 2000).

The adolescence stage is characterized as a transitional period when identity formation and development of the self are central tasks (Erikson, 1959). Social comparisons are especially important during adolescence, as developmental changes in cognition and perspectives taking are associated with youth's increased utilization of comparisons for self-evaluation in relation to others (e.g., Eccles et al., 1984; Ruble et al., 1980). Self-perception, affective reactions,

motivation, and behavior are all shaped by comparisons with others (Corcoran et al., 2011). According to the principle of SCT, the comparisons can be either subconscious or conscious, and both impact well-being (Stapel & Suls, 2004).

The model claims that comparisons with people who have had less favorable experiences or performances (downward comparison) are thought to increase self-esteem, whereas comparisons with people who have had more positive experiences or performances (Upward comparison) are thought to have a negative effect (Mendes, 2001; Wheeler & Miyake, 1992). When applied to PDT, SCT suggests that more preferred siblings make downward comparisons and do better, whereas less favored siblings make upward comparisons and perform worse (Jensen & Whiteman, 2014). To state it differently, SCT claims that perception of one's position in comparison with others results in divergent feelings about the differentiation depending upon whether the individual believes that he or she has greater or fewer resources than those to whom he or she compares himself or herself with (Salovey, 1991). Particularly, when siblings consider themselves under-benefited, they are likely to experience feelings of hostility or unhappiness (Salovey, 1991).

Consistent with SCT principles, studies demonstrated that youths who experience better parental care than their siblings have more positive adjustment outcomes, ranging from higher self-worth to lower levels of risk-taking behaviors (Feinberg & Hetherington 2001; Shanahan et al., 2008). The mechanisms or pathways underlying the relationships between PDT and youths developmental outcomes are not thoroughly understood, despite the fact that SCT offers a framework for doing so. Fistinger (1954) stated that the outcome of social comparision is influenced by personal factors and social interaction.

Related studies that were conducted in various settings are reviewed to bridge the gap and understand how personality of adolescents and sibling relationship quality influence the link between PDT and adjustment. Some studies tried to demonstrate factors that moderate the relationship between PDT and adolescents' adjustment. Jenkins et al. (2003) indicated that stressful family environment, marital dissatisfaction, large family size, single parenthood, and low SES as factors to contribute to PDT. Jensen and his colleagues studied the link between PDT and adolescents' behavior by considering personality (conscientious and agreeableness) as a moderating factor and their findings revealed that less conscientious youth who had a less close relationship with their mother compared to their siblings reported having poor health and exercise habits. In contrast, more conscientious adolescents have demonstrated healthy behavior regardless of the distant relationship they have had with their mother because conscientious adolescents are better at taking the perspectives of others (Jensen et al., 2019).

In another related study that examined the role of sibling relationship characteristics and self-esteem in the association between PDT and adolescents' externalizing behavior, the researchers reported that high maternal differential treatment was linked positively with a high level of externalized behavior among adolescents of the same age and low self-esteem and older siblings with high self-esteem. It is also indicated that higher parental differential treatment predicted externalized behavior for older siblings with a wider age range (regardless of self-esteem) and among adolescents with a higher level of self-esteem (regardless of age differences) (Rolan & Marceau, 2018). In another study, the finding disclosed that the link between parenting behavior and psychosocial problems in early adolescence is partly mediated by self-control (Finkenauer et al., 2005).

The moderating effects of personality on adolescents' conflict resolution style with their mothers were investigated in one recent study and the result indicated that the big five factors were observed to have a significant moderating effect. Generally, the finding revealed that introverted, agreeable, less emotionally stable, less open to experiences, and less conscientious adolescents demonstrated poor problem-solving in a less responsive and more controlling family environment (Missotten et al., 2016). In another related study, the finding depicted that perceptions of fairness dampened the correlation between PDT and jealousy, which in turn, ameliorated PDT's association with youth's adjustment outcomes (Loeser et al., 2016). Parental behavior and adolescents' adjustment relationship was found to be moderated by self-esteem and emotionality but not gender (Feinberg et al., 2000). Additionally, family levels of ambient parenting (low or high warmth) moderate and impact the role of PDT (Jensen & Whiteman, 2014).

The interaction effect of PDT on adolescents' adjustment with adolescents' personality and sibling relationship quality is not well explored in the previous studies. In the present study, based on SCT and related studies presented above, I posit that the links between PDT and adolescents' adjustment operate through the personality and quality of sibling relationships. Thus it seems that some adolescents with certain types of personality would have a better adjustment regardless of the existing perceived PDT. Similarly, it appears that adolescents within less conflicting and more affectionate relationships with their siblings seem to be affected less by perceived PDT than those in a conflicting relationship. Moreover, it also looks like adolescents' personality and sibling relationship quality would have a significant independent and interaction effect on the link between PDT and adolescents' adjustment.

2.7.2. Conceptual Framework

According to social comparison theory, similarities (for example gender and age) trigger comparison and competition among siblings over parental treatment and attention towards each child (Festinger, 1954). There is a high tendency for the siblings to critically evaluate their parental behavior (affection and control) being directed towards themselves and their siblings. When a child witnesses that parents direct different levels of affection and control on siblings, perception of PDT seems inevitable. PDT is related to several problem behavioral outcomes including aggression, depression, anxiety, poor self-esteem (Feinberg & Hetherington, 2001; Shanahan et al., 2004), and behavioral problems (Eddy et al., 2001), and psychopathology (Larsson et al., 2008). Although prior studies did not investigate the effect of PDT on various aspects of adjustments comprehensively, it seems reasonable to anticipate that there is a direct link between PDT and the social, emotional, and educational adjustment of adolescents.

Studies confirmed that the association between PDT and adolescent adjustment is moderated by interpersonal and individual factors. PDT harms the quality of sibling relationships by creating a sense of rivalry and grievance between siblings (Boll et al., 2003). The quality of sibling relationships (levels of warmth and conflict) significantly predicts youths' behavioral and emotional adjustment (Noller, 2005). Youths' who have positive sibling relationships demonstrated better well-being (Stocker, 1994). Hence, adolescents' who establish a warm relationship with their siblings are anticipated to be less influenced by the perceived PDT compared to adolescents in a more conflicting relationship with their siblings.

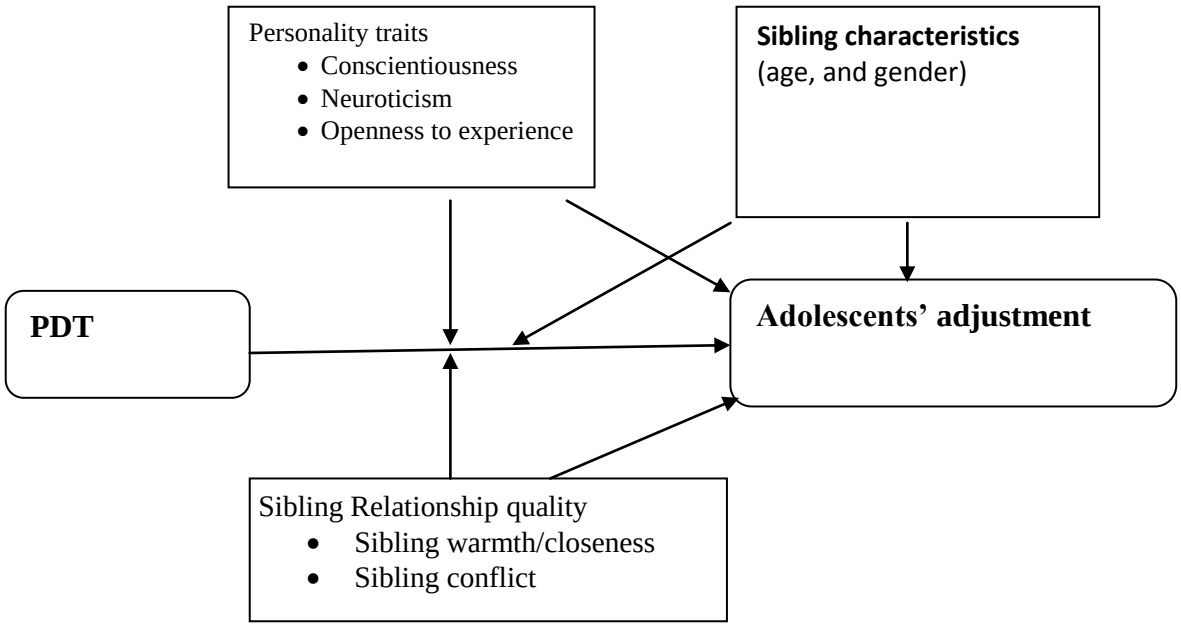
The present study assumes that the effect of PDT on youth's adjustment is determined by the adolescent's personality as well. According to Fayombo (2010) conscientiousness, agreeableness, extraversion, and openness to experience are positively related to psychological

resilience whereas neuroticism was negatively correlated with resilience. Resilient youths are more likely to exhibit effective psychological and social adjustments as well as enhanced community participation even after traumatic brain injury (Lukow, et al., 2015).

To sum up, this study is conducted based on a conceptual framework (Figure 1) that assumes there is a direct and indirect link between PDT, sibling relationship quality, adolescents' personality, and adolescents' adjustment. Adjustment of adolescents is multiplying determined and influenced by PDT, personality, sibling relationship, and individual and family context variables. It is also expected that sibling relationships are considered to have a direct and indirect influence on adolescents' adjustment. Similarly, in the current study, it is anticipated that PDT impacts adolescents' adjustment, through interaction with personality and sibling relationship quality. Moreover, individual and family context variables are also expected to influence adolescents' adjustment as well as the existing relationship between adjustment and PDT.

Figure 1

Conceptual Model Showing the Relationships among Variables of the Current Study



Chapter 3: Methods of the Study

In this section, the design of the study; site and population of the study; samples and sampling techniques; tools of data collection, procedures as well as ethical considerations are described.

3.1.Research Design

The purpose of the present study was to examine the relationships between PDT and adolescents' adjustment and to determine the moderating effects of sibling relationship quality and adolescents' personality. Because it fits the purpose of the study, a non-experimental correlational design was implemented. According to Stangor (2011), correlational research entails the measurement of two or more pertinent variables and an evaluation of the association between or among those variables, and the objective of correlational research is to unveil variables that show systematic relationships with each other. Prior related studies on PDT predominantly used quantitative research approaches to explore the status of the problem and determine its relationship with various predictive variables. Similarly, the present study employed a quantitative method because it was relevant to adequately address the purpose of the study.

3.2.Target Population and Participants

The target population of this study was adolescents in Addis Ababa city who live with intact families and who have at least one same-sex adolescent sibling at home. Prior studies (for example, Man et al., 2003; Vassos et al., 2016) confirmed that due to the multifarious social, and environmental factors, adolescents in big cities are at risk of poor adjustment that could lead

them to suffer from emotional, behavioral, social, and academic problems. Additionally, since the city holds a wide range of heterogeneous communities that could reasonably represent various cultures, studying the samples in Addis Ababa is believed to provide some valuable information about the nature of the problem in the Ethiopian context, particularly in urban areas. Moreover, previous studies documented that PDT is prevalent in western culture and since the current trend of parenting is under a tremendous influence of this culture due to exposure to technologies and media, the case could be rampant in big metropolitan cities. Having these into consideration, studying adolescents in Addis Ababa is assumed to be convenient to better portray and describe the nature of the problem in the study area.

The study sites were government secondary schools. This study was focused on secondary school adolescents for two major reasons. First, to study adjustment comprehensively from social, emotional, and educational dimensions, studying adolescents in school rather than those outside school would make it relatively easy to collect the required information. Second, during the adolescence stage, one of the issues is the transition from a lower level (elementary level) to the next higher level (high school) that urges effective adjustment for healthy development and without studying secondary school adolescents it would be hard to assess.

The present study was focused on government schools of Addis Ababa because, unlike private schools, these schools are, relatively speaking, proportionally distributed across sub-cities of Addis Ababa that allowed covering large geographical areas. Additionally to control the effects of socioeconomic factors, and to focus on families with relative homogeneity, the current study only focused on adolescents of government schools of Addis Ababa.

According to the Addis Ababa city government education bureau, there were a total of 76 government secondary schools in the city in the year 2022 academic year. Grades 9 and 10 students (normally age 15 and 16) in the selected schools who fulfill the inclusion criteria were considered to be participants of the study. In relative terms, unlike grade 11 and 12 students (preparatory students), these students are not fully accustomed to the psychological, social, and physical changes brought with the age that the issue of adjustment remains a critical point for these students. Since these students are in the process of transition, studying adjustment would allow identifying adolescent risks of maladjustment.

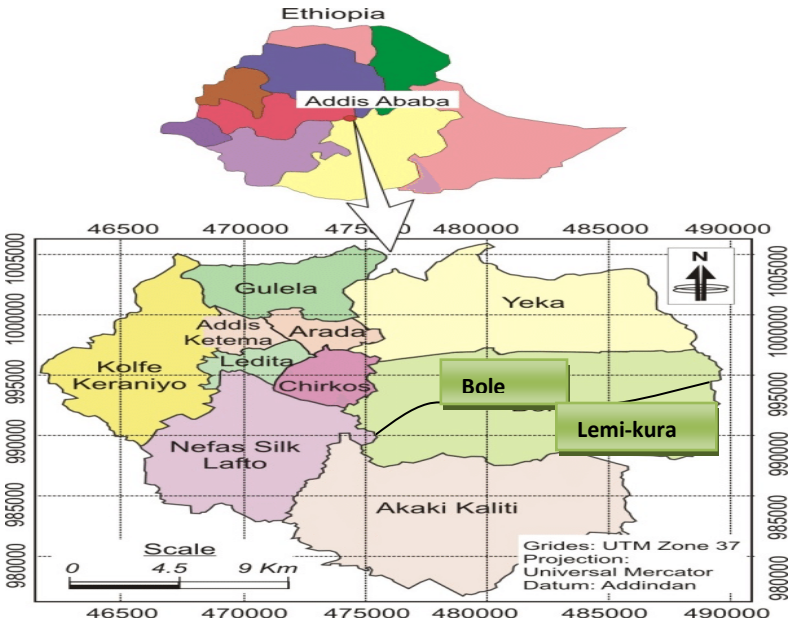
3.3. Sample and Sampling Techniques

A multistage random sampling method was used to select participants for this study. Multistage sampling involves two or more stages of random sampling depending on the hierarchical structure of natural clusters (for example, sub-cities and schools) within the population (Sedgwick, 2015). In the first stage, five sub-cities were selected (Yeka, Akaki kality, Lemi Kura, kolfe keraniyo and Lideta) randomly using a lottery method among the 11 sub-cities of Addis Ababa City Administration. The sub cities were selected based on their geographical location (North, South, East, West and Central) to ensure wider coverage and fair representations of Addis Ababa (see Figure 2). Except for Akaki Kality sub-city, the remaining four sub-cities were selected randomly by using lottery method. From the central part, even though there were four sub-sub cities in it, their geographical location is similar and their proportion is small compared to other sub-cities that selecting one sub city was assumed to be fair. The procedure allowed the research to have wider coverage and fair representation of Addis Ababa. According to Addis Ababa City administration education bureau among the 76 secondary schools in Addis

Ababa, 37 of the secondary schools were located in the selected five sub-cities. The number of schools in the sub-cities ranges from 3 to 12 and the number of students in each school ranged from 734 to 1066.

Figure 2

Sub-cities of Addis Ababa and Their Geographical Locations



Once the five sub-cities were selected, the next step was to select 7 secondary schools randomly from the selected sub-cities. Four schools (two from each) were selected from Kolfe Keraniyo and Akaki Kality sub-cities because there were large numbers of schools (10 and 12) compared to the remaining three sub cities. One secondary school was selected from each remaining three sub cities. A total of seven high schools were selected to determine the sampling frame and select sample for the study. The selected schools and number of sections are indicated in the table 1 below

Table 1

Sample Schools and Number of Sections

No.	Name of the school	Number of sections		Number of students			
				9th		10th	
		9th	10th	Male	Female	Male	Female
1.	Endode	6	6	216	237	171	288
2.	Hidasse	11	6	268	291	123	156
3.	Tigil fire	8	6	198	218	143	175
4.	Umer semester	10	5	232	298	109	131
5.	Tesfa birhan	10	6	248	294	113	221
6.	Bulbula	12	7	296	364	177	229
7.	Ayer Tena	9	7	223	272	178	221

Once the grade levels and number of classes are identified the next step was to carry out preliminary assessment for each section to determine the samples eligible for the present study (Appendix A1). This was performed in line with social comparison theory and corresponding studies that attest that the effect of PDT on adolescents' adjustment is notable among adolescents of the same-sex dyads and with a smaller age gap. The preliminary assessment depicted that there were 15 to 23 eligible male and female students in each class. Finally it was decided to randomly select 2 sections from Grade 9 and 10 from each school and to consider all male and female eligible students as a sample. The final sample was 561 students selected from 28 sections (14 from grade 9 and 14 from grade 10).

3.4.Tools of Data Collection

A questionnaire was prepared in a way that could comprise a brief introduction and demographic sections along with other four scales: Sibling Inventory of Differential Experience (SIDE), Adjustment Inventory (AI), Sibling Relationships Questionnaire (SRQ), and NEO Personality Inventory (NEO-PI-3).

3.4.1. Introduction and Demographic Information

The introduction section of the questionnaire was designed to inform participants about the purpose of the study and how the data will be gathered, kept confidentially, and used. The demographic part asks participants to provide information on demographic variables (age, birth order, number of siblings, gender, grade level, parental age, parental education, and parental occupational status).

3.4.2. Parental Differential Treatment

To measure adolescents' perceived parental differential treatment, the modified version of the self-report Sibling Inventory of Differential Experience (SIDE; Daniels, & Plomin, 1985) was used. Adolescents rated on a five-point scale (1 = 'applies more to my sister/brother' 2 = 'applies a little more to my sister/brother,' 3 = 'applies equally to me and my sister/brother,' 4 = 'applies a little more to me,' 5 = 'applies more to me') how their mothers and fathers treated them compared to their siblings. Previous studies confirmed that mothers and fathers are generally similar in their differential treatment of their children (Brody et al., 1992; McHale et al., 1995; Meunier et al., 2012) that whether the child reports his/her experience with the father or the mother, it is assumed to reflect his or her perception of PDT in the family. However, in the present study, to be more precise, participants were asked to report paternal and maternal differential treatment separately and the analysis was done accordingly.

The original tool comprised 9 items to measure two factors (affection and control) as constructs of differential treatment. The Affection scale consisted of five items tapping parental pride, interest, favoritism, enjoyment, and sensitivity. The Control scale contained four items

measuring parental strictness, punishment, blame, and discipline. The sum of the scores of the two constructs gives information about differential affection and control.

The internal consistency of the original tool is within an acceptable range (α=0.71). Based on Kline's criterion (2000), reliability coefficients of more than 0.7 confirm internal consistency. Later works in different settings, for example in China and Australia, reported acceptable reliability coefficients that range from 0.71 to 0.86 for the composite score and 0.76 to 0.81 for the sub-scales (Ng et al., 2020; Rolan & Marceau, 2018; Sheehan & Noller, 2002). Since the initial works of Daniels and Plomin (1985), the measure has been used in multicultural settings that provide evidence for its external validity. It is the most frequently used scale to measure differential parenting in a variety of settings and was initially developed to assess children's perception of parental differential treatment which makes it convenient to adapt and apply for the current study as well.

The SIDE inventory is pilot tested and culturally adapted by using participants from the target culture. Item analysis of the instrument resulted in 7 items scale of which affection scale comprises four items and control scale involves three items (Appendix D). The reliability test carried out on the adapted scale showed that the tool has acceptable internal consistency to be used for the target group. The Cronbach's Alpha Value turned out to be 0.72 for the whole scale of maternal differential treatment with sub-scale value of α=0.70 for affection and α=0.60 for control. On the other hand, the paternal differential treatment reliability coefficient (α) was 0.73, while the paternal affection and control reliability coefficients (α) were 0.70 and 0.63, respectively.

3.4.3. Adolescents' Adjustment

Adjustment of the sample adolescents' was assessed by employing the Adjustment Inventory (AI) (Sinha & Singh, 1971). The inventory was selected for this study purpose since it measures adjustment comprehensively from various domains (social, emotional, and educational) which are key areas of adjustment during the adolescence stage. Additionally, the tool is found to be suitable for the current study because it was constructed and standardized to assess the adolescent's level of adjustment. The inventory seeks to segregate well-adjusted adolescents (age group 14 to 18 years) from poorly adjusted adolescents in the three areas of adjustment; Emotional, Social, and Educational. The reliability and validity of the original tool were found to be acceptable to adapt and modify the tool for this study purpose. The item analysis carried out on the tool indicated that the tool is valid for its intended purpose. The reliability index (Cronbach's alpha ranges from 0.90 to 0.96.) (Sinha & Singh, 1971) also demonstrated the tool is reliable to measure adolescents' adjustment.

The original inventory contains 60 items, 20 items in each area of adjustment. The items were designed to be answered as yes or no (0 = yes, 1 = no). For this study, the researcher adapted and modified the inventory, by using evidence from the pilot test (Appendix D), in a way that can best assess the level of adjustment of adolescents in the study area. Pilot testing and item analysis procedure reduced the 60 items to 36 (emotional =11 items; social =12 items, educational =13 items). The score ranges from 0 to 36 for the overall inventory and 0 to 11 for emotional, 0 to 12 for social and 0 to 13 for educational adjustment.

The responses of the participants were rescored based on the scoring sheet for poor adjustment (see Table 2) and scores were summed to determine the emotional, social, educational, as well as overall adjustment of adolescents.

Table 2

Response Indicative of Poor Adjustment

Emotional		**Social**		**Educational**	
Item No.	Response	Item No.	Response	Item No.	Response
1	Yes	2	Yes	3	Yes
6	Yes	4	Yes	5	Yes
11	Yes	7	Yes	8	Yes
13	Yes	9	No	10	No
16	Yes	12	Yes	15	No
19	Yes	14	No	18	No
21	Yes	17	No	20	Yes
24	Yes	22	Yes	23	No
27	Yes	25	No	26	No
29	Yes	33	Yes	28	Yes
31	Yes	34	No	30	Yes
		36	No	32	Yes
				35	No

Source: Sinha and Singh (1971)

A higher score is indicative of low adjustment (Sinha & Singh, 1971). The composite score as well as the sum of scores of each scale were interpreted based on the guideline (Table 3 below) to determine the level of social, emotional, educational as well as total adjustment of the respondents.

Table 3

Scores and Corresponding Levels of Adjustment

Areas	Category	Description	Range of scores	
			Male	Female
Adjustment	A	Excellent	5 and below	5 and below
	B	Good	6-12	6-14
	C	Average	12-21	15-22
	D	Unsatisfactory	22-30	23-31
	E	Very unsatisfactory	31 and above	32 and above
Emotional adjustment	A	Excellent	1 and below	1 and below
	B	Good	2-4	2-5
	C	Average	5-7	6-7
	D	Unsatisfactory	8-10	8-10
	E	Very unsatisfactory	11 and above	11 and above
Social adjustment	A	Excellent	2 and below	2 and below
	B	Good	3-4	3-5
	C	Average	5-7	6-7
	D	Unsatisfactory	8-10	8-10
	E	Very unsatisfactory	11 and above	11 and above
Educational adjustment	A	Excellent	2 and below	2 and below
	B	Good	3-4	3-4
	C	Average	5-7	5-7
	D	Unsatisfactory	8-10	8-10
	E	Very unsatisfactory	11 and above	11 and above

Source: Sinha and Singh (1971)

The pilot test result of the adapted tool indicated that the adjustment inventory with 36 items with reliability coefficient ranges from 0.86 to 0.69 (α=0.86 for the whole scale, 0.71 for emotional, 0.69 for social, and 0.74 for educational).

3.4.4. Sibling Relationship Quality

Because of heightened interest in the sibling relationship and its impact on developmental outcomes in adolescence and childhood, there are now several different measurement tools available to assess the quality of sibling relationships. For example, the Sibling Inventory of Behavior (SIB) (Schaefer & Edgerton, 1981) was originally developed to assess the quality of sibling relationships in families of a child with developmental disabilities. On the other hand, the

Sibling Relationship Inventory (SRI) which was created by Stocker, and McHale (1992) was meant to assess sibling relationship quality among children at the early/late childhood stage based on parental responses. The other predominantly used sibling relationship inventories were the Adult Sibling Relationship Questionnaire (ASRQ) (Stocker et al., 1997) and the Lifespan Sibling Relationship Scale (LSRS) (Riggio, 2000) designed to assess the quality of sibling relationships during late adolescence and beyond. For the current study, the adapted version of the Sibling Relationships Questionnaire (SRQ) (Furman & Buhrmester, 1985) was used due to its suitability to assess the quality of sibling relationships during adolescence. The questionnaire intends to assess the respondents' perceptions of the relationship and behaviors toward their sibling.

SRQ is a self-report measure composed of 48 items, forming 16 scales. Each scale is composed of 3 questions. Items included in the questionnaire were derived from open-ended interviews with children in the fifth and sixth grades and later also tested on adolescent sample participants in grades nine and twelve (Furman & Buhrmester, 1985). The main categories of relationship qualities identified by the children were grouped to form the 16 scales: prosocial behavior, affection, companionship, similarity, intimacy, admiration of sibling, the admiration by siblings, antagonism, competition, quarreling, nurturance of siblings, nurturance by siblings, the dominance of sibling, dominance by sibling, maternal partiality and paternal partiality. Later, a principal component analysis identified 4 factors from the scales: Warmth/Closeness, Relative Status/Power, Conflict, and Rivalry.

Warmth and conflict are central elements to explain sibling relationships (Kim et al., 2006) and predict adjustment in adolescence (Kim et al., 2007). Thus in this study, the

warmth/closeness and conflict dimensions (n=30 items) of SRQ were used to measure sibling relationship quality among adolescent participants. According to Furman and Buhrmester (1985), the dimension Warmth/Closeness consists of seven underlying qualities (i.e., Intimacy, Prosocial Behavior, Companionship, Affection, Similarity, Admiration of the sibling, and Admiration by the sibling), and the dimension Conflict can be divided into three underlying qualities (i.e., Quarreling, Antagonism, and Competition). Each quality of the dimensions has three items. Thus, the original SRQ comprised of 30 items intended to measure warmth/closeness (21 items), and conflict (9 items) that is developed on a 5-point Likert-type scale (from 1 = hardly at all to 5 = extremely much).

The internal consistency test of the original SRQ tool was carried out separately across four grade levels (3^{rd} graders, 6^{th} graders, 9^{th} graders, and 12^{th} graders) and found to have dependable reliability Cronbach alpha coefficients range from 0.71 to 0.81 (Furman & Buhrmester, 1985). Reported test-retest reliability is 0.71 (Furman & Buhrmester, 1985). The internal consistency of sub-scales of SRQ was also proven to be high in later study i.e. 0.94 for warmth/closeness and 0.93 for conflict (Derkman et al., 2010).

The Validity of the SRQ tool was also assessed by various researchers and the questionnaire was found to be valid to measure the quality of sibling relationships among adolescents (Derkman et al., 2010; Moser & Jacob, 2002). Due to its dependable psychometric characteristics, the Questionnaire has been applied in several previous studies (e.g., Richmond et al, 2005; Stocker et al., 2002; Van der Vorst et al., 2007).

SRQ was pilot tested and validated with the help of participants from the target culture to ensure its suitability to be applied for adolescents in Ethiopia. Even thought the previous studies

proved that SRQ is dependable measure sibling relationship among adolescents, validation and pilot testing of the tool was important since no evidence was found regarding its psychometric properties in non-Western cultures. The validated and adapted tool resulted an instrument with 18 items (13 items were to measure sibling warmth/closeness and 5 of them were for sibling conflict) (Appendix D). The internal consistency of the adapted tool was found to be 0.83 for the whole scale and 0.90 and 0.78 for warmth and conflict sub scales. The value of the 13 items for the warmth scale was summed, and higher scores indicate more sibling warmth. Similarly, items for the conflict scale were added, and higher scores indicate more sibling conflict.

3.4.5. Adolescents' Personality

A series of investigations have provided undeniable evidence that children of different ages and cultures are described in terms of personality characteristics that resemble the five robust traits in adults, i.e. extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (e.g., Knyazev et al., 2008; Mervielde & De Fruyt, 2002; Shiner, 2006; Slobodskaya, 2007); and consequently, the Five-Factor Model (FFM) is the most widely used structural model in personality measurement and research (Soto et al., 2016). These domains are considered to comprehensively and concisely describe adolescent and adult personalities that have strong influences on behavior (Costa & McCrae, 1992). Therefore, the FFM is presently the most extensively acknowledged framework of personality trait structure, and the NEO Inventories have been employed globally in clinical, research, and practical settings (Costa & McCrae, 2008).

The NEO Inventories are operationalizations of the FFM of personality traits (Costa & McCrae, 2008). The NEO-PI-3, the updated version of the Revised NEO Personality Inventory is

specifically designed for adolescents from ages 12 to 18 and has been used successfully with high-school students (McCrae et al., 2005).

The original instrument comprises 60-items that contain 12 items tapping the five major personality domains with internal consistency that ranges from 0.63 to 0.93 (Costa & McCrea, 1992). Each item is rated on a 5-point scale ranging from 0 to 4 (i.e. 0=Strongly Disagree, 1= Disagree, 2= Neutral/Undecided, 3=Agree, 4=Strongly Agree). As suggested by Kotov and his associates (2010) conscientiousness, neuroticism and openness are the three major traits that predict adolescents' adjustment.

The inventory was pilot tested to ensure its suitability for participants of this study. The item analysis test resulted in three factor model (neuroticism, openness and conscientiousness) that comprises a total of 20 items (neuroticism= 7 items, openness= 6 items and conscientiousness= 7 items). The analysis of the internal consistency (alpha Coefficient) indicated that the personality inventory has an acceptable internal consistency (α=0.78) for the global scale and 0.71, 0.60 and 0.76 for neuroticism, openness, and conscientiousness traits respectively.

The three factors and the five facets that define each domain are presented in the Table 4 below.

Table 4

The Three Personality Domains and the Six Facets that Define Each Domain

Personality Domains		
Neuroticism	Openness	Conscientiousness
Facets that Define the Domains		
Anxiety	Fantasy	Competence
Angry Hostile	Aesthetics	Order
Depression	Feelings	Duitifulness
Self-Consciousness	Actions	Achievement Striving
Impulsiveness	Ideas	Self-Discipline
Vulnerability	Values	Deliberation

Source: Costa and McCrae (1995)

The total score for the personality domain is the sum of the scores earned from each items of that domain. The sum scores were converted into T-scores as stated in the scores interpretation manual to determine the level of each domain in the respondent adolescents. According to Costa and McRae, T scores of 56 or higher are considered high, T scores from 45-55 are considered average, and T scores of 44 or lower are considered low. Participants were categorized based on the T score of each personality domain.

According to McCrae, and Costa (2003) high and low scores in personality domains could also be described by various behavioral characteristics. The meanings of low and high scores in each personality domain in terms of behavioral facets are presented in Table 5 below.

Table 5

Descriptions of Scores of five-factor Personality

Factor	***Low Score Description***	***High Score Description***
Neuroticism	Calm, Even-tempered, Self-satisfied, Comfortable, Unemotional, Hardy	Worrying, Temperamental, Self-pitying, Self-conscious, Emotional, Vulnerable
Openness to Experience	Down-to-earth, Uncreative, Conventional, Prefer routine, Uncurious, Conservative	Imaginative, Creative, Original, Prefer variety, Curious, Liberal
Conscientiousness	Negligent, Lazy, Disorganized, Late, Aimless, Quitting	Conscientious, Hardworking, Well-organized, Punctual, Ambitious, Persevering

Source: McCrae, and Costa (2003)

3.5.Procedures

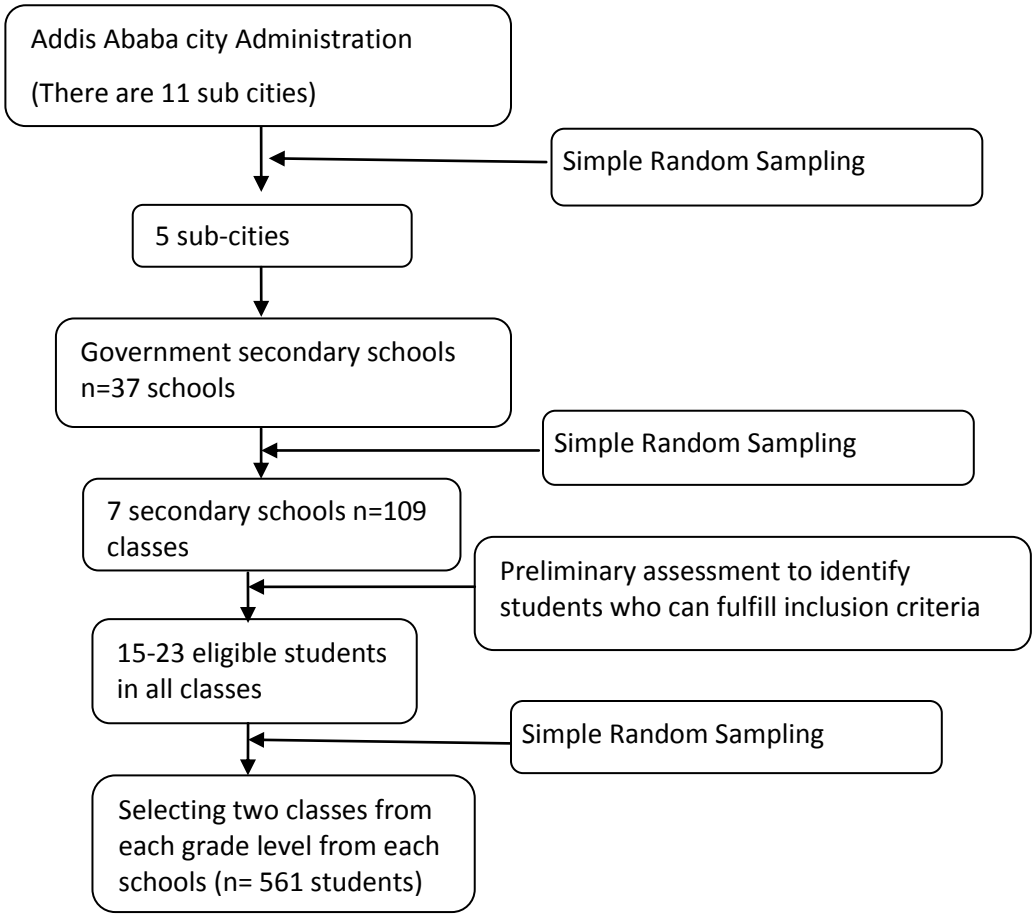
To meet the intended purpose of the present study, the following procedures were applied in sample selection, instrument adaptation, and data collection

3.5.1. Procedures of sample selection

A preliminary study was carried out by making all grade 9 and 10 students in the selected 7 government schools fill out the assessment form (Appendix A1). The form that inquires basic information about themselves and siblings (e.g. ID number, age, number of a sibling, gender, residential parents, etc) was distributed in each class and the required information was gathered (see the sample filled form under Appendix A2). Based on the preliminary data findings, adolescents who fulfilled the inclusion criteria were identified and 561 adolescents were selected from the sampling frame determined for the study (see sampling procedures of the study in Figure 3 below). Only volunteer adolescents that fulfill the inclusion criteria were included in the study sample.

Figure 3

Sampling Procedures of the study



3.5.2. Procedures of Instruments Adaptation and Validation

The data were collected by employing adapted versions of SIDE (Daniels & Plomin, 1985), Adjustment Inventory (Sinha & Singh, 1971), SRQ (Furman & Buhrmester, 1985), and NEO-PI 3 (Costa & McCrea, 1992) (see Appendix B). The researcher contacted the developers of the tools through email to secure permission for using the tools to collect data for the present study. The two authors (Professor Plomin and Professor Furman) already granted written permission to use the SIDE and SRQ tools (see Appendix C) and no response was received from

the NEO-PI3 authors yet. The adjustment inventory tool is a free access tool that needs no permission to be granted. All the tools underwent a series of validation processes to make sure that the reliability and validity of the measures fit the current study purpose.

All the four tools used in this study were developed and been used in western cultures and settings. Cross-cultural adaptation processes were employed to make sure that the tools are appropriate for the study purpose. According to Herdman and his associates (1998), the cross-cultural adaptation process is an inescapable procedure to reduce bias in the study when an instrument is applied in a different language, context, and time.

There is no well-defined universal agreement on how to adapt an instrument for use in another cultural setting. However, in general, the literature suggests that measurement tool adaptation entails five steps: (1) forward translation from the source language into the target language, (2) synthesis of the translated versions, (3) back-translation from the target language into the source language, (4) synthesis on the back-translated versions and (5) pilot testing (Hambleton, 2005; Herdman et al., 1998).

The adaptation and validation of the tools of this study were carried out in three major phases and each phase encompasses different activities (Figure 3). Phase one was the translation and adaptation of the original tool in the English language into the Amharic language. In this phase, four major activities were performed. First, forward translation of the four tools into the Amharic language was carried out by using two language experts independently. The literature recommends that forward translation of research tools should be done by two language experts who are fluent in the source language and native to the target language (Reichenheim et al., 2007). The two translators were experts in the English language (Ph.D. holders) and native Amharic speakers. Second, review and discussion meetings were held on the two Amharic

Versions of the four tools with the translators and the researcher to summarize and ensure no change in the meaning of the contents (content equivalence), and a consensus was reached on the draft Amharic version.

To address collective issues in cross-cultural instrument adaptation and translation, Flaherty and associates (1988) described five levels of equivalence: content (the relevance of the items to the culture being studied), semantic (similarity of meanings of items in both cultures), technical (comparability of the methods in each culture), criterion (interpretation of the measurement remains the same when compared with the norm) and conceptual (assessing whether the instruments are measuring the same construct in both cultures). On the other hand, as suggested by Borsa (2012), summarizing the versions of an instrument implies that the researcher compares the different translations and assesses their semantic, idiomatic, experimental, and contextual differences with the sole purpose of creating a single version. Consideration and assessment of these important aspects of assessment would allow the researcher to capture the emic (concepts and constructs specific to the culture) and etic (concepts and constructs universally understood across cultures) aspects of cultural variations across countries (Squires et al., 2013).

The cross-cultural instrumental adaptation issues were critically considered and addressed during the review and discussion sessions. Content equivalence was examined by critically synthesizing the contents of each instrument against the constructs understudy in the new culture. Content equivalence was also further critically assessed by using expert judgment to ensure the content validity of the instruments. Semantic equivalence was assessed by examining whether or not the words in the English and Amharic versions have the same meaning and whether or not the items have more than one meaning. Idiomatic (criterion) equivalence was

examined by assessing whether or not items from the original language that is difficult to translate were changed into equivalent expressions that have not changed the cultural meaning of the item. Experimental (technical) equivalence is evaluated to make sure that the particular item is applicable in the new culture. Finally, the conceptual equivalence is determined to assess whether or not a given term or expression assesses the same aspect in both the original culture and target culture.

During the instrument translation and adaptation stage, the two sources of complications (Borsa, 2012) were also adressed. These were (1) complex translations that may hinder the understanding of the target population, and (2) overly simplistic translations that underestimate the item content. To sum up, the procedures used in maintaining various aspects of equivalence between the two Amharic versions as well as the original versions of the instruments along with actions carried out to control the two sources of complications allowed the researcher to create refined Amharic version tools that were further evaluated in the next steps.

Third, the Amharic version tools were back-translated into the original language by two other language experts (Ph.D. holders in the English language and literature) to evaluate to what extent the translated version reflects the item content of the original version. The selection of experts was done in line with the recommendation forwarded by Beaton et al. (2000), which says, back-translation must be performed by at least two translators other than those who performed the first translation. Two experts independently back-translated the Amharic versions of the tools into the English language. Fourth, a review and discussion were held on the back-translated tools with the translators and the researcher to identify areas of modification and to produce more refined Amharic version tools for the validation phase. Discussion and review on both translated version and back-translated version tools would allow assessing if a word or

several words reflect the same ideas or subjects in both the original and adapted versions of the questionnaire (Reichenheim, 2007; Wang, 2006). This procedure ensures that items are translated accurately and are appropriate in the new context (Beaton, 2000; Wang, 2006). In other words, the review and discussion carried out at this phase were done with the intention of not literally interpreting the original version and the translated versions, instead, the procedure was used to identify words that were not clear in the target language and to identify inconsistencies or conceptual errors in the final version (Beaton et al., 2000).

Phase two was the evaluation of the face and content validity of the tools. Content validation requires assessment of the relevance and representativeness of each item to the specific constructs and determined by the expert judgments. It is also an important procedure to assess the appropriateness and the relevance of the items as well as the appropriateness of the format for the required purpose and thereby offers suggestions for improvements (Pilot & Beck, 2006). As stated by Pilot and Beck (2006), content validity was traditionally assessed by computing the item-level content validity index (I-CVI), using ratings of item relevance of five to ten experts who have methodological and content expertise in the area. Additionally, the scale level content validity index (S-CVI) could also be computed to assess the content validity for the global scale. S-CVI is calculated by averaging the proportion of items rated relevant across experts (Lynn, 1986). According to Polit et al. (2007) content validity index of 0.80 and above is going to be considered to have acceptable content validity.

The Amharic version tools were content validated by the evaluation of 10 experts. Four experts were Ph.D. psychology students of Addis Ababa University in the year 2022 who were conducting their dissertation on related topics. The other four experts were members of the Hawassa university psychology department who had a Ph.D. in psychology and were

experienced in conducting studies on similar areas. The remaining two were practitioners working in NGOs that support children and adolescents. The two practitioners have psychological backgrounds and working with children and adolescents for more than 10 years. The 10 experts were given a list of items and the constructs the items were supposed to measure. The definitions of the constructs were also given in the introduction sections of the tools. The experts were asked to judge the items on 4 points Likert scale (1=not relevant, 2=somewhat relevant, 3= relevant, 4=very relevant) from which content validity index was determined during analysis (Appendix D).

The Amharic version tools were pretested for face validation with the help of 31 respondents from the target group. Beaton et al., (2000) claimed that 30 to 40 respondents are adequate for instrument pretesting to detect confusing or misleading items. Thirty one respondent adolescents who fulfilled the inclusion criteria were selected to evaluate the overall features of the instrument and whether the sentences were clear and easy to understand, with appropriate layout and presentations. The clarity and the comprehension of the Amharic version tools were assessed through a four-point Likert-scale response. For clarity, the scale ranged from a score of 1 (not clear at all) to 4 (very clear), and for comprehension from 1 (unable to understand at all) to 4 (easily understood) (Appendix D). In addition to that participants were asked to forward any suggestion for items that they doubt on the clarity, comprehension structure or layout, and so on.

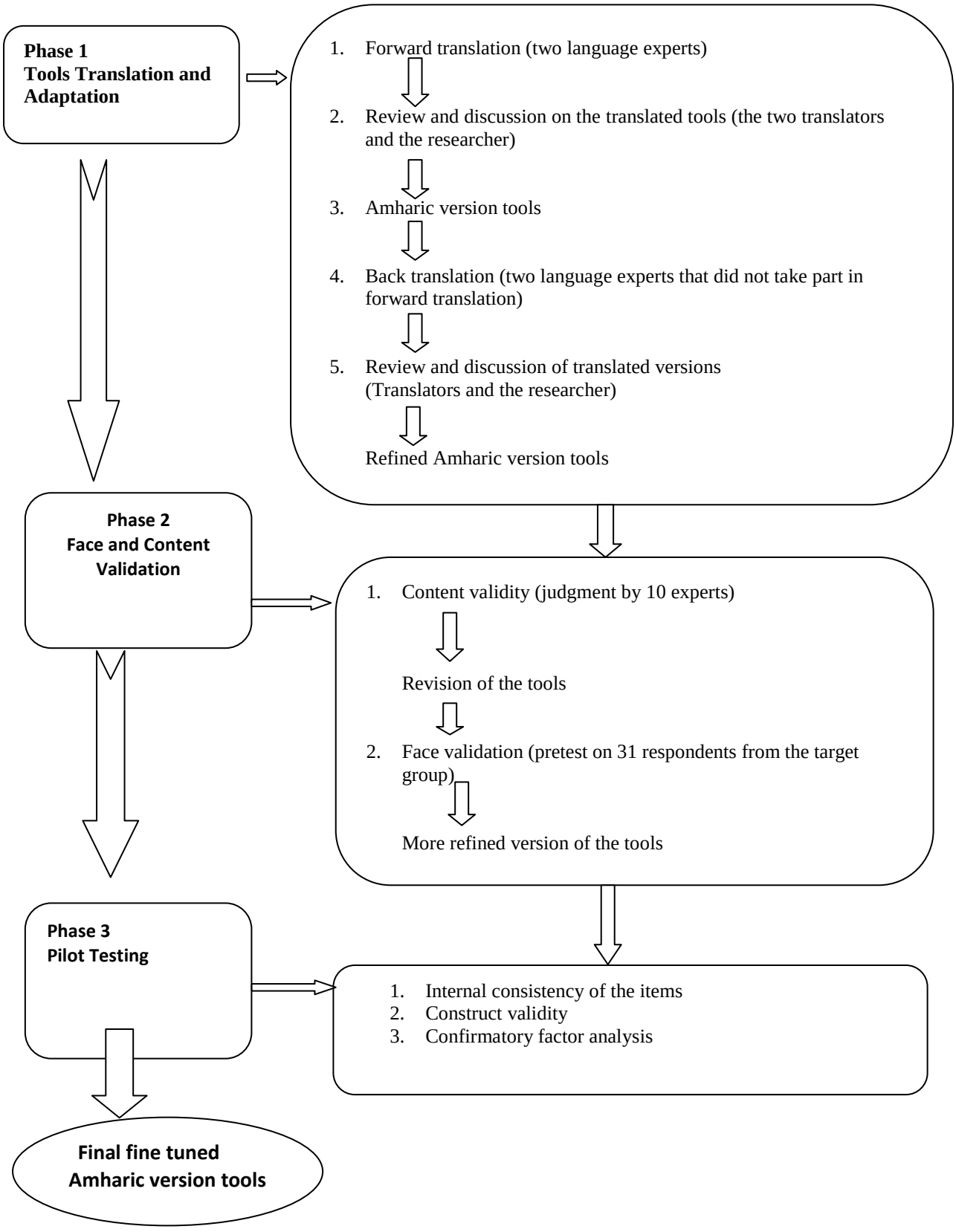
The face validity of the items was examined by using the Item Level Face Validity Index (I-FVI) method (Yusoff, 2019), i.e. by determining the proportion of rater giving ratings of 3 or 4 for clarity and comprehension of an item. Face Validity Index(FVI) was computed for each item and those items that have an I-FVI of 0.80 and above are considered as clear and understandable

(Yusoff, 2019). Additionally, the recommendations given by the pilot participants were also used to further improve the items in the instruments. Generally, the feedback from the pilot testing was used for the correction and fine-tuning of the Amharic version tools by the researcher.

In phase three, the revised Amharic version tools were pilot tested on the sample target participants that did not participate in face validation. According to Tabachnick and Fidell (2007) for psychometric analysis of data collection tools, a subject item ratio of 5:1 is an adequate sample size in most cases. Among the four tools, adjustment scale was the ones that comprise many items (n=60). Based on the above guideline for sample size determination, the minimum sample size required for this study was 300. After taking a 15% non-response rate into consideration, the sample size required for this study became a total of 350 participants from the target group. Finally, by disregarding qestionnaries with incomplete information, the data obtained from 291 (83% response rate) participants was used to assess the internal consistency, construct validity, and confirmatory factor analysis of the four Amharic version tools (the results are attached in Appendix D).

Figure 4

Procedures of Tools Adaptation and Pilot Testing



3.5.3. Procedures for Data collection

For the study, the data was collected from the samples with the help of trained assistants. The training was provided for the assistants on the objectives of the study, the nature of data collection tools, and how to approach research participants and gather data. There were five assistants that visited the selected schools to gather data from the required number of samples. The researcher visited each site and participated directly in data collection processes to assure that the quality of the data gained from the study participants. The data was gathered from the selected participants in each school for about a week in their respective classes. This was done in consultation with the respective school management and teachers and executed based on their agreement and recommendation. To avoid negligence among participants in responding to the questionnaire, clear direction and orientation were given to convince them to give a genuine response, and also the tools were prepared in such a way that could be short, precise, and easy to respond to.

The researcher applied data scoring and interpretation protocols stated by the authors of the original tools. The researcher implemented strict scientific procedures to maintain the quality of the data both during data collection and entry.

3.6.Methods of Data Analysis

As per the data, quantitative data analysis methods were used to scrutinize the data. Data cleaning and encoding tasks were done by the researcher as a preliminary activity of data analysis. The cleaned data was subjected to analysis by using SPSS version 25 to answer the research questions accordingly.

To test the objectives of the study, first descriptive statistics (for example frequency, percentage, mean and standard deviation) were carried out to describe the demographic characteristics of study participants (such as age, grade level, gender, parental education, parental occupation, birth order, and the number of siblings). To determine the perception of adolescents' PDT and adjustment, the data from the PDT scale and the adjustment inventory were subjected to descriptive statistical analysis and interpretation was done consequently. Additionally, the Pearson correlation coefficient was computed to examine the existing relationship between PDT and adolescents' socio-emotional adjustment as well as other moderator variables.

Multiple hierarchical regression analyses were conducted to explore to what extent personality traits, the quality of the sibling relationships and PDT predict adolescents' adjustment. Hierarchical regression is helpful in assessing the contributions of predictors above and beyond previously entered predictors, as a means of statistical control, and for examining incremental validity (Lewis, 2007). In carrying out these analyses the covariates (gender and age) were accounted for in the model predicting PDT and adolescents adjustment. Hierarchical regression with the help of PROCESS MACRO was run to see the independent and combined (moderating) effects of personality and quality of sibling relationships. The process of conducting the inferential statistical analysis was meticulously executed, taking great care to ensure that every step was followed diligently. Prior to embarking on the analysis, thorough checks were performed to ascertain that the data in question satisfied all the required assumptions.

3.7.Ethical Consideration

The research is conducted based on ethical clearance issued by research and ethics committee of school of psychology of Addis Ababa University with Reference Number: Ref SoP-Eth Co/009/2022. Then the selected schools were contacted to provide full information on the objectives of the study and procedures employed to select participants and their written permission was obtained to carry out the study. The selected samples were provided detailed information about the study and those who were volunteers were allowed to take part in the study.

The data collecting instruments were remained anonymous and participants were assured that the data would be kept confidential and be used only for this study purpose. On top of this, the participants were informed that they have the right to withdraw their consent at any point in time when they feel that there are inconveniences or they do not want to continue in the process.

Chapter 4: Results

Information pertaining to demographic information of the participants and results of the study are presented under this section of the report.

4.1. Demographic Information of the study participants

The tools of data collection were distributed to 561 eligible adolescent participants of which 537 questionnaires were returned back with complete information. 24 questionnaires were disregarded due to either incomplete information or not returned back. Finally, information from 537 participants was considered for the study purpose.

Table 6

Demographic Characteristics of the Study Participants

Variables	
Grade level, *n (%)*	
9th grade	283(52.7)
10th grade	254(47.3)
Gender, *n (%)*	
Male	221(41.2)
Female	316(58.8)
Birth order, *n (%)*	
Younger	293(54.6)
Older	244(45.4)
Age of the respondent, *M(SD)*	16.31(1.33)
Age of the closer age sibling, *M(SD)*	16.65(2.78)
Educational level of the mother *n (%)*	
No education	130(24.2)
Primary level education (1-8)	214(39.9)
Secondary level education (9-12)	129(24.0)
University/college level education	49(9.1)
Educational level of the father *n (%)*	
No education	62(11.5)
Primary level education (1-8)	181(33.7)
Secondary level education (9-12)	156(29.1)
University/college level education	104(19.4)
Occupational status of the mother *n (%)*	
Unemployed	272(50.7)
Government/private company employee	97(18.1)
Self-employed	155(28.9)
Occupational status of the father *n (%)*	
Unemployed	60(11.2)
Government/private company employee	138(25.7)
Self-employed	297(55.3)

Relatively proportional number of participants were taken from grade 9 (52.7%) and 10 (47.3%). 41.2% of the participants were males and the remaining 58.8% were females. The participants had at least one closer aged (1-3 years age gap) similar sex sibling at home and 54.6% reported that they had younger sibling while 45.2% reported that they had older sibling at home. The mean age of the respondents was 16.31 (SD=1.33) and the mean age of the same-sex sibling with closer age to the respondent adolescent was 16.65 (SD=2.78). All the respondents were from intact families living with both their mothers and fathers. Majority of the participant adolescents reported that their mother and father have at least primary and secondary education. As reported by the respondents, considerable portion of the mothers (50.7%) were unemployed while majority (80%) reported as their fathers are either running their own business or government/ private company employed.

4.2. Adjustment status of adolescents

To compute the adjustment level of participants of the study, scoring protocol of the adjustment inventory was used (see Table 2). The result was computed differently for males and females as per the direction of the scoring protocol of the inventory. The general rule of the scoring suggests that the higher value is a low adjustment for both the global scale as well as the subscales. The adjustment status was determined as excellent, good, average, unsatisfactory and very unsatisfactory based on the scores of participants (see Table 3).

Table 7

Levels of Adjustment of the Respondents (n=537)

Type of Adjustment	Level of adjustment	Male		Female		Total	
		n	*%*	*n*	*%*	*N*	*%*
Emotional	Excellent	2	0.4	10	1.9	12	2.2
	Good	25	4.7	109	20.3	134	25.0
	Average	57	10.6	61	11.4	118	22.0
	Unsatisfactory	103	19.2	120	22.3	223	41.5
	Very Unsatisfactory	34	6.3	16	3.0	50	9.3
Social	Excellent	6	1.1	23	4.3	29	5.4
	Good	11	2.0	62	11.5	73	13.6
	Average	44	8.2	65	12.1	109	20.3
	Unsatisfactory	103	19.2	134	25.0	237	44.1
	Very Unsatisfactory	57	10.6	32	6.0	89	16.6
Educational	Excellent	5	0.9	11	2.0	16	3.0
	Good	19	3.5	43	8.0	62	11.5
	Average	59	11.0	109	20.3	168	31.3
	Unsatisfactory	82	15.3	111	20.7	193	35.9
	Very Unsatisfactory	56	10.4	42	7.8	98	18.2
Global	Excellent	2	0.4	3	0.6	5	0.9
	Good	9	1.7	53	9.9	62	11.5
	Average	57	10.6	119	22.2	176	32.8
	Unsatisfactory	104	19.4	125	23.3	229	42.6
	Very Unsatisfactory	49	9.1	16	3.0	65	12.1

As indicated in the table above, the majority of the male participants (153 out of 221) demonstrated an unsatisfactory level of social, emotional, and educational adjustment. The proportion of male adolescents that manifested excellent or good adjustment is low (2.1%). On the other hand, the majority of female adolescent participants' level of adjustment was average and below average. The composite value of adjustment indicated that the 54.7% of study participants' level of adjustment was poor. The proportion of adolescents at excellent or good adjustment levels was very low compared to the other levels of adjustment.

Table 8

Gender Difference in Adjustment among Adolescents (n=537)

Type of Adjustment	Sex	*N*	*M*	*SD*	*df.*	*t*
Emotional Adjustment	Male	221	7.82	2.49	499.9	5.60**
	Female	316	6.55	2.74		
Social Adjustment	Male	221	8.69	2.51	496.70	6.35**
	Female	316	7.24	2.73		
Educational Adjustment	Male	221	8.34	2.83	535	4.41**
	Female	316	7.27	2.75		
Total Adjustment	Male	221	24.86	6.59	535	6.41**
	Female	316	21.06	6.87		

***p<0.01, *p<0.05*

The result also indicated that there is a gender difference in the level of adjustment among adolescents. Males poorly adjusted compared to females in emotional *(t* (499) = 5.60, *p*<0.01*)*, social *(t* (496) = 6.35, *p*<0.01*)*, educational *(t (*535*)*=6.41, *p*<0.01*)* and total adjustment *(t*(535) = 2.58, *p*<0.05*)* compared to females. The findings of the study generally indicated that there appears to be a higher prevalence of adjustment problems among male adolescents when compared to their female counterparts. This suggests that male adolescents may be facing a greater degree of difficulty when it comes to adjustment to various situations and conditions.

4.3. The Status of perceived Parental Differential Treatment among Adolescents

The average of relative score of PDT was used to examine the magnitude of perceived PDT among adolescent participants.

Table 9

Descriptive Statistics of Parental Differential Treatment (n=537)

PDT variables	*N*	*Min.*	*Max.*	*M*	*SD*
Maternal Affection	537	1.00	5.00	3.26	0.97
Maternal control	537	1.00	5.00	3.13	0.93
Paternal affection	537	1.00	5.00	3.12	1.06
Paternal control	537	1.00	5.00	3.15	1.02

From the maximum possible value of 5 in maternal and paternal affection, a mean value of 3.26 and 3.12 indicates that there is a reported differential paternal and maternal affection among siblings. Similarly, the mean value of 3.13 for maternal control and 3.15 for paternal control reveals that there is perceived differential parental control among participants. The result also showed that it was only 24.6% and 33.3 % of the respondent reported similar maternal affection and control. Similarly, 23.6% and 33.7% of respondents reported equal paternal affection and control at home. Generally, that the outcome of the study points towards the presence of a noticeable and discernible level of perceived differential treatment exhibited by parents towards their respective adolescent children.

Table 10

Gender Difference in Differential Parental Treatment (n=537)

Variables	Sex	*N*	*M*	*SD*	*Df*	*T*
Maternal Affection	Male	221	3.03	0.99	535	-4.56**
	Female	316	3.41	0.92		
Maternal Control	Male	221	3.30	0.87	535	3.59**
	Female	316	3.01	0.96		
Paternal Affection	Male	221	2.96	1.12	535	-3.05**
	Female	316	3.24	0.99		
Paternal Control	Male	221	3.26	0.97	535	2.03*
	Female	316	3.08	1.05		

***p<0.01, *p<0.05*

Analysis of the difference in parental differential treatment among male and female participants indicated that there was gender difference in maternal affection *(t (*535) = -4.56, *P*<0.01*)* and control *(t* (535) = 3.59, *P*<0.01*)*. Mothers tend to show significant higher affection for girls and exercise higher level of control on male adolescents. On the other hand paternal affection also found to be higher for female respondents compared to males *(t* (535) = - 3.05, *p*<0.01*).* Females experience more affection from their fathers than males. There was also

gender difference in paternal control *(t* (535) = 2.03, $p<0.05$*)* among male and female adolescent participants. This indicates that parental affection was more noticeable among girls sibling while brother-brother dyad experience significantly higher paternal control than girls.

4.4. Relationship between PDT, Adolescents' Adjustment, Sibling Relationship, and Personality

Correlational analysis was computed to examine the existing relationship between dependent variables, predictors, and covariates.

Table 11

Correlation between Adolescents' Adjustment, PDT, Sibling Relationship Quality, and Adolescents' Personality (n=537)

Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Age of the Respondents (1)	.056	.147**	-.151**	.103*	-.161**	.134**	-.142**	.117**	-.089*	.102*	-.247**	-.251**	-.266**	-.301**
Gender (2)		.194**	-.154**	.131**	-.087*	.285**	-.120**	.219**	-.142**	.226**	-.232**	-.261**	-.187**	-.267**
Maternal Affection (3)			-.140**	.603**	-.123**	.519**	-.380**	.459**	-.388**	.323**	-.251**	-.310**	-.301**	-.340**
Maternal Control (4)				-.152**	.571**	-.268**	.337**	-.258**	.340**	-.311**	.323**	.301**	.263**	.349**
Paternal Affection (5)					.004	.435**	-.344**	.410**	-.301**	.293**	-.210**	-.245**	-.238**	-.273**
Paternal Control (6)						-.224**	.289**	-.190**	.296**	-.234**	.317**	.330**	.285**	.367**
Sibling Closeness (7)							-.560**	.645**	-.507**	.439**	-.193**	-.263**	-.230**	-.270**
Sibling Conflict (8)								-.535**	.505**	-.365**	.207**	.315**	.243**	.301**
Conscientiousness (9)									-.474**	.561**	-.197**	-.273**	-.176**	-.254**
Neuroticism (10)										-.348**	.227**	.259**	.275**	.300**
Openness (11)											-.304**	-.287**	-.223**	-.320**
Emotional Adjustment (12)												.621**	.570**	.859**
Social Adjustment (13)													.537**	.847**
Educational Adjustment (14)														.834**
Adjustment Total (15)														

**p<0.01, *p<0.05*

Among all the demographic variables (Appendix E) age of the respondent and gender were found to have a statistically significant correlation with the adolescent's adjustment. Age of the respondent was negatively and significantly correlated with emotional *(r* =-0.25, *p*<0.01*)*, social *(r=-0.25, p<0.01),* educational *(r=-0.27, p<0.01)* as well as total adjustment *(r=-0.30, p<0.01)* of adolescents. The negative relationship between adjustment and age indicates that as age increases the adjustment-related problems decreases during the adolescence stage. Statistically significant relationship also observed between sex and emotional *(r*=-0.23, *P*<0.01*)*, social *(r*=-0.26, *P*<0.01*)*, educational *(r*=-0.19, *p*<0.01*)*, and total adjustment *(r*=-0.27, *p*<0.01*)*. Male students have more adjustment-related problems compared to their counter parts female adolescents.

The correlation matrix indicated that maternal affection was found to have a statistically significant negative correlation with emotional *(r*=-0.25, *p*<0.01*)* social *(r*=-0.31, *p*<0.01*)*, and educational adjustment *(r*=-0.30, *p*<0.01*)* of adolescents. The result also revealed that there is a statistically significant negative relationship between maternal differential affection and adolescent adjustment in general *(r*=-0.34, *p*<0.01*)*. On the other hand, the analysis depicted that there is significant positive relationship between maternal differential control and emotional *(r*=0.32, *p*<0.01*)* social *(r*=0.30, *p*<0.01*)*, educational adjustment *(r*=0.26, *p*<0.01*)* as well as global adjustment of adolescents' *(r*=0.34, *p*<0.01*)*.

The paternal differential affection was found to be related negatively with emotional *(r*=-0.21, *p*<0.01*)*, social *(r*=-0.25, *p*<0.01*)*, educational *(r*=-0.24, *p*<0.01*)* and total adjustment *(r*=-0.27, *p*<0.01*)* of respondent adolescents. The result indicated that adolescents who experienced paternal affection demonstrated better adjustment compared to adolescents who reported low level of paternal affection.

Significant positive correlation was found between paternal differential control and adolescents emotional *(r*=0.32, *p*<0.01*)* social *(r*=0.33, *p*<0.01*)*, educational adjustment *(r*=0.29, *p*<0.01*)* as well as global adjustment *(r*=0.37, *P*<0.01*).* Adolescents who perceived significantly higher paternal control demonstrated high scores in poor adjustment measures.

Significant negative relationship was also found among sibling warmth and emotional *(r*=-0.19, *p*<0.01*)*, social *(r*=-0.26, *p*<0.01*)*, educational *(r*=-0.23, *p*<0.01*)* and global adolescents adjustment(*r*=-0.27, *p*<0.01). Significant positive correlation was observed among sibling conflict and adolescents emotional *(r*=0.21, *p*<0.01*)* social *(r*=0.32, *p*<0.01*)* and educational adjustment *(r*=0.24, *p*<0.01*).* The relationship between sibling conflict and adolescents global adjustment problem was also found to be positive and statistically significant ((*r*=0.30, *p*<0.01*)*.

Significant positive relationship was found between neuroticism and emotional *(r*=0.23, *P*<0.01*)* social *(r*=0.26, *P*<0.01*)* educational *(r*=0.28, *P*<0.01*)* and global adolescents adjustment (r=0.30, *P*<0.01). Significant negative relationship was observed between Conscientiousness and adjustment *(r*=-0.19 *p*<0.01 for emotional; *r*=-0.27, *p*<0.01 for social; *r*=-0.18, *p*<0.01, for educational and *r*=-0.25, *p*<0.01 for global adjustment). Similarly openness personality trait demonstrated significant negative relationship with emotional *(r*=-0.30, *p*<0.01*)*, social *(r*=-0.29, *p*<0.01*)* educational *(r*=-0.22, *p*<0.01*)* and global adjustment *(r*=-0.32, *p*<0.01*).*

4.5. Predicting Adolescents' Adjustment from PDT, Sibling Relationship Quality, and Adolescents' Personality

To assess whether or not PDT, sibling relationship quality and adolescents' personality predict levels of adolescents' adjustment, hierarchical multiple regression analysis was

conducted. Before conducting a hierarchical multiple regressions, the relevant assumptions of this statistical analysis were tested. Firstly, a sample size of 537 was deemed adequate given eight independent variables to be included in the analysis (Tabachnick & Fidell, 2001). The assumption of singularity was also met as the independent variables (PDT, quality of sibling relationship, and personality) were not a combination of other independent variables. An inspection of correlations revealed that no independent variables were highly correlated.

Tests were also conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Multicollinearity was checked by inspecting the correlation matrix between the dependent variable and predictors as well as by computing the Variance Inflation Factor (VIF) and Mahalanobis distance test. The result indicated that no exceptionally high correlation coefficient between variables (r<0.65). It is less than the highest expected value (r=0.9) (Pallant, 2010). The VIF test also indicated that the value observed to be less than 2 which is much lower than the minimum expected value of 10 (Mertlet &Vannatta, 2005). An examination of the Mahalanobis distance scores provided evidence that there were no outliers in the data that could affect the results of the analysis. The Mahalanobis probability was also found to be above 0.001. All the results indicated that multicollinearity was not a concern for the analysis. Similarly scattered plot test and skewness and kurtosis results verified that the data was normal and eligible for statistical analysis.

While running hierarchical multiple regression analysis, successive models were applied to generate the main and combined effects of the predictor variables. In each model, additional predictor variables were included at each successive step. In this analysis, several child family control variables (for example age, gender, parental education level, and parental occupation status) were added to minimize the risks of type one error and account for confounding variables.

A four-stage hierarchical multiple regression was conducted with adjustment as the dependent variable. In an attempt to predict adolescents' adjustment by PDT, quality of sibling relationships and adolescents' personality, individual and family context variables were regressed on the adjustment variable in step one. In step two, parental affection and control were added to the model to determine the unique effects of affection and control without consideration of the sibling relationship. In step 3, quality sibling relationship variables were added to determine the unique effects of sibling relationships on adolescents' adjustment. In step 4, adolescents' personality (conscientiousness, neuroticism and openness to experience) were added to the model to examine the unique effects of personality on adolescent adjustment. The analysis was carried out independently for maternal differential treatment and paternal differential treatment and the results and the respective analysis are presented below in two section.

Table 12

Results of Hierarchical Multiple Regression to Predict Adolescents Adjustment by Maternal Differential Treatment (MDT), Adolescent's personality and Quality of Sibling Relationship (n=537)

Variable	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
	B	SEB	B	B	SEB	B	B	SEB	β	B	SEB	B
Age	-1.928	.261	-.366**	-1.511	.247	-.287**	-1.489	.246	-.283**	-1.488	.244	-.283**
Gender	-3.666	.600	-.258**	-2.547	.570	-.179**	-2.659	.583	-.187**	-2.527	.581	-.178**
Age of a closer age sibling	.509	.199	.203*	.430	.185	.171*	.432	.184	.172*	.428	.184	.170*
Birth order	2.858	1.051	.203**	2.242	.977	.160*	2.098	.979	.149*	2.064	.974	.147*
Educational Level of the Mother	.152	.340	.023	-.047	.316	-.007	-.084	.315	-.013	-.142	.313	-.022
Maternal affection				-1.631	.293	-.225**	-1.545	.334	-.213**	-1.450	.338	-.200**
Maternal control				1.916	.300	.255**	1.761	.314	.235**	1.507	.322	.201**
Sibling warmth/closeness							.343	.347	.052	.463	.380	.070
Sibling conflict							.689	.311	.109*	.593	.325	.094
Conscientiousness										.050	.034	.084
Neuroticism										.042	.028	.073
Openness										-.091	.031	-.144**
R^2	0.168			0.286			0.290			0.303		
Change in R^2	0.168**			0.119**			0.007			0.017*		
F	12.93**			19.96**			17.15**			14.73**		

***p<0.01, *p<0.05*

The hierarchical multiple regression revealed that at stage one, adolescents and family control variables had a significant contribution to the regression model, F (8,466) = 12.90, p<0.01) and accounted for 17% of the variation in adolescents' adjustment. The result showed that age (β =-0.37, p<0.01), sex (β =-0.26, p<0.01), age of a closer age sibling (β =0.20, p<0.05) and birth order (β =0.20, p<0.01) were significant independent contributors to the variance in adjustment.

After introducing the maternal differential treatment (maternal affection and control) in the second step the total variance explained by the model as a whole was 29%, F (10, 464) = 19.96, p<0.01). The aforementioned PDT variables explained an additional 12% of the variation in adjustment after controlling adolescents and family context variables (ΔR^2 =0.119, F (2,464) = 39.52, p < .01). Maternal control was found to be the main direct unique contributor to the variance in adjustment (β=0.26, p<0.01) indicating that the more maternal control on adolescents' behavior, the more likely it compromises their adjustment. It uniquely explains 6.2% of the variation in adolescents' adjustment. On the other hand, maternal affection, was also found to have a significant contribution to adolescents' adjustment (β=-0.23, p<0.05) that the more maternal affection the fewer adjustment problems adolescents likely to encounter in the course of development. It uniquely explains 5 percent of the variation.

Adding quality sibling relationship variables (sibling warmth/closeness and sibling conflict) to the regression model explained an additional 0.7% of the variation in adjustment, ΔR^2 =0.007, F (2,462) = 2.46, p > .05. Adolescents' Sibling conflict was found to have a significant contribution (β=0.11, p<0.05). The result indicates that the more conflicting sibling relationship the adolescent has with the sibling, the more adjustment problem he or she is likely to manifest. It also indicates that sibling conflict contributes significantly to adolescents' adjustment

problems. In model 3 paternal controls also remain to be the main contributor to the variance in adolescent adjustment problems (β=0.24, p<0.01) explaining 5 % of the variance.

Finally, the addition of personality to the regression model, explained an additional 2 % of the variation in adjustment and this change in R^2 was also significant, F (3,459) = 3.82, p < .05. Maternal affection (β=-0.20, p<0.01), and openness (β=-0.14, p<0.01) were found to have significant negative contributions whiles maternal control (β=0.20, p<0.01) demonstrate a positive contribution to adolescents adjustment problems. Quality of sibling relationship (closeness and conflict), conscientiousness and neuroticism personality traits were not significant predictors of adjustment problems during the adolescence stage. Together all the independent variables accounted for 30.3% of the variance in adjustment, R^2=0.303, F(15,459)=14.73, P<0.01). By Cohen's (1988) guidelines, this represents a moderate effect (f^2 = 0.19).

Table 13

Results of Hierarchical Multiple Regression to Predict Adolescents Adjustment by paternal Differential Treatment (MDT), Adolescent's personality and Quality of Sibling Relationship (n=536)

Variable	**Model 1**			**Model 2**			**Model 3**			**Model 4**		
	B	SEB	B	B	SEB	B	B	SEB	β	B	SEB	B
Age	-1.928	.261	-.366**	-1.434	.246	-.272**	-1.409	.246	-.268**	-1.407	.244	-.267**
Gender	-3.666	.600	-.258**	-2.922	.559	-.206**	-2.930	.576	-.206**	-2.747	.574	-.193**
Age of a closer age sibling	.509	.199	.203*	.338	.185	.135	.347	.184	.138	.343	.183	.137
Birth order	2.858	1.051	.203**	1.779	.975	.127	1.639	.975	.117	1.626	.968	.116
Educational Level of the Father	-.513	.289	-.091	-.369	.267	-.065	-.307	.268	-.054	-.248	.266	-.044
Paternal affection				-1.403	.263	-.213**	-1.228	.294	-.186**	-1.130	.295	-.171**
Paternal control				2.097	.271	.306**	1.938	.283	.283**	1.736	.287	.253**
Sibling warmth/closeness							.166	.336	.025	.369	.372	.056
Sibling conflict							.678	.308	.108*	.521	.323	.083
Conscientiousness										.040	.034	.068
Neuroticism										.048	.028	.083
Openness										-.092	.030	-.145*
R^2	0.17			0.294			0.299			0.313		
Change in R^2	0.17**			0.127**			0.008			0.019**		
F	12.93**			20.73**			17.82**			15.41**		

**p<0.01, *p<0.05

Similarly with that of maternal differential treatment, the hierarchical multiple regression revealed that at Stage one, adolescents and family control variables had a significant contribution to the regression model, F (8,466) = 12.93, p<0.01) and accounted for 17% of the variation in adolescents' adjustment. The result showed that age (β =-0.37, p<0.01), sex (β =-0.26, p<0.01), age of a closer age sibling (β =0.20, p<0.05) and birth order (β =0.203, p<0.01) were significant independent contributors to the variance in adjustment.

After introducing the paternal differential treatment (paternal affection and control) in the second step, the total variance explained by the model as a whole was 29%, F (10, 464)=19.96, p<0.01). The aforementioned PDT variables explained an additional 13 % of the variation in adjustment after controlling adolescents and family context variables (ΔR^2 =0.127, F (2,464) = 42.69, p < .01). Paternal control was found to be the main direct unique contributor to the variance in adjustment (β=0.306, p<0.01) indicating that the more paternal control on adolescents' behavior, the more likely it compromises their adjustment. It uniquely explains 8.8% of the variation in adolescents' adjustment. On the other hand, paternal affection, was also found to have a significant contribution to adolescents' adjustment (β=-0.213, p<0.01) that the more paternal affection the fewer adjustment problems adolescents likely to encounter in the course of development. It uniquely explains 5 percent of the variation.

Adding quality sibling relationship variables (sibling warmth/closeness and sibling conflict) to the regression model explained an additional 0.8% of the variation in adjustment, ΔR^2 =0.008, F (2,462) = 2.56, p > .05. Adolescents' Sibling conflict was found to have a significant contribution (β=0.108, p<0.05). The result indicates that the more conflicting sibling relationship the adolescent has with the sibling, the more adjustment problem he or she is likely to manifest. It also indicates that sibling conflict contributes significantly to adolescents'

adjustment problems. In model 3 paternal controls also remain to be the main contributor to the variance in adolescent adjustment problems (β=0.283, p<0.01) explaining 7 % of the variance.

Finally, the addition of personality to the regression model, explained an additional 2 % of the variation in adjustment and this change in R^2 was also significant, F (3,459) = 4.26, p < .05. Paternal affection (β=-0.17, p<0.01), and openness (β=-0.15, p<0.05) were found to have significant negative contributions whiles paternal control (β=0.25, p<0.01) demonstrate a positive contribution to adolescents adjustment problems. Quality of sibling relationship (closeness and conflict), conscientiousness and neuroticism personality traits were not significant predictors of adjustment problems during the adolescence stage. Together all the independent variables accounted for 31.3% of the variance in adjustment, R^2=0.313, F (15,459) = 15.41, P<0.01). By Cohen's (1988) guidelines, this represents a moderate effect (f^2 = 0.21).

4.6.The moderation effects of sibling relationship quality and adolescents personality

In examining the moderation effects of sibling relationship quality (sibling warmth and sibling conflict) and personality (conscientiousness, neuroticism, and openness), moderation analysis was carried out multiple times with the help of PROCESS macro version 4.0 (model 2) (Hayes, 2018) in SPSS version 23. Moderation conditional indirect effects were calculated using 5000 bootstrap samples for the 95% bootstrap confidence intervals (CI). If the CI did not include zero, the interaction effect was considered statistically significant (Hayes, 2013). To avoid potentially problematic high multicollinearity with the predictors and the interaction term, the predictor Variables (maternal affection, maternal control, paternal affection and paternal control) as well as moderator variables (conscientiousness, neuroticism, openness, warmth and conflict)

were mean centered as recommended by Hayes (2018). The moderation analysis was carried out in two different sections as presented below.

4.6.1. The Moderation Effects of Sibling Warmth and Personality

The moderating effects of sibling warmth and adolescents personality (conscientiousness, neuroticism and openness to experience) were examined and the result is presented under this section of the report.

Table 14

The Moderating Effects of Sibling Warmth and Adolescents Personality Traits

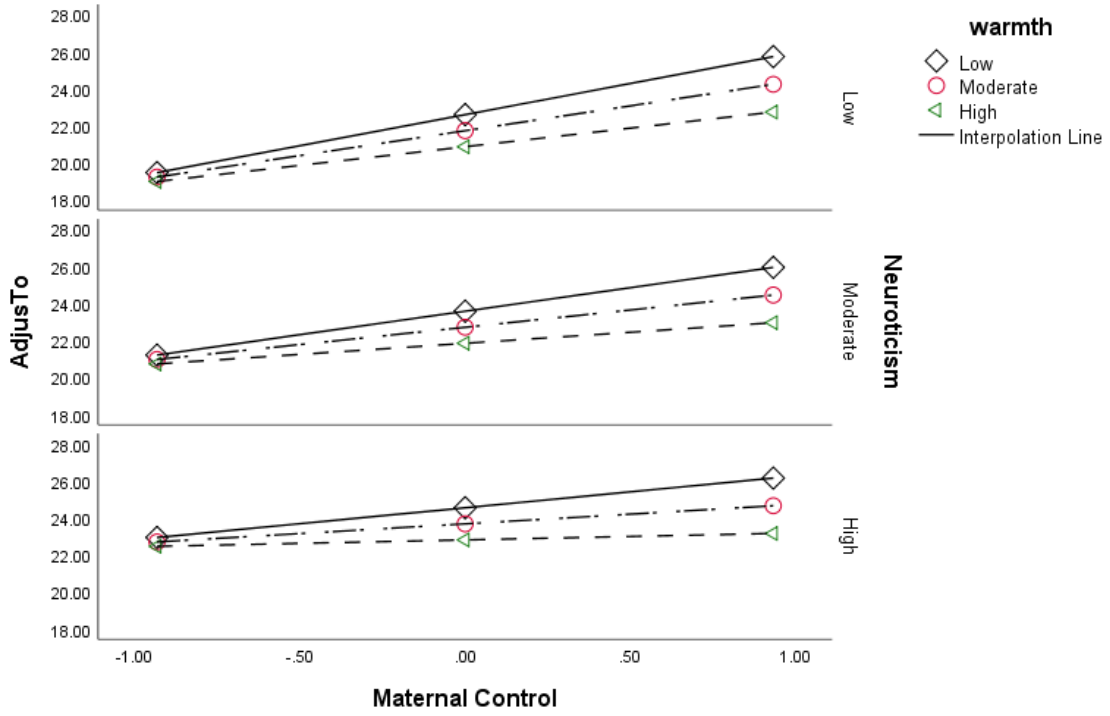
	IV: Maternal affection (MA)			***IV: Maternal control (MC)***		
Model	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.83	.35	-5.181***	2.18	.32	6.78***
Sibling Warmth (SW)	-.30	.39	-.77	-.84	.36	-2.33*
IV X SW	.43	.39	1.09	-.15	.42	-.35
Conscientiousness (C)	-.04	.03	-1.37	-.05	.03	-1.74
IV x C	.01	.04	.14	.001	.04	.02
Constant	22.37	.32	70.26***	22.58	.29	78.06***
R2	0.13			0.16		
F (7,529)	16.74***			20.37***		
ΔR^2	0.005			0.000		
Model	B	***SE***	***T***	B	***SE***	***t***
Independent variable (IV)	-1.72	.35	-4.97***	1.864	.322	5.79***
Sibling warmth (SW)	-.17	.36	-.47	-.814	.318	-2.56*
IV X SW	.36	.34	1.05	-.632	.349	-1.81
Neuroticism (N)	.10	.03	3.57***	.080	.027	2.94**
IV x N	.00	.03	.002	-.067	.029	-2.34*
Constant	22.43	.31	71.48***	22.71	.29	78.32***
R2	0.15			0.18		
F(7,529)	19.25***			23.20***		
ΔR^2	0.003			0.01*		
Model	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.58	.34	-4.69***	1.72	.32	5.38***
Sibling Warmth (SW)	.07	.35	.19	-.62	.31	-2.00*
IV x SW	1.17	.32	3.71***	-.80	.33	-2.44*
Openness (O)	-.15	.03	-5.45***	-.12	.03	-4.41***
IV x O	-.11	.03	-3.84***	.09	.03	3.13**
Constant	22.38	.31	73.26***	22.69	.29	79.59***
R2	0.19			0.20		
F (7,529)	39.91			26.24***		
ΔR^2	0.03***			0.016**		

**p<0.05, **p<0.01, ***P<0.001*

As shown in the result, sibling warmth (*B*=-0.43, *t*=-1.09, *p*>0.05; *B*=-0.15, *t*=-0.35, *p*>0.05) and conscientiousness (*B*=0.01, *t*=0.14, *p*>0.05; *B*=0.001, *t*=0.2, *p*>0.05) do not moderate the link between maternal affection and adjustment as well as the relationship between maternal control and adolescents adjustment. Similarly as indicated in the table, both sibling warmth and neuroticism do not moderate the relationship between maternal affection and adjustment. However neuroticism moderated the link between maternal control and adjustment (β=-0.07, *t*=-2.34, *p*<0.05). The conditional indirect effect analysis yielded that at various level of sibling warmth the link between adjustment and maternal control gets stronger as the value of neuroticism decreases *(-1 SD*; *effect*= 3.36, 95% *CI* = [2.01, 4.70]; *(-1 SD; effect*= 2.68, 95% *CI* = [1.84, 3.53])) (Appendix F1). The analysis of the interaction plot (Figure 5) showed that at low maternal control, the adjustment of adolescents was similar regardless of the levels of sibling warmth but shows improvement with decreasing in neuroticism. Neurotic adolescents with high maternal control demonstrate more adjustment related problems.

Figure 5

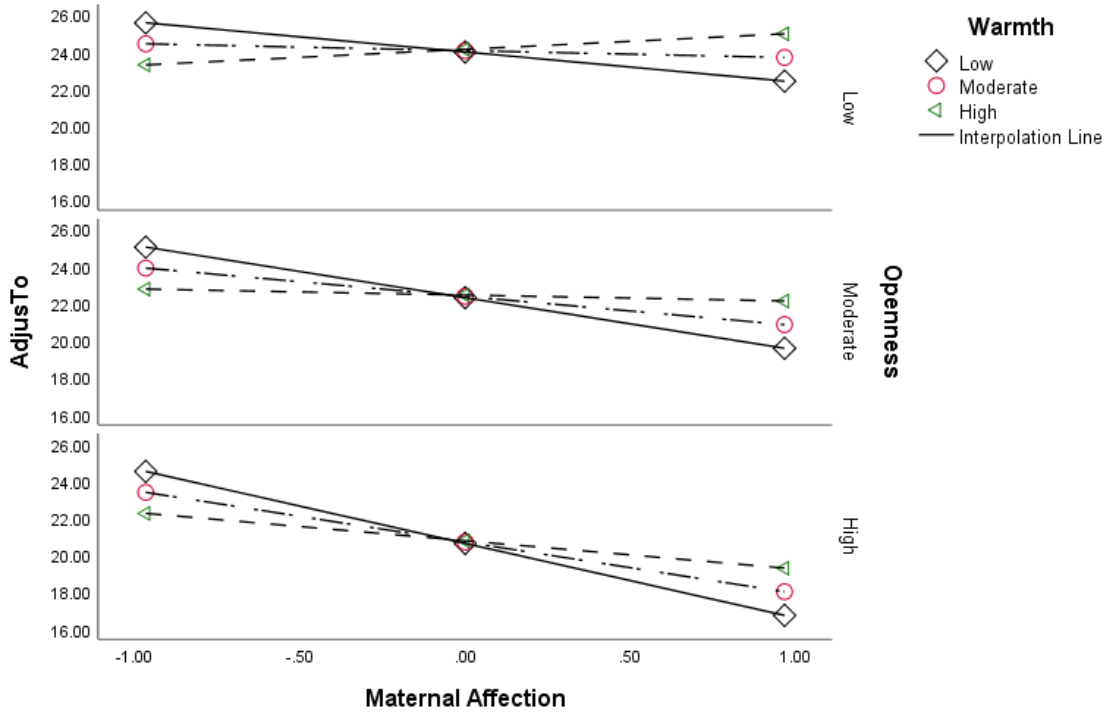
The Moderation of Sibling Warmth and Neuroticism



As indicated in Table 14, relationship between maternal affection and adolescents adjustment was moderated by both sibling warmth (B=1.17, t=3.71, p<0.001) and openness (B=-0.11, t=-3.84, p<0.001). Low level of warmth (-1SD) and moderate openness (mean) makes the relationship between maternal affection and adjustment weaker (*effect* =-2.82, 95% *CI*= [-3.69,-1.90]) (Appendix F1). The weakest relationship between maternal affection and adjustment was observed with low warmth and high openness (*effect* =-4.02, 95% *CI*= [-5.25,-2.79]).The interaction plot (Figure 6) indicated that for adolescents with low maternal affection their adjustment gets compromised with decreasing sibling warmth and openness. High maternal affection is related to improved adjustment for adolescents with higher openness trait.

Figure 6

The Moderation of Sibling Warmth and Openness



Similarly the relationship between maternal control and adolescents adjustment is moderated by both sibling warmth (*B*=-0.80, *t*=-2.44, *p*<0.05) and openness to experience (*B*=0.09, *t*=3.13, *p*<0.01). At different level of warmth the relationship between maternal control and adolescents adjustment problems gets stronger with increase in openness trait. For example for low sibling warmth (*-1SD*) and moderate openness (*mean*) (*effect* =2.57, 95% *CI*= [1.69, 3.46]) as well as for low sibling warmth *(-1SD*) and high openness trait (*+1SD*) (*effect* =3.58, 95% *CI*= [2.36, 4.79]) yields stronger relationship between maternal control and adjustment problems (Appendix F1). Additionally, the interaction plot below (Figure 7) showed that at lower level of maternal control, the adjustment was similar for adolescents with low, average or low sibling warmth. The adjustment of adolescents with low maternal control gets worse with

decreasing in openness trait. Better adjustment is related to low maternal control for adolescents' with higher openness. High level of maternal control related to poor adjustment for adolescents with low sibling warmth.

Figure 7

The Moderation of Warmth and Openness to Experience

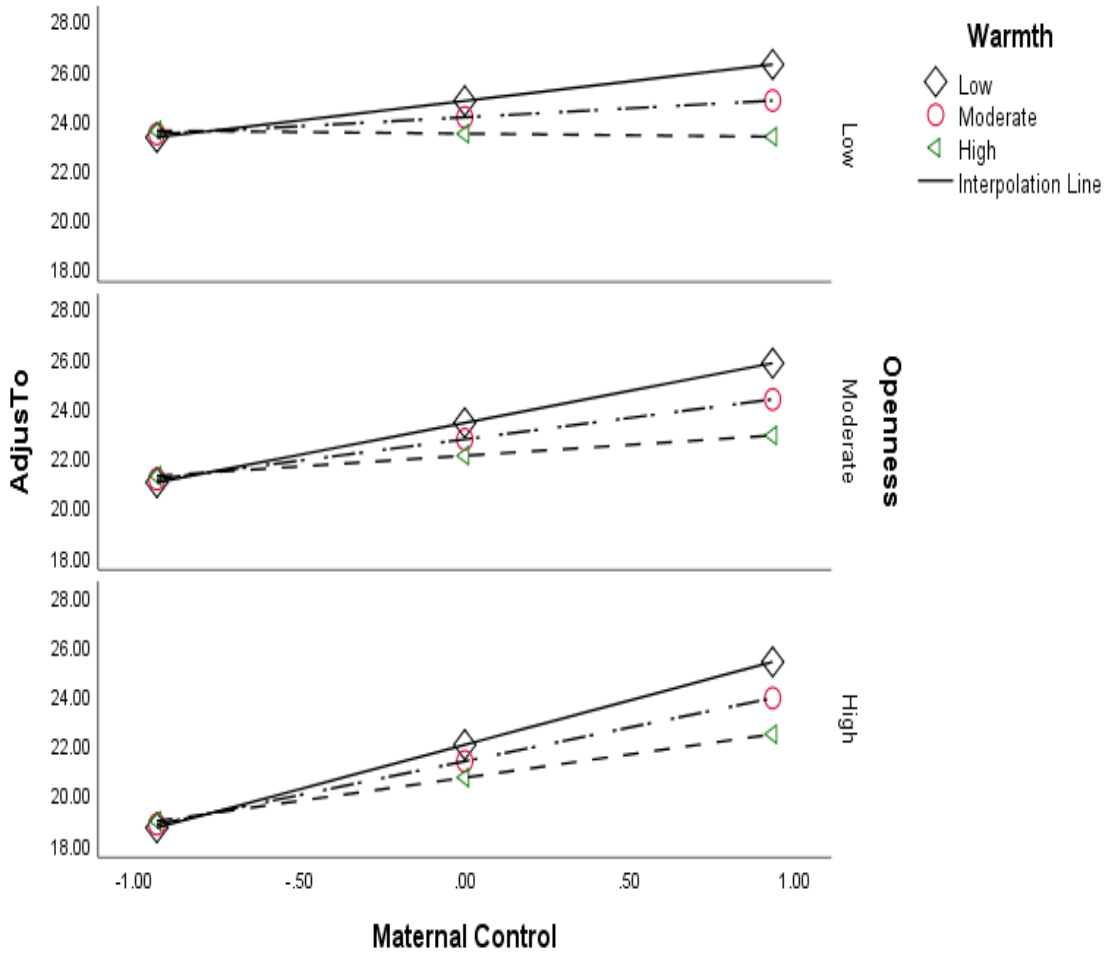


Table 15

The Moderating Effects of Sibling Conflict and Adolescents Personality

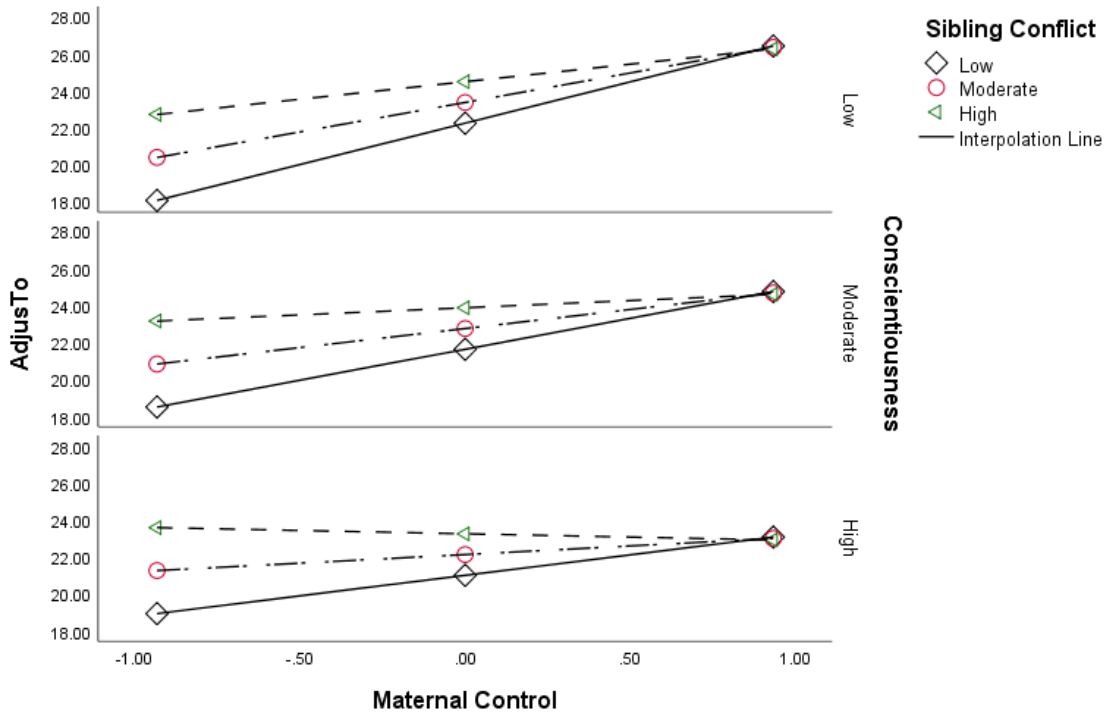
	IV: Maternal Affection			***IV: Maternal Control***		
Model 1	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-1.82	.33	-5.49***	2.06	.32	6.46***
Sibling conflict (SC)	1.14	.30	3.74***	1.01	.30	3.34**
IV x SC	.25	.32	.81	-1.15	.32	-3.58***
Conscientiousness (C)	-.01	.03	-.40	-.05	.03	-1.87
IV x C	.05	.03	1.58	-.10	.03	-2.92**
Constant	22.47	.31	73.35***	22.75	.29	79.14***
R2	0.16			0.19		
F (7,529)	19.51***			24.45***		
ΔR^2	0.004			0.02**		
Model 2	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-1.66	.32	-5.16***	1.83	.32	5.64***
Sibling conflict (SC)	.88	.30	2.93**	.98	.29	3.34**
IV x SC	.17	.30	.56	-.58	.33	-1.78
Neuroticism (N)	.08	.03	2.88**	.08	.03	3.02**
IV x N	-.03	.03	-.93	.01	.03	.40
Constant	22.58	.30	75.85***	22.77	.29	78.39***
R2	0.17			0.18		
F (7,529)	20.95***			23.38***		
ΔR^2	0.001			0.007		
Model 3	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-1.59	.32	-5.04***	1.67	.32	5.17***
Sibling conflict (SC)	.88	.28	3.13**	1.01	.27	3.68***
IV x SC	-.42	.27	-1.53	-.30	.28	-1.07
Openness (O)	-.13	.03	-4.88***	-.12	.03	-4.46***
IV x O	-.07	.03	-2.52*	.03	.03	1.00
Constant	22.69	.29	77.95***	22.81	.29	79.31***
R2	0.19			0.20		
F (7,529)	25.12***			25.95***		
ΔR^2	0.01*			0.007		

Sibling conflict and conscientiousness do not moderate the maternal affection adolescents' adjustment link. However sibling conflict (B= -1.15, t=-3.58, p<0.001) and conscientiousness (B= -0.10, t=-2.92, p<0.01) have a significant negative moderation effect on adolescents adjustment via maternal control. The conditional indirect effect value depicted that the relationship between maternal control and adjustment problem gets stronger with decreasing consciousness traits (Appendix F2). Inspection of the interaction plot below (Figure 8) showed that at high maternal control, the adjustment level of adolescents remain the same for adolescents

with low, average or low sibling conflict. High maternal control linked to high adjustment problem for those adolescents with lesser conscientiousness personality. Low maternal control related to improved adjustment with increasing level of conscientiousness and decreasing sibling conflict.

Figure 8

The Moderation Role of Sibling Conflict and Conscientiousness



As shown in the Table 15, openness moderated maternal affection adjustment link (*B*= -0.07, *t*=-2.52, *p*<0.05) but not maternal control adjustment link (*B*= 0.03, *t*=1.00, *p*>0.05). The indirect effect of maternal control on adjustment is significant and negative for adolescents with high openness (*+1SD*) and high sibling conflict (*+1SD*) (*effect*=-2.79, 95% *CI* = [-3.96, -1.63]) (Appendix F2). The finding indicated that the link between affection and adjustment gets weaker mainly with increase in openness traits.

Figure 9 below depicted that high maternal affection related to positive adjustment with increasing openness to experience. On the other had the negative correlation between maternal affection and adjustment gets stronger with decreasing in openness.

Figure 9

The Moderation of Sibling Conflict and Openness to Experience

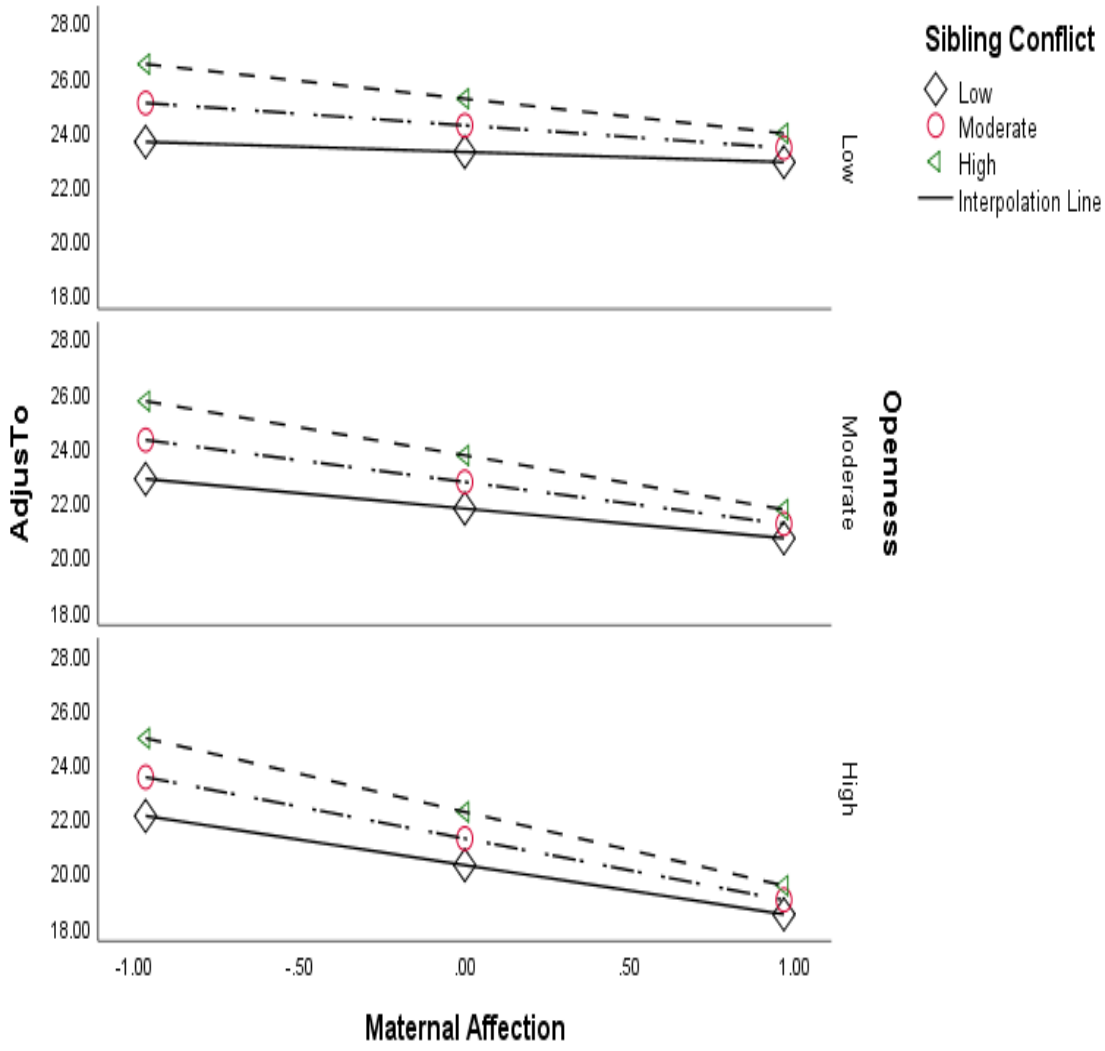


Table 16

The Moderating Effects of Sibling Warmth and Adolescents Personality

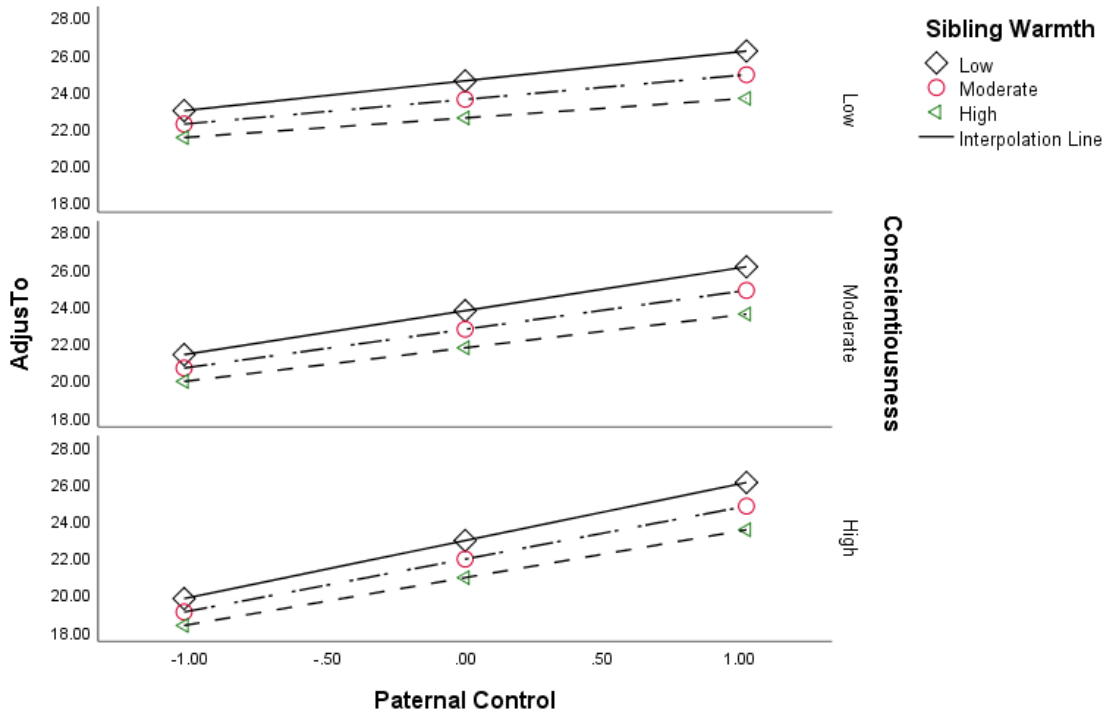
	IV: Paternal affection (MA)			***IV Paternal control (MC)***		
Model 1	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.15	.31	-3.76***	2.05	.28	7.28***
Sibling Warmth (SW)	-.54	.38	-1.41	-.94	.35	-2.68**
IV X SW	.58	.34	1.71	-.25	.36	-.71
Conscientiousness (C)	-.6	.03	-1.69	-.07	.03	-2.29*
IV x C	.01	.03	.12	.06	.03	1.97*
Constant	22.32	.31	71.09***	22.71	.28	80.68***
R2	0.12			0.19		
F (7,529)	14.26			24.28***		
ΔR^2	0.01*			0.007		
Model 2	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.09	.30	-3.65***	1.84	.29	6.38***
Sibling warmth (SW)	-.46	.35	-1.32	-.94	.31	-3.01**
IV X SW	.68	.29	2.35*	-.22	.31	-.71
Neuroticism (N)	.11	.03	3.94***	.09	.03	3.28**
IV x N	.03	.03	1.32	-.07	.03	-2.63**
Constant	22.42	.31	73.08***	22.82	.28	80.37***
R2	0.14			0.20		
F	17.49***			26.30***		
ΔR^2	0.009			0.01*		
Model 3	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.05	.29	-3.64***	1.92	.28	6.99***
Sibling Warmth (SW)	-.21	.33	-.63	-.78	.30	-2.59*
IV x SW	1.24	.27	4.54***	-.34	.30	-1.14
Openness (O)	-.16	.03	-5.66***	-.13	.03	-4.58***
IV x O	-.12	.03	-4.56***	.08	.03	3.23**
Constant	22.41	.30	75.21***	22.76	.28	82.22***
R2	0.19			0.22		
F (7,529)	24.33			29.79		
ΔR^2	0.04***			0.016**		

The interaction effects of sibling warmth with both paternal affection (*B*= 0.58, *t*=1.71, *p*>0.05) and paternal control (*B*= -0.25, *t*=-0.71, *p*>0.05) on adolescent adjustment found to be insignificant. Although conscientiousness do not moderate paternal affection adjustment link (*B*= 0.01, t=0.12, p>0.05) but it does the relationship between paternal control and adolescents' adjustment (*B*= 0.06, *t*=1.97, *p*<0.05). The result revealed that with decrease in conscientiousness traits the relationship between paternal control adjustment relationships gets stronger. High level of conscientiousness has significant positive effect on the relationship

between paternal control and adolescent adjustment relationship *(+1SD)* (*effect*=3.07, 95% *CI* = [1.67, 4.47]) (Appendix F3). The interaction plot below (Figure 10) disclosed that adolescents with low paternal control showed better adjustment with increasing adolescents' conscientiousness.

Figure 10

The Moderation of Sibling Warmth and Conscientiousness

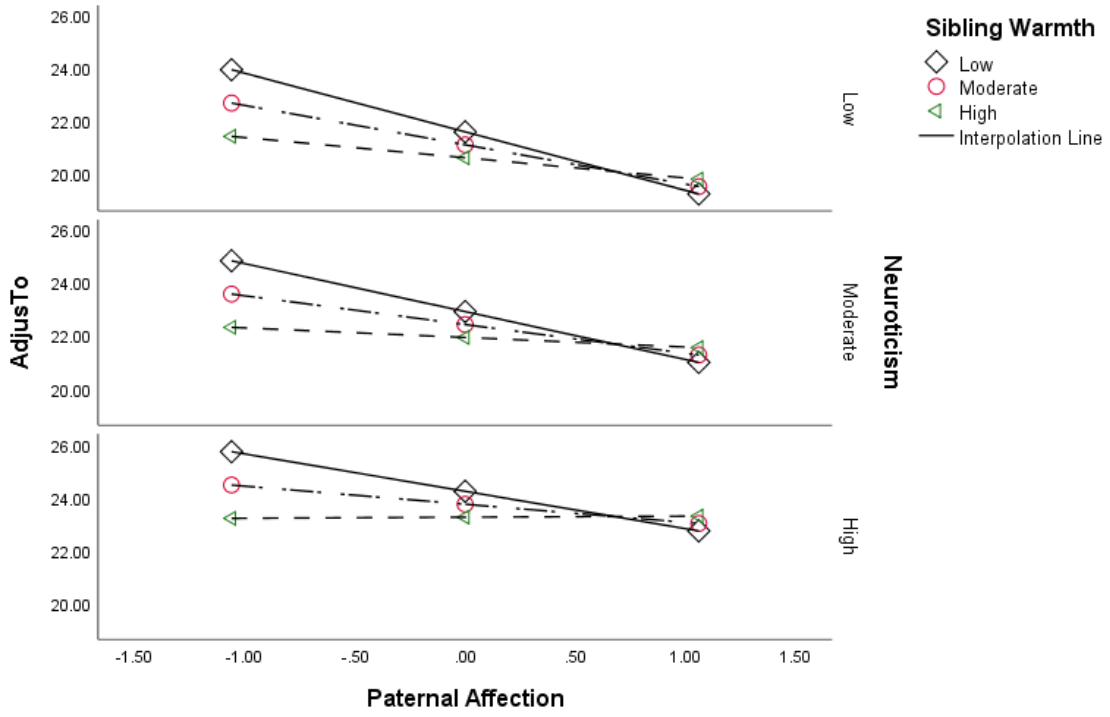


Sibling warmth have moderating effect (*B*= 0.68, *t*= 2.35, *p*<0.05) on the link between paternal affection and adjustment but not neuroticism (*B*= 0.03, *t*=1.32, *p*>0.05). For different levels of neuroticism, the link between paternal affection and adjustment gets weaker as the value of sibling warmth decreases *(-1SD)* (*effect*=-2.22, 95% *CI* = [-3.37, -1.06]) (Appendix F3).

The interaction plot (Figure 11) below showed that low paternal affection related to higher adjustment problem for adolescents with low sibling warmth and high neuroticism. High paternal affection correlated to decreasing adjustment problem for adolescents with low neuroticism trait.

Figure 11

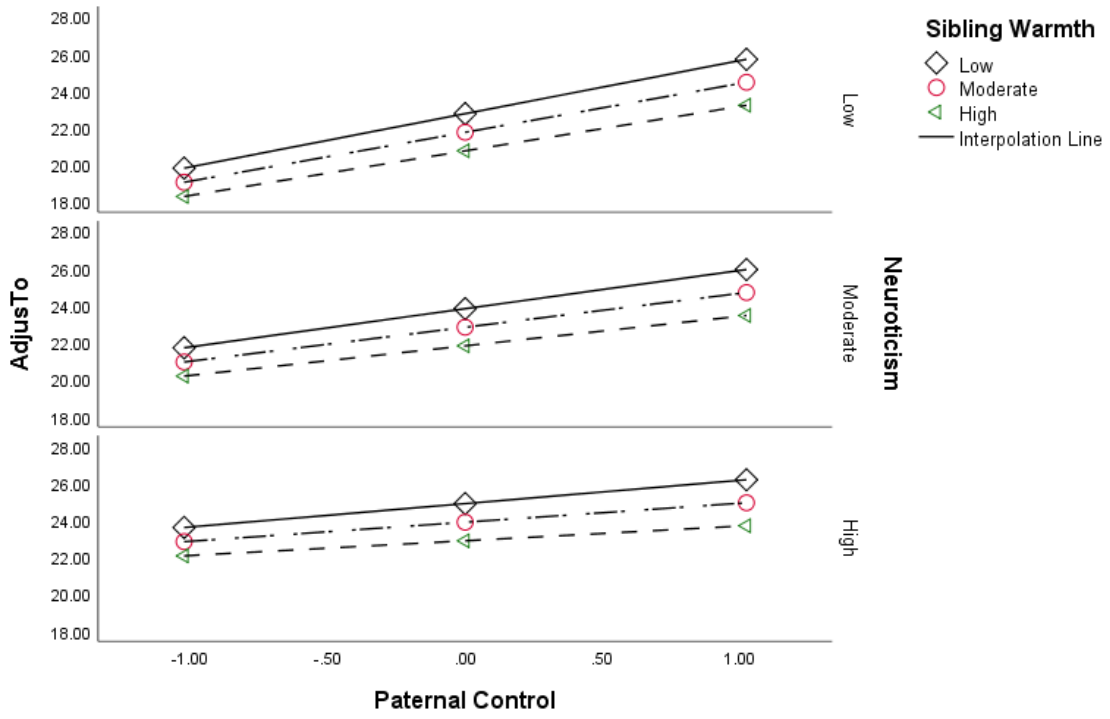
The Moderation of Sibling Warmth and Neuroticism



On the other hand Neuroticism significantly moderate paternal control and adolescents adjustment (*B*= -0.07, *t*=-2.63, *p*<0.01) relationship but not sibling warmth (*B*= -0.22, *t*=-0.71, *p*>0.05). Low values of neuroticism positively affect the paternal control adolescents adjustment relationship *(-1SD)* (*effect*=2.88, 95% *CI* = [1.73, 4.02]) (Appendix F3). Low Paternal control linked to better adjustment with decreasing neuroticism (Figure 12).

Figure 12

The Moderation of Neuroticism and Sibling Warmth

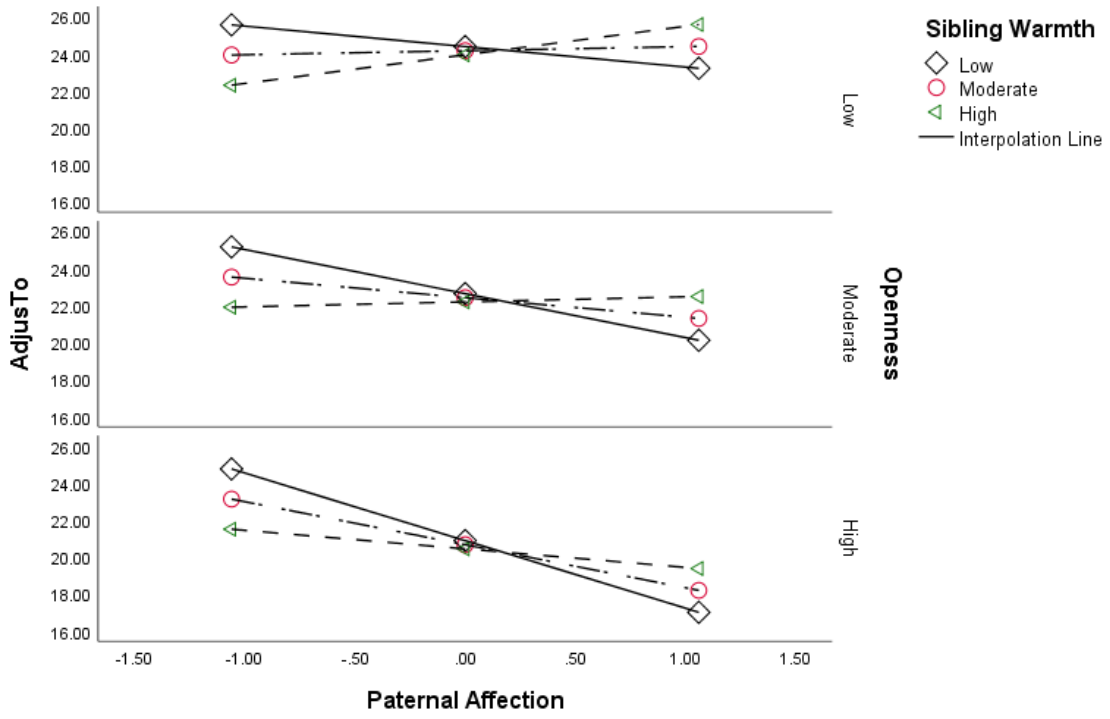


Paternal affection and adolescents' adjustment correlation was moderated positively by sibling warmth (*B*= 1.24, t=4.54, *p*<0.001) and negatively by openness personality trait (*B*= -0.12, *t*=-4.56, *p*<0.001). Low sibling warmth *(-1SD)* and high openness *(+1SD)* trait negatively affect the relationship between paternal affection and adjustment (*effect*=-3.65, 95% *CI* = [-4.77, -2.53]) (Appendix F3).

The inspection of the interaction plot (Figure 13) indicated that low paternal affection related to more compromised adjustment for adolescents with low sibling warmth. High paternal affection yield better adjustment for adolescents with high in openness to experience and high sibling warmth.

Figure 13

The Moderation of Sibling Warmth and Openness

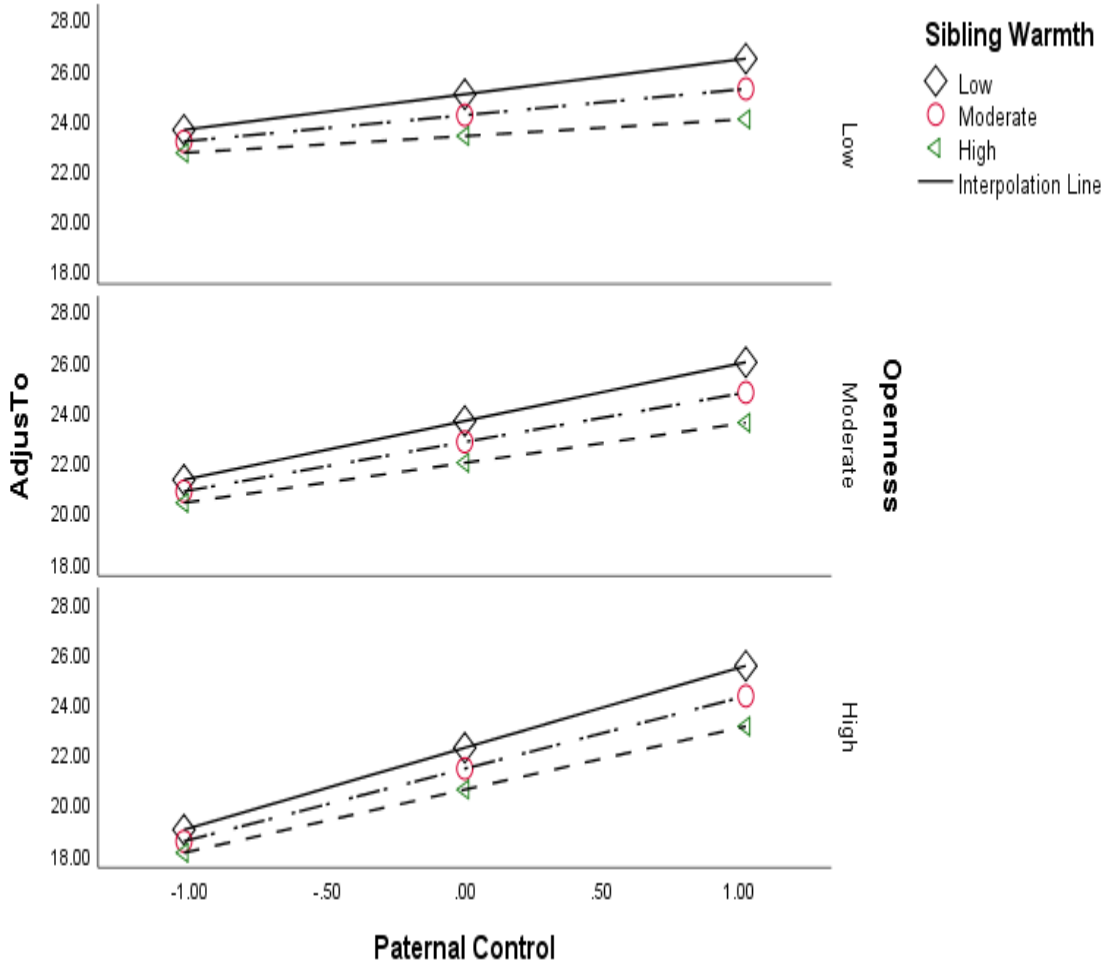


Paternal control adjustment relationship was only moderated by openness (β= 0.08, t=3.23, p<0.01). For different level of warmth, the relationship between parental control and adjustment is positively affected by increasing in level of openness to experience *(+1SD, effect*=3.19, 95% *CI* = [2.05, 4.32]) (Appendix F3)

As shown in the interaction plot below (Figure, 14), the adjustment of adolescents gets improved with increasing in openness trait for those who experience low paternal control.

Figure 14

The Moderation Effects of Sibling Warmth and Openness



4.6.2. The Moderation Effects of Sibling Conflict and Personality

The moderating effects of sibling conflict and adolescents personality (conscientiousness, neuroticism and openness to experience) are scrutinize and the result is presented under this section of the report.

Table 17
The Moderating Effects of Sibling Conflict and Adolescents Personality Traits

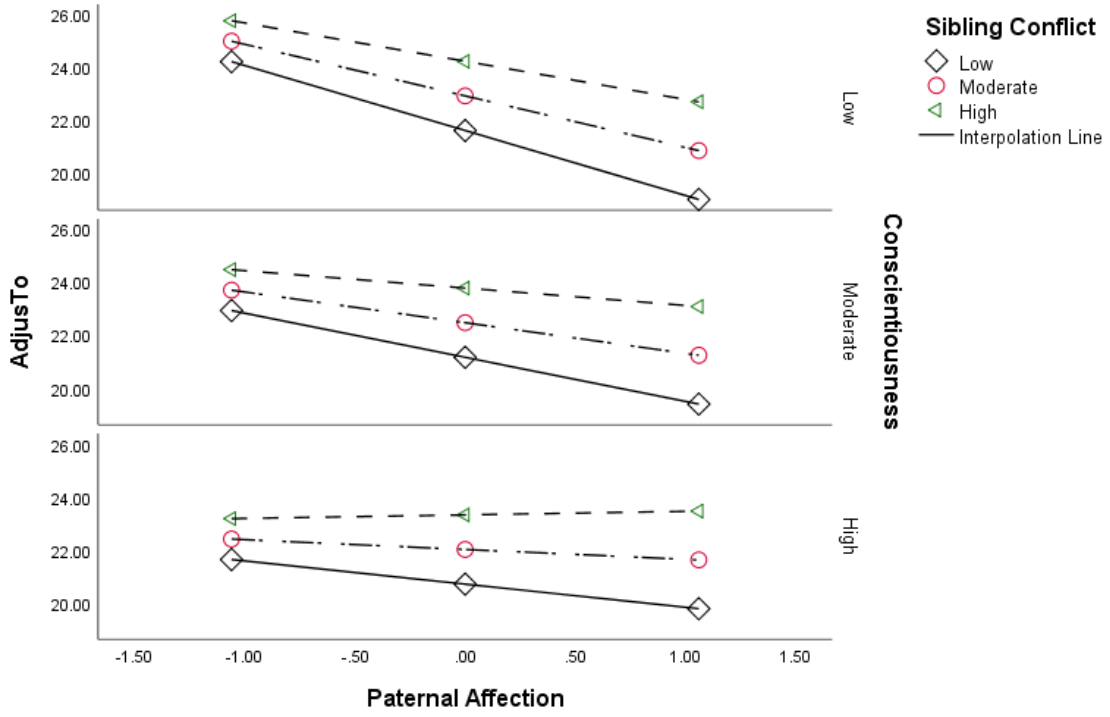
	IV: Paternal affection (MA)			***IV Paternal control (MC)***		
Model 1	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.16	.30	-3.92***	2.01	.28	7.12***
Sibling Conflict (SC)	1.18	.31	3.82***	1.00	.30	3.35**
IV X SC	.45	.30	1.54	-.62	.31	-2.03*
Conscientiousness (C)	-.04	.03	-1.29	-.07	.03	-2.44*
IV x C	.07	.03	2.28*	-.01	.03	-.18
Constant	22.47	.31	73.05***	22.82	.28	80.51***
R2	0.14			0.20		
F (7,529)	16.65			25.68***		
ΔR^2	0.07			0.01*		
Model 2	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.12	.29	-3.91***	1.81	.29	6.27***
Sibling Conflict (SC)	1.00	.30	3.28**	.98	.29	3.40**
IV X SC	.16	.28	.56	-.44	.29	-1.52
Neuroticism (N)	.10	.03	3.58***	.09	.03	3.30**
IV x N	-.01	.03	-.41	-.03	.03	-1.02
Constant	22.65	.30	76.15***	22.86	.29	80.24***
R2	0.15			0.20		
F	17.98***			26.85		
ΔR^2	0.001			0.011*		
Model 3	B	***SE***	***T***	B	***SE***	***T***
Independent variable (IV)	-1.02	.28	-3.60***	1.83	.28	6.59***
Sibling Conflict (SC)	1.10	.28	3.95***	.93	.27	3.46**
IV x SC	-.27	.26	-1.05	-.24	.27	-.86
Openness (O)	-.14	.03	-5.20***	-.13	.03	-4.82***
IV x O	-.07	.03	-2.79**	.04	.03	1.74
Constant	22.75	.29	77.65***	22.82	.28	81.63***
R2	0.17			0.22		
F (7,529)	22.27***			30.9***		
ΔR^2	0.012*			0.01*		

The correlation between paternal affection adolescents adjustment was moderated by conscientiousness (B= 0.07, t=2.28, p<0.05) but not by sibling conflict (B= 0.45, t=1.54, p<0.001). At various levels of conflict the relationship between paternal affection and adjustment

gets more negative with decreasing level of Conscientiousness (*-1SD*, effect=-2.46, 95% *CI* = [-3.80, -1.11]) (Appendix F4)

Figure 15

The Moderation of Sibling Conflict and Conscientiousness

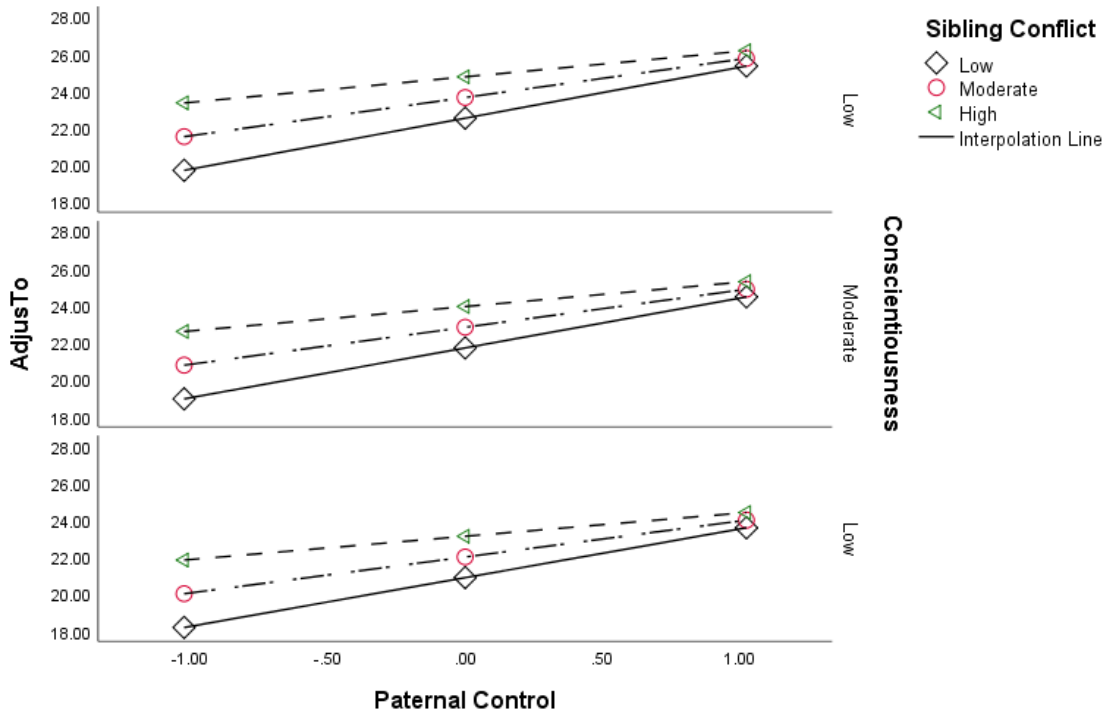


As shown in the interaction plot above (Figure 15), low paternal affection is related poor adjustment for adolescents with low conscientiousness. High paternal affection linked to better adjustment for those adolescents who were experiencing lower sibling conflict and with lesser conscientiousness personality.

On the other hand sibling conflict but not Conscientiousness negatively moderate the link between paternal control and adjustment (*B*= -0.62, *t*=-2.03, *p*<0.05). The interaction between paternal control and adolescents adjustment gets positive with decreasing level conflict *(-1SD, effect*=2.76, 95% *CI* = [1.39, 4.12]) (Appendix F4).

Figure 16

The Moderation of Sibling Conflict and Conscientiousness

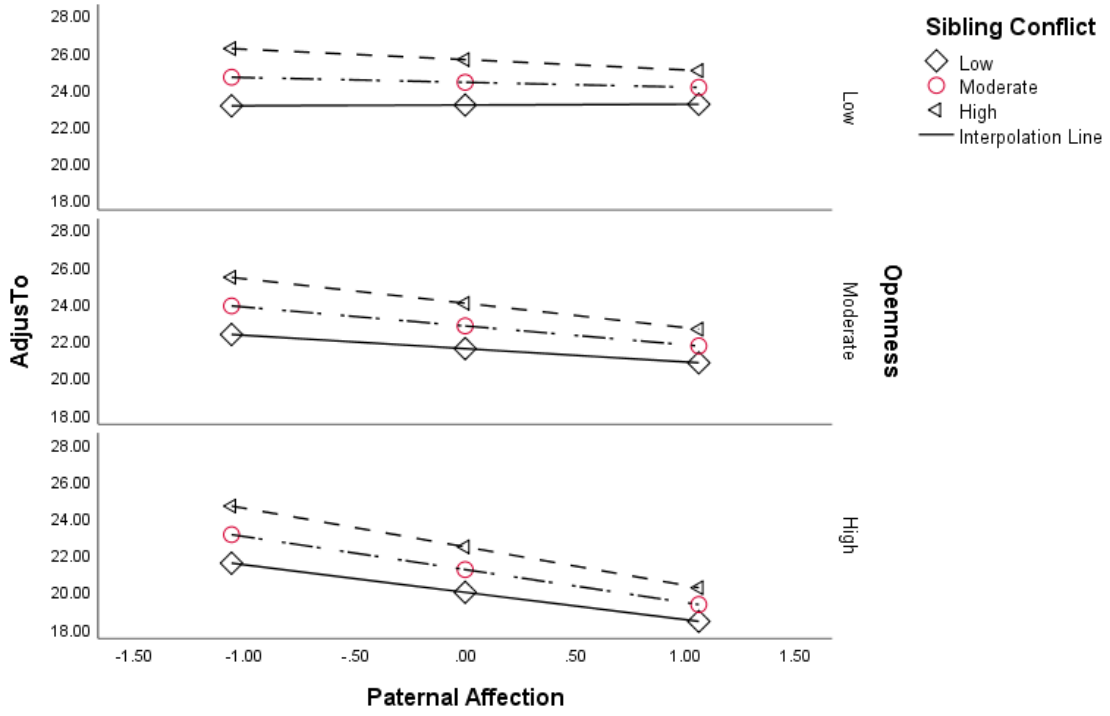


The interaction plot (Figure 16) showed that lower paternal control related better adjustment for adolescents with decreasing sibling conflict.

The moderation roles of both sibling conflict and neuroticism are not significant for paternal affection adjustment as well as parental control adjustment relationships. Openness personality moderate the relationship between paternal affection and adjustment (*B*= -0.07, *t*=-2.79, *p*<0.01). High openness *(+1SD*) related with more negative effect on the link between paternal affection and adjustment (*effect*=-2.08, 95% *CI* = [-3.16, -1.00]) (Appendix F4).

Figure 17

The Moderation of Sibling Conflict and Openness



As shown in the figure above (Figure 17), low paternal affection linked to higher adjustment problem for those adolescents with low in openness experience. High paternal affection correlated with improved adjustment for adolescents with high openness trait.

4.7. The Moderating Roles of Age and Sex on the link between Adolescents Adjustment and Differential Treatment

The moderation roles of gender and age explored using process macro model 1. The finding is presented under in two separate tables below for age and gender.

4.7.1. The moderating role of age on the link between PDT and adolescents adjustment

Table 18

The Moderation of Age on the Relationship between PDT and Adjustment

	IV: Maternal Affection			***IV: Maternal Control***		
Model 1	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-2.19	.29	-7.64***	2.19	.30	7.34***
Age	-1.35	.21	-6.45***	-1.40	.21	-6.75***
IV x Age	-.21	.22	-.97	.69	.22	3.12**
Constant	22.67	.28	81.75***	22.75	.27	82.92***
R2	0.18			0.20		
F (3, 533)	39.35***			44.71***		
ΔR^2	0.001			0.015**		
	IV: paternal Affection			***IV: Paternal Control***		
Model 1	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-1.61	.26	-6.09***	2.16	.27	7.93***
Age	-1.46	.21	-6.92***	-1.32	.27	-6.39***
IV x Age	-.25	.20	-1.23	.42	.20	2.08*
Constant	22.66	.28	80.80***	22.72	.27	82.81***
R2	0.15			0.20		
F (3.533)	31.92***			44.71***		
ΔR^2	0.002			0.01*		

The result showed the moderation role of age is not significant for the relationship between maternal affection and adjustment (*B*= -0.21, *t*=-0.97, *p*>0.05). However age significantly moderated the relationship between maternal control and adjustment (*B*= -1.40, *t*=-6.75, *p*<0.001). The conditional indirect effect result (Table 19) depicted that the relationship between maternal control and adjustment become stronger with increasing age *(+1SD*, *effect*=3.10, 95% *CI* = [2.34, 3.86]). The results of the study have unequivocally demonstrated that as the age of an individual increases, the impact of maternal control on their psychological and emotional adjustment become increasingly negative and adverse.

Similar with the above finding, age does not significantly moderate the correlation between paternal affection and adjustment (*B*= -0.25, *t*=-1.23, *p*>0.05). However the link

between paternal control and adjustment was significantly moderated by age (*B*= 0.42, *t*=2.08, *p*<0.05). Conditional effect analysis Table 19 indicated that the effect of paternal control on adjustment gets stronger with age indicating that the effect of paternal control gets worse with increasing age of adolescents.

Table 19

Conditional Indirect Effects of Age

Path	**Maternal control** →	**Adolescents adjustment**		
Age	Effect	Se	LLCI	ULCI
Low	1.27	0.45	0.39	2.17
Moderate	2.19	0.30	1.60	2.77
High	3.10	0.39	2.34	3.86
Path	**Paternal Control** →	**Adolescents adjustment**		
Age	Effect	Se	LLCI	ULCI
Low	1.60	0.41	0.80	2.40
Moderate	2.16	0.27	1.62	2.69
High	2.71	0.35	2.02	3.40

4.7.2. The moderating effect of gender on the link between parental differential treatment and adjustment

The effect of gender on the relationship between parental differential treatment and adjustment is inconsistent across studies. For the current study the moderating role of gender is examined and the result is presented in the table below

Table 20
The Moderating Effect of Gender

	IV: Maternal Affection			***IV: Maternal Control***		
Model 1	***B***	***SE***	***T***	***B***	***SE***	***T***
Independent Variable (IV)	-2.79	.96	-2.90**	1.27	1.06	1.20
Gender	-2.95	.58	-5.12***	-3.17	.57	-5.57***
IV x Gender	.40	.59	.68	.67	.62	1.08
Constant	27.28	.96	28.37***	27.70	.95	29.18***
R2	0.16			0.17		
F (3, 533)	33.43***			36.52***		
ΔR^2	0.001			0.002		
	IV: paternal Affection			***IV: Paternal Control***		
Model 1	***B***	***SE***	***T***	***B***	***SE***	***t***
Independent Variable (IV)	-1.70	.87	-1.96	2.55	.94	2.70**
Gender	-3.34	.58	-5.77***	-3.36	.56	-6.04***
IV x Gender	.07	.54	.12	-.11	.55	-.19
Constant	27.93	.97	28.93***	27.96	.93	30.18***
R2	0.13			0.19		
F (3.533)	26.33***			41.73***		
ΔR^2	0.000			0.0001		

The result revealed that gender do not moderate both the relationship between maternal affection and adjustment (B= 0.40, t= 0.68, p>0.05) as well as maternal control and adjustment (B= 0.67, t= 1.08, p>0.05). Similarly the moderating effect of gender is not significant for paternal affection adjustment link (B= 0.07, t= 0.12, p>0.05) as well as paternal control adjustment relationship (B= -0.11, t=-0.19, p>0.05).

Chapter 5: Discussion

5.1. The Status of Adjustment Problems among Adolescents of Addis Ababa

Adolescence is a time of great change. Students undergo massive physical, emotional, and cognitive changes, urging identity formation and role identification (Erikson, 1968). Across literature, adolescence is presented as a difficult time when academic and socio-emotional adjustment suffers (Brown & Witherspoon, 2002). The findings of this study also indicated that the majority of the adolescents in Addis Ababa had adjustment problems. The finding comes out to be consistent with previous studies that stated adjustment-related problems and mental health issues are more prevalent among adolescents than people at any other stage of human development (Steinberg, 2002, WHO, 2018). According to Patalay and Fitzsimons (2018), compared to younger children or older individuals, adolescents experience emotional problems more frequently and more intensely. During adolescence, well-being decreases and psychological problems increase (Bilal & Gul, 2015) due to high risks in terms of psychological problems, subjective well-being, and adjustment (Compas et al., 2017).

Admassu and his associates (2022) described that adolescents and youths in Ethiopia are facing a high burden of adjustment related concerns from multiple risky factors and a lack of a proper support system. Particularly in the past few decades, a growing number of youths have reported poor adjustment and mental health problems (Choi, 2018) due to difficulties in coping with cognitive, social, and academic challenges (Sawyer, 2012). A study by Beattie et al. (2019) revealed that significantly higher risks of mental health concerns during the adolescent stage are linked to a lower level of emotional support from parents and limited social connectivity with peers. In a similar vein, an Ethiopian study examining the youth's developmental asset profile found that the youth had been categorized as having poor assets, indicating that they were having

difficulty adjusting as a result of experiencing numerous hardships, deprivations, and extreme poverty (Yekoyealem, 2020).

Although the phase of adolescence presents a pivotal moment for intervention in the promotion of effective adjustment (Sheehan et al., 2017; Steinberg, 2015; UNFPA, 2014), the predicament for Ethiopian adolescents is compounded by the insufficient efforts made in this domain (Admassu et al., 2022). Regrettably, the extant interventions directed at Ethiopian adolescents suffer from a dearth of coordination, funding, effective policy implementation, and meaningful involvement of the target groups (Admassu et al., 2022). These circumstances indicate the necessity for specialized, expansive, intensified, coordinated, and comprehensive national responses to address the needs of adolescents.

Research on gender differences indicates that girls are more vulnerable to mental health issues and adjustment problems than boys (Campbell et al., 2021; Yoon et al., 2022). On the contrary, others claim that boys manifest more behavioral and adjustment problems than girls (Carlo et al., 2014; Nair et al; 2017). The present study confirmed the findings of the later study that male adolescents were found to have more problems in their social, emotional, and educational adjustment compared to female adolescents. The correlation between adjustment and gender elucidated that male students encounter significant emotional, social, and educational adjustment issues.

As the result of this study indicated, males are more prone to adjustment related problems than girls during the adolescence stage. This may be due to the fact that girls are better in their sibling relationships by virtue of gender role scripts and socialization compared to boys (Eagly, 2013; Tucker et al., 1999). Since differential normative parenting promotes girls to have

interpersonal relationships more than boys (Coser, 1991), they have a comparative advantage to get emotional support from peers that could contribute to positive adjutsment. Previous studies generally indicated that girls have a more positive school adjustment than boys (Crosnoe & Benner, 2015; Linnenbrink-Garcia & Patall, 2016) because they are more intrinsically motivated, try harder, and feel more connected to school than boys (Akos & Galassi, 2004). Additionally, studies also disclosed that girls demonstrate more confidence, effort, and enjoyment than boys in their schoolwork (Brass et al., 2018). In a study by Brass and his colleagues (Brass et al., 2018), girls reported greater behavioral and emotional engagement in their schoolwork and had higher levels of academic self-concept. It is undeniable that girls appear to be more adjusted than boys because they have a greater variety of internal and external developmental asset profiles that are closely related to their personal, social, family, school, and community dynamics (Yekoyealem, 2020). These indicate that the issue of adjustment problems is more pertinent among males than females. This finding underscores the need for greater attention to be paid to the specific challenges that male students face in these areas.

5.2. Perceived Parental Differential Treatment among Adolescents of Addis Ababa

The findings of this study disclosed that most adolescents scored higher values on the PDT scale, evidencing that adolescents are experiencing perceived parental differential treatment. Consistent with studies in the Western context (Ng et al., 2020; Rolan & Marceau, 2018; Suitor & Pillemer, 2006), the issue of PDT was also apparent in non-western cultures. An analysis of the literature resulted in three reasons for this. First, according to social comparison theory, since adolescents engage in social comparison as a means of self identification (Festinger, 1954), any form of differential treatment by parents could be readily discerned by

siblings. In families where adolescents are raised with one or more siblings, their interactions with their parents are viewed in the context of how their siblings relate to their parents (Shanahan et al., 2008; Shebloski et al., 2005).Even if parents are not intentionally practicing PDT, if children perceive that it is occurring, they can still be negatively affected (Jensen et al., 2017).

Second, differences in adolescents' personalities and temperaments (Jensen et al., 2017) may lead parents to treat them differently by projecting more affection to easy going adolescents and more control over siblings with problematic behavior. As parents might adjust their parenting according to the personalities, or needs of their children (Ceresnie, 2015), some children perceive that parental behaviors are being directed unequally toward them and their siblings (Stocker et al., 1997).

Third, with the change in social role during the adolescent stage, it is highly probable for the person to encounter differential treatment by parents. This is because the parenting requirements of the siblings diverge at the time of adolescence (Rolan & Marceau, 2018). For instance, older siblings who enter adolescence first are likely to receive additional responsibilities and freedom from their parents (Loeser et al., 2016; Padilla et al., 2016). In some instances, firstborns serve as a social referent for younger siblings and are allowed to play a modeling role for later born siblings (Lee et al., 2016; Jensen et al., 2015). These changes in parenting practices and household roles contribute to perceivable differential treatment in adolescents, which has been found to impact adolescent adjustment (Loeser et al., 2016).

Although this study did not specifically investigate the adjustment of highly favored adolescents compared to less favored adolescents, the result suggested that PDT is a common practice among parents in Addis Ababa, and that it has a significant impact on adolescents

overall adjustment status. As a result, it is suggested that intervention programs aimed at enhancing parenting skills should incorporate components that can address the existing PDT. This would empower parents to develop a heightened awareness of their children's needs and refrain from the manifestation of unjust partiality towards a specific child in their interactions.

The present study confirmed the findings of western based previous studies that PDT is common among parents in Addis Ababa. However, mixed findings were reported regarding the dyad that experienced a higher level of PDT. Unlike studies that reported no gender difference in experience of PDT (Loeser et al., 2016), the present study supports previous research findings that denote the experience of PDT is different for males and females (Hibbard & Buhrmester, 2010). Parental affection and parental control are projected differently for brother-brother dyads and sister-sister dyads in a family. Brother-brother dyads experience significantly higher parental control, while sister-sister dyads experience more parental affection. Consistently, Harris and Howard (1983) reported that females are more likely to receive more parental affection than did males.Parents tend to perceive their daughters as primary sources of both emotional and instrumental support, thus demonstrating a preference for daughters over sons (Suitor & Pillemer, 2006). Due to the fact that females typically form more secure attachments with their parents during adolescence compared to males (Buist et al., 2002; Choi et al., 2012), it is reasonable to observe a greater incidence of parental affection towards females as opposed to males.

A study by Endendijk and his associates (2016) disclosed that parents exercise more control over boys than girls, attributed to pre-existing gender differences in child behavior. The gender difference in PDT may be related to the normative parenting that encourages girls to have

interpersonal relationships, while boys are encouraged to pursue instrumental achievement (Coser, 1991). Additionally, vulnerability to risks and problem behavior is salient among males. Adolescent boys are more likely to engage in and experience physical violence (Betancourt et al., 2010; Buller, 2015), to die from unintentional injuries, to engage in substance use, and to commit suicide (Blum et al., 2017; Levtov et al., 2014). This susceptibility tendency of male adolescents may drive parents to exercise more control over them than females.

5.3. The Relationship between Parental Differential Treatment, Sibling Relationship Quality, Personality and Adolescents' Adjustment

Previous studies generally documented the negative relationship between parental differential treatment and adolescents' adjustment, specifically for adolescents who are less favored by their parents compared to siblings (Feinberg & Hetherington, 2001; Rolan & Marceau, 2018). This study also confirmed that poor adjustment is negatively related to differential parental affection and positively to parental differential control. Adolescents with higher parental affection reported better adjustment, while those who experienced higher control compared to siblings reported higher scores on poor adjustment measures. Differential parental treatment (affection and control) are significant predictors of adolescent adjustment. Higher paternal affection predicted positive adjustment, while more control predicted poor adjustment outcomes. Maternal differential control is the main independent predictor of adjustment problems among adolescents in Addis Ababa. Findings indicate that when parenting was low in warmth or high in negativity, PDT was a predictor of an adolescent's poorer adjustment (Boyle et al., 2004; Feinberg & Hetherington, 2001). When parenting was not considered poor (high

warmth, low negativity), the association between differential parenting and adolescents' adjustment was not strong (Boyle et al., 2004).

Studies elucidated that Perception of Inequity in treatment (intentional or unintentional) has been linked to maladjustment during adolescence (Rolan & Marceau, 2018). PDT is positively related with externalizing behavior, aggression, depressed mood, anxiety, and low self-esteem (Feinberg & Hetherington, 2001; McHale et al., 1995; Shanahan et al., 2008) academic achievement (Barrett & Weinstein, 2000; Jensen & McHale, 2015) as well as mental health (Shanahan et al., 2008), and is positively associated with problem behaviors (Eddy et al., 2001; Finkenauer et al., 2005; Scholte et al., 2007). Additionally PDT is directly linked to self-regulatory deficits and psychopathology (Larsson et al., 2008). Other studies on PDT in relation to internalizing behavior, rejection sensitivity (Ashad et al., 2018), psychological wellbeing (Suitor et al., 2015), and health-related behavior (Jensen et al., 2019) reported similar findings that PDT is related to poor behavioral outcomes.

PDT is related to poor developmental outcomes for various reasons. Adolescents who perceive greater PDT than other sibling feel injustice among siblings that lead them to a feeling of helplessness and eventually manifest poorer mental health (Pillemer et al., 2010; Shanahan et al., 2008). Adolescents commonly engage in self-evaluation through comparisons with others, as proposed by social comparison theory (Festinger, 1954). Such comparisons are often linked with self-esteem (Feinberg et al., 2000). While downward comparisons to those with less favorable tend to enhance an individual's self-esteem, upward comparisons have been shown to decrease self-esteem (Mendes et al., 2001). Moreover, children with lower self-esteem compared to their peers tend to engage in self-comparison with their siblings more frequently (Feinberg et al.,

2000). Negative self-evaluations may arise from unfavorable comparisons with siblings, leading to greater anxiety, depressive symptoms, and problem behaviors, such as tobacco and alcohol use or truancy (Kowal et al., 2002; Loeser et al., 2016; McHale et al., 1995; Shanahan et al., 2008). Additionally, When adolescents perceive unfair parental treatment, they tend to react as less respectful of their parents and respond more negatively to parental discipline, which can harm the parent–child relationship (force parents to be more differential), reduce parental support, and eventually damage a child's psychosocial well-being (Ng et al., 2020).

The findings of this study revealed that improved adjustment was linked to better sibling warmth. Adolescents with higher adjustment problems demonstrated less close sibling relationships. Sibling conflict is positively related to adjustment problems among students. The educational, social, emotional as well as global adjustment problems escalate with increasing sibling conflict in a family. The above results are in agreement with previous study findings (Jensen et al., 2023; Padilla-Walker et al., 2010). Literature on sibling relationships depicts that sibling warmth predicts more pro-social behavior (Padilla-Walker et al., 2010; Pike et al.,2005; White et al., 2007), fewer externalized and internalized behavioral problems (Branje et al., 2004; Padilla-Walker et al., 2010), and academic engagement (Bouchey et al., 2010). In a critical review of 185 articles, Jensen and his colleagues (2023) reported that across various contexts, sibling closeness and communication are linked to positive development, well-being, and healthy relationships with other social partners. In contrast, their findings indicated that sibling conflict is linked to poorer well-being and negative relationships with other social partners. Conflicting sibling relationships directly contribute to behavior problems in adolescence (Hindman et al., 2013).

The issue of sibling relationship is critical for positive adjustment during adolescence stage although majority of them are struggling from negative sibling relationship. The regression analysis disclosed that sibling conflict but not sibling warmth is a significant predictor of adjustment problem of adolescents. Meaning higher conflicting relationship predicted poor adjustment outcomes during adolescence stage. As studies suggest, since sibling relationship qualities decline from middle childhood to adolescence (Brody et al., 1992; Buhrmester & Furman, 1990) a negative aspect of sibling relationships is highly prevalent during adolescence (Lopez & Relva, 2017; Relva et al., 2014). Conflict does remain a salient aspect of most adolescent sibling relationships (Buist et al., 2020; Gamble et al., 2011; Tucker et al., 2013). Thus, one of the justifications for poor adjustment status of adolescents may be attributed to their difficulties in establishing positive sibling relationships during adolescence stage.

With regard to the relationship between personality traits and adjustment, the finding of the present study revealed that while neuroticism related positively to adjustment problems, conscientiousness and openness to experience correlated negatively with educational, social, and emotional adjustment problems of adolescents. Adolescents with higher in openness and conscientiousness demonstrated better adjustments while those with neuroticisms manifested adjustment related problems. Consistent with the above finding, Kotov and his associates (2010) conducted a meta-analysis study which revealed that neuroticism, conscientiousness, and openness to experience were the primary predictors of mental disorders and adjustment issues. Their findings demonstrated that conscientiousness and openness to experience were significant predictors of positive adjustment, while neuroticism was indicative of adjustment problems. Similarly, a meta analysis study revealed that low neuroticism and high conscientiousness are related to adaptive control (McCabe, 2014)

Previous studies supported the finding regarding the relationship between personality traits and the adjustment link during the adolescent stage. Conscientious adolescents are better at inhibiting aggressive responses, controlling their behavior when frustrated (Jensen-Campbell et al., 2007), being socially competent, avoiding negative social behaviors (Lianos, 2015; Jensen-Campbell et al., 2007), and scoring higher in affective regulation (Ahadi & Robert, 1994), which might explain why they tend to demonstrate better adjustment (Feinberg et al., 2000; Jensen et al., 2019). Some studies also indicated that conscientiousness predicts a decreased incidence of internalizing problems for children and adolescents (Klimstra et al., 2010; Kushner et al., 2012; Smith et al., 2017). Conscientiousness may be related to better adjustment during adolescent stage due to its relation to self-regulation, the ability to direct attention (Smith et al., 2017), and positive skills for coping with stress (Bartley & Roesch, 2011).

On the other hand, adolescents with a high degree of neuroticism are more emotionally reactive, struggle with self-regulation, and tend to react negatively to challenging situations (Danielsson et al., 2010). Neuroticism is positively associated with anxiety and depressive symptoms (Barbaranelli et al., 2003) and positively predicts anxiety symptoms (Kushner et al., 2012). As stated by Smith et al. (2017), if adolescents are highly neurotic, then the social isolation and the lack of positive peer interactions that often accompany socially withdrawn behavior may easily provoke feelings of nervousness and sadness that develop into symptoms of anxiety and depression.

Consistent with the findings of this study, across the literature, openness to experience has been related to positive behavioral outcomes. Shi et al. (2016) reported a significant positive relationship between openness to experience, intelligence, and creative thinking. Openness to

experience often shows positive associations with intelligence and school performances (Schretlen et al., 2010; Ziegler et al., 2015).

Although the correlational analysis resulted in significant relationship between adjustment and personality, openness was the only trait found to positively predict better adjustment during adolescence stage. Generally the finding indicated that adjustment problem is evident among adolescents with high parental control, high conflicting relationship with sibling and low in openness to experience.

Low adjustment status of adolescents in Addis Ababa could also be explained from the nature of personality development during adolescence stage. Changes in personality are pronounced during adolescence stage (Buck, 2020; Leung, 2020) and are largely fluctuating in how they perceive themselves and develop their identities (Erikson, 1959; Roberts & Caspi, 2003). In line with this fluctuation levels of conscientiousness have been found to temporarily decrease, while levels of neuroticism increasing (Van den Akker et al., 2021) results in dip in personality maturation. These transient declines in personality development have in turn been linked to emotional and behavioral adjustment problem of adolescents (Van den et al., 2010).

Higher vulnerability of male adolescents to poor adjustment compared to girls could also be explained from the nature of personality development as well. De Bolle and colleagues (2015) examined gender differences in personality characteristics among adolescents from 23 different nations and discovered that females scored better on openness and conscientiousness. Similarly, in a study by Göllner and colleagues (2017) they found higher levels of agreeableness, conscientiousness and openness in girls than boys. Since higher level of conscientiousness, openness to experience and low level of neuroticism are related to better adjustment outcomes,

relative low score of girls in measures of adjustment problem indicates they are in favorable position due to gender difference in personality.

5.4. The Moderation Effects of Sibling Warmth and Adolescents Personality

Analysis on the moderating effects of personality and sibling relationship quality is carried out for maternal and paternal differential treatment differently in relation to adjustment, as stated in the result section. Accordingly, the discussion is presented differently in the following sections.

5.4.1. The Moderation Effects of Sibling Relationship and Personality on the link between Maternal Differential Treatment and Adjustment

This study found that sibling warmth and conscientiousness do not have a moderation role between maternal differential treatment (affection and control) and adjustment. The link between adjustment and maternal differential treatment remains the same for adolescents regardless of variation in conscientiousness as well as the nature of their warmth relationship with their sibling at home. The relationship between maternal affection and adjustment remains the same for adolescents with high and low conscientiousness, as well as with close and less close relationships with their siblings. This finding does not support the assumption that stated adolescents with closer sibling relationships and who are highly conscientious would experience higher parental affection that leads to a better adjustment. A study by Jensen et al. (2019) comes up with a similar finding that conscientiousness does not moderate the link between PDT and health related behavior. Adolescence is a time when conscientiousness temporarily decreases (Van den Akker et al., 2021), and hence its effect may be insignificant.

The lack of moderation effect of sibling warmth on the link between maternal affection and adjustment may be related to the fact that, in the presence of warmth relationship, the association between differential parenting and adolescents' adjustment was not strong (Boyel et al., 2004, Feinberg & Hetherington, 2001). According to a Gozu (2016) study, individuals who score highly on conscientiousness are tends to have close relationships with their siblings and inclined to be less concerned by the current PDT.

The findings of this study also revealed that neuroticism and closeness do not moderate differential maternal affection adjustment link. However, neuroticism was found to have a significant positive moderation effect on the relationship between maternal control and adjustment. Low maternal control was related to decreased adjustment problems for adolescents with decreasing neuroticism. In one study, it was reported that the presence of neuroticism intensifies the connection between conflicts and subsequent manifestations of depression (Davila et al., 2003). Similarly, prior research indicated that neuroticism strengthens the relationship between stressful experiences and internalizing symptoms (Davila et al., 2003; Hutchinson & Williams, 2007). As studies indicated, the effect of neuroticism is more pronounced in conflicting situations. Adolescents who are contentious tend to be more emotionally reactive, have trouble with self-regulation, and as a result, they often respond negatively to difficult circumstances (Danielsson et al., 2010).

Prior research showed that neuroticism exacerbates the relationship between stressful experiences and internalizing symptoms (Davila et al., 2003; Hutchinson & Williams, 2007). In a study that assessed the organizational behavior of youths, Bernerth and his associates (2004) described those employees high in neuroticism labeled the institution's employee selection

procedures as unfair regardless of the direction of the decision. Applying this to PDT, adolescents who are highly neurotic are likely to perceive any perceived parental differential treatment as unfair.

Among adolescents and adults, neuroticism is positively correlated with major depression and generalized anxiety disorder (Watson et al., 2005). Neuroticism has also been shown to moderate the relationship between risk factors for emotional difficulties and the development of internalizing problems. For example, at high levels of neuroticism, the positive relationship between daily hassles and depressive symptoms is much higher (Hutchinson & Williams, 2007), and neuroticism exacerbates the relationship between conflict in close relationships and subsequent depressive symptoms (Davila et al., 2003).

Both sibling warmth and openness moderate the relationship between maternal affection and adjustment. The finding indicated that low maternal affection was linked to poor adjustment for adolescents with lower levels of sibling warmth at home. Elevated openness to experience predicted better adjustment for adolescents with a higher level of maternal affection. Openness and sibling warmth also moderated the association between maternal control and adjustment, and the finding disclosed that adjustment problems decreased with an increase in openness for families with less parental control and high parental control was related to poor adjustment for adolescents with lesser warmth relationship with their siblings.

In the context of poor relationships with parents (less affection/high control), the adjustment of adolescents with less close sibling relationships would be compromised since they would not be able to compensate for the absence of parental affection through positive sibling interaction (Feinberg et al., 2003). On the other hand, individuals high on openness are insightful

enough to perceive and interpret events positively (John et al., 2008). This remarkable quality acts as a catalyst, propelling them towards a more effective adjustment, especially when coupled with parental affection or low control. The personal qualities of people who are high on openness provides the the capacity not to be affected by perceived parental differential treatment, even when their siblings receive more affection than themselves (Jensen et al., 2019).

Sibling conflict and conscientiousness do not have a moderation role in the link between maternal affection and adjustment. However, both negatively affect the link between maternal control and adjustment. Better adjustment is correlated to low maternal control for adolescents with low sibling conflict. As reported by Scholte et al. (2007), adolescents who encounter more family risk factors—in this case, excessive parental control and a poor sibling relationship—tend to exhibit higher levels of problem behaviors and adjustment related concerns. In contrast, higher maternal control is positively related to adjustment problems for less conscientiousness adolescents. A study by Jensen et al., (2019) revealed that less conscientious youth who had a less close relationship with their mother compared to their siblings reported having worse health and exercise habits. Since adolescents are less conscientious, they are less aware of why they are being treated differently (Jensen et al., 2019), it could seriously affect their adjustment in family contexts here they perceive PDT.

On the other hand, individuals with high conscientiousness are more likely to perceive PDT as fair (Truxillo et al., 2006). Rather than being highly affected by differential treatment due to heightened social comparison, adolescents with high conscientiousness are better at taking the perspective of others (Song & Shi, 2017), and hence they may understand why parents treat siblings differently.

Even though the link between maternal control and adjustment is not influenced by openness, it still has an impact on the relationship between maternal affection and adjustment. A higher openness trait is linked to better adjustment for adolescents with higher affection from their mothers. Adolescents high in openness have a tendency to be intelligent, open-minded and good at taking the perspective of others (Shi et al., 2016). These qualities may make them favored by parents, and hence would demonstrate an improved adjustment.

5.4.2. The Moderation Effects of Sibling Relationship and Personality on the link between Paternal Differential Treatment and Adjustment

Sibling warmth does not moderate paternal differential treatment (affection and control) and adjustment relationships. Conscientiousness moderates the relationship between paternal control and an adolescent's adjustment. Low parental control is linked to improved adjustments for adolescents with high conscientiousness. For various levels of sibling closeness, paternal control leads to a more compromised adjustment for adolescents with low conscientiousness. Previous studies indicated that less conscientious youth are usually less involved in social comparison than those higher in conscientiousness (Eggens et al., 2011; Rekers-Mombarg & van Werf, 2011) and are even not able to take the perspective of others to comprehend why they are being treated differently (Jensen et al., 2019). This might prompt them to consider any apparently existing differential treatment as a grave issue without any endeavor to comprehend the circumstances, and thus this might consequently influence their adjustment.

The negative relationship between paternal affection and adolescents' adjustment was moderated by sibling warmth but not neuroticism. For adolescents with various levels of neuroticism, low paternal affection is related to adjustment problems for adolescents with less

close relationships with their siblings. According to the research conducted by Feinberg et al. (2003), having less affectionate in relationships with parents can be considered a potential risk factor for the effective adjustment of adolescents. This is especially true for those who have less close relationships with their siblings. It appears that when adolescent siblings have problematic relationships with one another, being treated differently by their parents may have a negative impact on their adjustment (Scholte et al., 2007). The reason behind this is that they are unable to compensate for the lack of affection from their parents with a close sibling relationship (Feinberg et al., 2003).

The findings also revealed that paternal control adjustment correlation was moderated by neuroticism but not by sibling warmth. Low parental control was significantly associated with improved adjustment for adolescents with low neuroticism. Neuroticism intensifies the link between stressful events and internalizing symptoms. Research has shown that in settings when there is conflict, neuroticism has a more noticeable effect. Contentious adolescents frequently react poorly to challenging situations because they struggle with self-regulation and are more emotionally reactive (Danielsson et al., 2010). A study by Cui et al. (2014) indicated that the correlation between parental control and adolescent depressive symptoms was stronger among adolescents with poor sadness regulation.

Intense Parental control is detrimental to adolescents' adjustment due to three factors. First, psychological control exercised by parents may create a negative emotional climate in the home where parents invalidate children and adolescents' feelings and pressure them to change feelings and thoughts, induce negative emotions such as guilt or shame, disrespect adolescents' individuality, and impede adolescents' volitional functioning (Barber & Xia, 2013). Second,

psychologically controlling parents might find it difficult to manage their own emotions, which could result in a lack of positive emotion regulation modeling in the family and difficulties with emotion regulation in adolescents (Cui et al., 2017). Third, parents who exhibit psychological control may be less inclined to employ emotion coaching or other successful emotion socialization techniques (Snyder et al., 2013) to guide children and adolescents to regulate their negative emotions, particularly when parents are using emotionally manipulative parenting strategies.

The introduction of sibling warmth and openness to the model yielded that sibling warmth and openness moderated the paternal affection adjustment link positively and negatively, respectively. Higher parental affection is related to better adjustment for adolescents with high openness traits, and lower parental affection is linked to enhanced adjustment for adolescents with higher sibling warmth. Increased sibling closeness serves as a protective factor for effective adjustment, as it grants adolescents with low parental affection the opportunities for emotional support from their siblings (Feinberg et al., 2003). Conversely, individuals with high openness prefer to see the bright side of things (John et al., 2008). High levels of openness, when paired with parental affection, help adolescents make effective adjustments. A study by Ma and his associates (2022) indicated that one characteristic that acts as a buffer for subjective well-being is high openness.

Openness moderated the paternal control adjustment relationship but not sibling warmth. High openness to experience results in better adjustment for adolescents who are exposed to a low level of paternal control. Adolescents who exhibit high levels of openness may find it easier to manage their stress and utilize adaptable strategies for coping in response to less parental

control and guidace (Wu & Hu, 2013). People with high openness levels are perceptive enough to see and understand things in a positive light (John et al., 2008). This exceptional trait serves as a stimulant, driving them toward a more successful transition, particularly when combined with limited parental control. According to Jensen et al. (2019), individuals with high openness levels possess the ability to remain unaffected by perceived disparities in parental treatment, even in situations when their siblings show them more affection than they do.

Sibling conflict does not moderate the paternal affection adjustment relationship, but conscientiousness does. At various levels of sibling conflict, the link gets more negative with a decreasing level of conscientiousness. Low conscientiousness leads to poor adjustment for adolescents who experience low parental affection. Research conducted by Jensen et al. (2019) brought to light that individuals who display lower levels of conscientiousness during their youth and have fewer intimate bonds with their parental figure in comparison to their siblings, tend to report poorer health conditions and exercise habits. Since less conscientious adolescents are less cognizant of the reasons behind the differential treatment they receive (Jensen et al., 2019), it has the potential to significantly impact their adjustment within the familial environment where they perceive parental differential treatment. The present study also revealed that the paternal control adjustment relationship was negatively moderated by sibling conflict but not conscientiousness. Lower paternal control is related to better adjustment for adolescents with decreased sibling conflict. As stated by Scholte et al. (2007), young people who experience more family risk such as sibling conflict and parental control have a tendency to display adjutsment problems.

The present study also indicated that sibling conflict with neuroticism does not moderate the link between paternal differential treatment and adjustment. Openness with sibling conflict

moderates the relationship between differential paternal affection and adjustment but not the differential paternal control adjustment link. Increased paternal affection is linked to positive adjutsment for adolescents with a higher openness personality trait. Open-minded, bright, and adept at understanding other people's perspectives are characteristics of adolescents with a high level of openness to experience (Shi et al., 2016). Because of these attributes, parents might favor them more, which would lead to a better adjustment.

5.5. The moderation role of sex and age on the relationship between parental differential treatment and adolescents' adjustment

The correlational analysis indicated that age negatively correlated with the emotional, social, and educational adjustment of adolescents. Younger adolescents experience a higher level of adjustment related problems compared to older adolescents. Additionally, the findings pointed out that higher age is related to better adjustment, while lower age predicted adjustment related problems during the adolescent stage. Since younger adolescents are more prone to participating in the act of social comparison as compared to their older siblings (Jensen et al., 2015), it is reasonable to find elevated levels of problems related to adjustment with decreasing age during adolescence. Moreover, gender also significantly predicted the adjustment status of adolescents. Male adolescents were related to more problems of adjustment than females.

An analysis of the moderation effect of age depicted that age was not a moderator for parental affection (mothers and fathers) and the adjustment link. The finding indicated that the effect of differential treatment remains the same for adolescents at various ages. However, the result showed that age moderated the relationship between parental control and adolescents' adjustment. High parental control is linked to poorer adjustment for older adolescents than young

ones. Consistent with the above findings, previous studies also documented that younger adolescents are better adjusted and have higher levels of well-being than older ones in the presence of unfair parental treatment (de la Barrera et al., 2019; Mónaco et al., 2019). A handful of studies reported a stronger correlation between perception of PDT (less warmth and higher control) and adjustment problems for older, as compared to younger siblings (Feinberg & Hetherington, 2001; Tamrouti-Makkink et al., 2004), possibly because older siblings' higher and more privileged family status is threatened by a later born sibling (Solmeyer et al., 2015).

On the other hand, it should be noted that gender does not play a moderating role in the intricate and interconnected relationship between parental differential treatment and the overall adjustment of adolescents, thereby suggesting that the impact of parental differential treatment remains unaltered and consistent for both brother-brother and sister-sister dyads comprising adolescents. It becomes apparent that the effects of parental differential treatment remain unaffected and unswayed within the same-sex sibling dyads (Feinberg et al., 2000) that constitute the present sample, thus indicating that gender does not appear to be a significant determining factor or influential variable within the context of these particular sibling dynamics.

Finally, in spite of the invaluable findings that have been uncovered, it is crucial to interpret the present study while keeping in mind the following limitations: First, the study did not consider private and faith based schools students as well as out-of-school adolescents. This omission could potentially hinder the generalizability of the study's conclusions to encompass all groups of youth within the city of Addis Ababa. Therefore, it is imperative for future researchers to broaden their scope by considering a more diverse range of adolescent participants. Second, considering the fact that the data was obtained exclusively from adolescents of intact families, it

is not feasible to extrapolate the findings to families of diverse compositions. Hence, future research endeavors should consider investigating the issue in other family compositions, such as single parents. Lastly, it is worth noting that there was no triangulation of measurement for assessing adolescents' adjustment and parental differential treatment from alternative sources such as parents or siblings. This absence of multiple perspectives may have limited the depth of the study's findings. Thus, forthcoming researchers should prioritize the inclusion of socializing agencies in their investigations of adolescents' developmental outcomes, recognizing the important role they play in shaping young individuals' growth and well-being.

Chapter 6: Summary and Conclusion

6.1. Summary

The general objective of this study was to assess the adjustment status of adolescents in Addis Ababa and examine its relationship with parental differential treatment, as well as determine the moderating effects of sibling relationship quality and adolescent adjustment on the link. To address the above objectives, the study employed a correlational research design. The participants of the study were selected using multistage random sampling methods from seven public schools in Addis Ababa (n = 537). A demographic questionnaire, the Sibling Inventory of Differential Experience, the Adjustment Inventory, the Sibling Relationship Questionnaire, and the Personality Inventory were used to gather data from the participants. All the tools of data collection were culturally adapted and validated with the help of samples from the target culture to ensure their suitability for the required purpose.

Descriptive statistics, an independent sample t-test, correlation analysis, hierarchical multiple regression, and moderation analysis were carried out to meet the intended objectives of the study. The statistical models utilized in the study resulted in the following major findings:

- A significant portion of adolescent participants scored below average scores in measures of adjustment inventory. This indicates that the majority of adolescents in Addis Ababa are suffering from poor emotional, social, and educational adjustment.
- Analysis of the difference in means indicated that male adolescents in Addis Ababa city obtained higher scores on measures of poor adjustment, suggesting that the issue of maladjustment is more prevalent among males than females. Similarly, the correlational

analysis result revealed that male adolescents demonstrated higher adjustment-related problems compared to females.

- The majority of adolescents recorded elevated scores on the parental differential treatment scale, suggesting that PDT is evident in Ethiopian cultures as well. Males reported higher differential control, while females reported higher differential affection.
- Differential Parental affection is positively related to better emotional, social, and educational adjustment, whereas differential parental control is linked to problem adjustment among adolescents in Addis Ababa.
- Sibling warmth is negatively linked to the social, emotional, and educational adjustment problems of adolescents in Addis Ababa. On the other hand, sibling conflict correlated positively with adjustment problems among adolescents.
- Personality (conscientiousness, neuroticism, and openness to experience) are correlated to the social, emotional, and educational adjustment problems of adolescents. Conscientiousness and openness to experience are related to improved adjustment, while neuroticism is positively related to problem adjustment among adolescents.
- The regression analysis depicted that age and sex are significant predictors of adolescents' adjustment problems, evidencing that males and younger-aged siblings are more vulnerable to adjustment-related concerns than females and older-aged adolescents.
- Parental differential treatment (affection and control) and openness to experience are significant predictors of the adjustment status of adolescents. Parental affection and openness to experience predicted better adjustment positively, whereas parental control predicted improved adjustment status negatively.

- The moderation analysis depicted that warmth and conscientiousness do not moderate the link between parental differential treatment and adolescents' adjustment. However, conscientiousness was found to moderate the link between paternal control and adjustment relationships indicating that low differential maternal control is correlated with better adjustment for adolescents with high conscientiousness.
- Warmth and neuroticism do not exert a moderating influence on the relationship between maternal affection and adjustment. However, warmth moderates the link between paternal affection and adjustment. Low sibling warmth is related to higher adjustment problems for adolescents with low paternal affection. On the other hand, neuroticism moderated the link between parental control (maternal and paternal) and adolescents' adjustment. Lesser paternal control is related to improved adjustment for adolescents with low neuroticism.
- Warmth and openness to experience moderated the relationship between parental affection (maternal and paternal) and adjustment. Positive adjustment is linked to low maternal affection for adolescents with high openness to experience. Similarly, openness to experience moderated the correlation between parental control and adjustment. Better adjustment is related to low maternal control for adolescents with high openness to experience. Sibling warmth moderated the association between maternal control and adjustment but not the paternal control adjustment link.
- The sibling conflict and conscientiousness failed to act as moderators for the association between maternal affection and adjustment. However, both moderated the relationship between maternal control and adjustment. Higher maternal control is related to poor adjustment for less conscientious adolescents, whereas low maternal control is

accompanied by improved positive adjustment for adolescents with low sibling conflict. On the other hand, paternal affection and adjustment link is moderated by conscientiousness but not by sibling conflict. Poor adjustment is associated with lower paternal affection for adolescents with less conscientiousness. Conflict moderated the correlation between paternal control and adjustment, but not conscientiousness.

- Openness with sibling conflict does not moderate parental differential treatment (paternal and maternal) and adjustment link.
- Parental affection (maternal and paternal) and the adjustment relationships are moderated by openness to experience but not by sibling conflict. Higher maternal affection is correlated with improved adjustment for adolescents with a higher openness to experience. Both openness to experience and sibling conflict do not have a moderation role in the relationship between parental control and adolescents' adjustment.
- Age has a moderation role in the connection between PDT and adjustment, indicating that higher parental control is related to poorer adjustment for older adolescents than young ones.
- The effect of parental differential treatment on adolescents' adjustment remains the same for both males and females since gender does not moderate the link between adjustment and PDT.

6.2. Conclusions

Based on the procedures, results, and findings of the study, the following conclusions are drawn

- Emotional, social and educational adjustment problems are prominent among adolescents in Addis Ababa City.

- Male adolescents in Addis Ababa are vulnerable as well as victims of social, emotional, and educational adjustment problems.
- Perceived parental differential treatment is prevalent among parents of adolescents in Addis Ababa.
- Males are subjected to differential parental control, whereas females experience elevated levels of parental affection.
- Differential Parental control, sibling conflict and neuroticism are positively related to adjustment problems, where as differential paternal affection, sibling closeness, conscientiousness, and openness to experience are negatively correlated to problem adjustment.
- Differential parental treatment and openness to experience are significant predictors of adolescents' adjustment.
- Warmth with neuroticism moderated the link between paternal affection and adjustment and neuroticism moderated the link between parental control (maternal and paternal) and adolescent adjustment.
- Warmth and openness to experience moderated the linkage between parental affection (maternal and paternal) and adjustment. Similarly, openness to experience moderated the link between parental control and adjustment. Sibling warmth moderated the connection between maternal control and adjustment but not in the case of paternal control.
- Maternal affection and adjustment links are not affected by sibling conflict and conscientiousness. Maternal control and adjustment ties are both affected by sibling conflict and conscientiousness. Paternal affection and adjustment linkages are affected by

conscientiousness but not by sibling conflict. Paternal control and adjustment relationships are affected by conflict but not by conscientiousness.

- Openness with sibling conflict does not moderate parental differential treatment (paternal and maternal) and the adjustment link.
- The relationship between parental affection (maternal and paternal) and adjustment is influenced by openness to experience, but not by sibling conflict. Parental control and adolescents' adjustment relationships are not moderated by either openness to experience or sibling conflict.
- Age moderates the relationship between PDT and adjustment. The effect of differential treatment on adjutsment is stronger for older adolescents than for young ones.
- The impact of parental differential treatment on adolescents' adjustment is similar for both genders, as gender does not influence the connection between adjustment and PDT.

Implication

On the basis of the findings of the present study, the following implications are drawn

- The finding showed that the majority of adolescents have concerns related to social, emotional and educational adjustment. Hence, intensive, large-scale intervention programs need to be designed and implemented to address issues related to developmental problems, environmental challenges, and social issues among adolescents that compromise their adjustment.
- Although the finding revealed the existence of adjustment-related problems among adolescents in Addis Ababa in general, the issue is more prominent among males than females. Thus, special focus should be given to males in the research to explore typical

variables and factors that make males more vulnerable compared to females. Additionally, intervention programs should incorporate elements that particularly encourage males towards better adjustment.

- Intensive life skills training should be mainstreamed in the curriculum of high school education to enhance students' emotional, social and educational adjustment to equip adolescents with core interpersonal and intrapersonal skills.
- The study depicted that PDT is prevalent among parents of adolescents in Addis Ababa. The parental education programs being implemented by the government as well as non-government organizations should incorporate elements that can enhance the awareness of parents towards the nature of PDT and its effect on adolescents' development.
- Positive qualities of the parent-sibling relationship (parental affection and sibling warmth) are linked to positive adjustment, whereas negative qualities (differential parental control and sibling conflict) are correlated to negative adjustment. Hence, intervention programs aimed at improving parenting style and promotion of positive youth development should incorporate strategies that could enhance parent-child relationships as well as positive sibling relationships in a family.
- Adolescents' personalities were found to be related to adjustment. Particularly, adolescents with high neuroticism and low conscientiousness and openness to experience are more vulnerable to adjustment-related concerns. Hence, intervention programs should consider such individual differences among adolescents and be required to design need-based intervention programs.
- Both sibling relationship quality and adolescents' personalities moderate the relationship between adjustment and parental differential treatment. As indicated in the finding,

neurotic adolescents from differentially controlling parents are more prone to social, emotional and educational adjustment problems. Similarly, parental control is observed to have an adverse effect on adolescents who have conflicting relationships with their siblings. Hence, intervention programs should specifically focus on parents who practice poor parenting strategies as well as on adolescents with neurotic personality

- Parental differential treatment (parental control) was observed to have a significantly negative impact on older adolescents than younger ones. Intervention programs in families should pay special attention to those adolescents by incorporating elements that can enhance their self-esteem and self-confidence, as well as parenting practices of their parents.
- This study examined the relationship between parental differential treatment and adolescents' adjustment. The majority of the previous studies were based on shreds of evidence from Western culture, and little was known regarding the nature of the problem in non-western culture. It is the first attempt in Ethiopia to study the link between PDT and adjustment in adolescent samples from Addis Ababa. More studies need to be carried out in other cultures of Ethiopia as well to test the consistency of the findings of the study.
- This study didn't categorize participants as favored and less favored adolescents and hence, the specific effects of PDT on favored and less favored adolescents were not explored. I encourage interested researchers to consider the issue.
- This study only explored the issue specifically among adolescents in intact families. The dynamics in other types of families (for example, biological children vs. adopted children/stepchildren) are not explored. Future studies should give attention to the issue.

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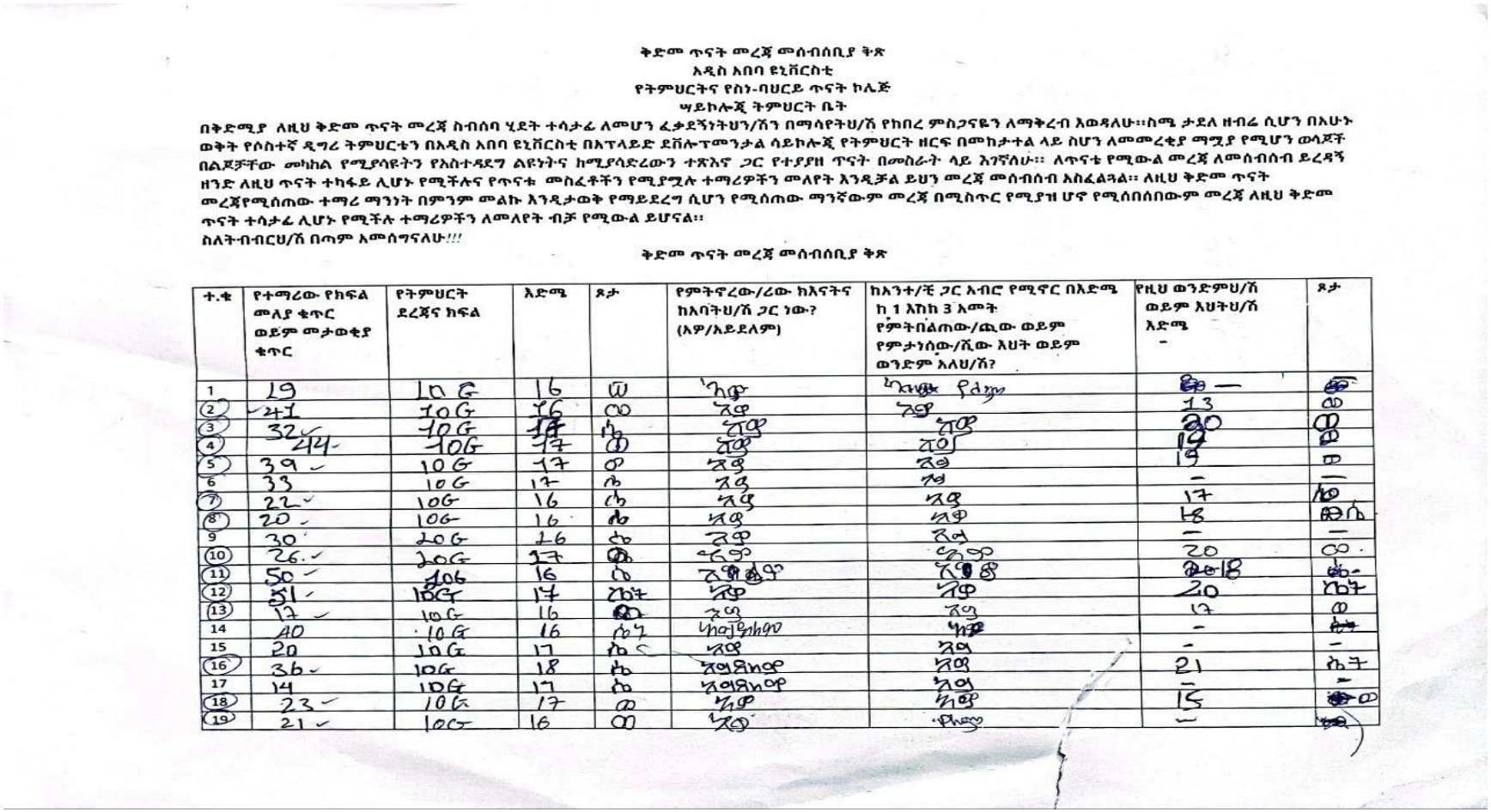
Appendices

Appendix A1: **Preliminary Assessment Checklist**

No.	ID No. of the student	Section and grade level	Age	Gender	Do you live with both your mother and father (Yes/No)	Do you have a sibling who is 1 to 3 years younger or older than you?	Age of the sibling	Gender of the sibling

Appendix A2: sample preliminary Assessment Form



ቅድመ ጥናት መረጃ መሰብሰቢያ ቅጽ
አዲስ አበባ ዩኒቨርስቲ
የትምህርትና የስነ-ባህርይ ጥናት ኮሌጅ
ሣይኮሎጂ ትምህርት ቤት

በቅድሚያ ለዚህ ቅድመ ጥናት መረጃ ስብሰባ ሂደት ተሳታፊ ለመሆን ፈቃደኝነትህን/ሽን በማሳየትህ/ሽ የከበረ ምስጋናዬን ለማቅረብ እወዳለሁ።ስሜ ታደለ ዘብሬ ሲሆን በአሁኑ ወቅት የሶስተኛ ዲግሪ ትምህርቴን በአዲስ አበባ ዩኒቨርስቲ በአፕላይድ ደቨሎፕመንታል ሳይኮሎጂ የትምህርት ዘርፍ በመከታተል ላይ ስሆን ለመመረቂያ ማሟያ የሚሆን ወላጆች በልጆቻቸው መካከል የሚያሳዩትን የአስተዳደግ ልዩነትና ከሚያሳድረውን ተጽእኖ ጋር የተያያዘ ጥናት በመስራት ላይ እገኛለሁ። ለጥናቴ የሚውል መረጃ ለመሰብሰብ ይረዳኝ ዘንድ ለዚህ ጥናት ተካፋይ ሊሆኑ የሚችሉና የጥናቴ መስፈርቶችን የሚያሟሉ ተማሪዎችን መለየት እንዲቻል ይህን መረጃ መሰብሰብ አስፈልጓል። ለዚህ ቅድመ ጥናት መረጃየሚሰጠው ተማሪ ማንነት በምንም መልኩ እንዲታወቅ የማይደረግ ሲሆን የሚሰጠው ማንኛውም መረጃ በሚስጥር የሚያዝ ሆኖ የሚሰበሰበውም መረጃ ለዚህ ቅድመ ጥናት ተሳታፊ ሊሆኑ የሚችሉ ተማሪዎችን ለመለየት ብቻ የሚውል ይሆናል።
ስለትብብርህ/ሽ በጣም አመሰግናለሁ!!!

ቅድመ ጥናት መረጃ መሰብሰቢያ ቅጽ

ተ.ቁ	የተማሪው የክፍል መለያ ቁጥር ወይም መታወቂያ ቁጥር	የትምህርት ደረጃና ክፍል	እድሜ	ጾታ	የምትኖረው/ሪው ከእናትና ከአባትህ/ሽ ጋር ነው? (አዎ/አይደለም)	ከአንተ/ቺ ጋር አብሮ የሚኖር በእድሜ ከ 1 እስከ 3 አመት የምትበልጠው/ጪው ወይም የምታነሰው/ሺው እህት ወይም ወንድም አለህ/ሽ?	የዚህ ወንድምህ/ሽ ወይም እህትህ/ሽ እድሜ -	ጾታ
1	19	10 G	16	ወ	አዎ	አዎ የለም	—	—
2	41	10G	16	ሴ	አዎ	አዎ	13	ወ
3	32	10G	18	ኬ	አዎ	አዎ	20	ወ
4	44	10G	17	ወ	አዎ	አዎ	19	ወ
5	39	10 G	17	ወ	አዎ	አዎ	19	ሜ
6	33	10 G	17	ሴ	አዎ	አዎ	—	—
7	22	10G	16	ሴ	አዎ	አዎ	17	ወ
8	20	10G	16	ሴ	አዎ	አዎ	18	ወንድ
9	30	10G	16	ሴ	አዎ	አዎ	—	—
10	26	10G	17	ወ	አዎ	አዎ	20	ወ
11	50	10G	16	ሴ	አዎ	አዎ	18	ወ
12	51	10G	17	ሴት	አዎ	አዎ	20	ሴት
13	17	10G	16	ወ	አዎ	አዎ	17	ወ
14	40	10G	16	ሴት	አዎ	አዎ	-	-
15	20	10G	17	ሴ	አዎ	አዎ	-	-
16	36	10G	18	ሴ	አዎ	አዎ	21	ሴት
17	14	10G	17	ሴ	አዎ	አዎ	-	-
18	23	10G	17	ወ	አዎ	አዎ	15	ወ
19	21	10G	16	ወ	አዎ	አዎ	-	-

20	42	10G	17	00	[illegible]	[illegible]	15	00
21	46	10G	16	00	[illegible]	[illegible]	18	00
22	43	10G	17	00	[illegible]	[illegible]	—	—
23	45	10G	17	00	[illegible]	[illegible]	—	—
24	34	10G	17	00	[illegible]	[illegible]	—	—
25	49	10G	18	00	[illegible]	[illegible]	—	—
26	35	10G	17	00	[illegible]	[illegible]	—	—
27	11	10G	17	00	[illegible]	[illegible]	19	00
28	2	10G	17	00	[illegible]	[illegible]	—	—
29	3	10G	17	00	[illegible]	[illegible]	—	—
30	4	10G	17	00	[illegible]	[illegible]	—	—
31	13	10G	17	00	[illegible]	[illegible]	—	—
32	6	10G	17	00	[illegible]	[illegible]	15	00
33	31	10G	16	00	[illegible]	[illegible]	—	—
34	52	10G	20	00	[illegible]	[illegible]	—	—
35	10	10G	17	00	[illegible]	[illegible]	17	00
36	48	10G	18	00	[illegible]	[illegible]	16	00
37	5	10G	19	00	[illegible]	[illegible]	—	—
38	47	10G	16	00	[illegible]	[illegible]	14	00
39	15	10G	18	00	[illegible]	[illegible]	20	00
40	18	10G	16	00	[illegible]	[illegible]	—	—
41	28	10G	16	00	[illegible]	[illegible]	—	—
42	37	10G	18	00	[illegible]	[illegible]	—	—
43	27	10G	17	00	[illegible]	[illegible]	14	00
44								
45								
46								
47								
48								
49								
50								

Appendix B: Tools of Data Collection

The original English version tools

Addis Ababa University

College of Education and Behavioral Studies

School of Psychology

Questionnaires

I would like to thank you in advance for being a volunteer to take part in this survey. My name is Tadele Zebrea and I am currently studying for a Ph.D. in Applied Developmental Psychology at Addis Ababa University. I am conducting research into Parental Differential Treatment and Adolescents' Adjustment: the Moderating effects of quality of Sibling Relationship and Adolescents Personality". The purpose of this survey is to gather data from adolescent participants to determine the link between parental differential treatment and adolescents' adjustment as well as to assess the effects of sibling relationship quality and adolescents' personality in the correlation between PDT and adjustment. The result of the study would be used to determine the status of PDT and adolescents' adjustment in the study area in relation to adolescents' personality and sibling relationship quality so as to inform areas of intervention for practitioners for the improved parent-child relationship. The questionnaire consists of 168 items under four sections and will not take more than 80 minutes to respond.

All the responses will be kept anonymous and the data will be kept confidential and would be used only for this research purpose.

Your genuine response is required to successfully attain the intended purpose of the study.

Thank you so much for putting in your response and adding value to my research. I appreciate your time and patience.

General Instruction:

- No need to write your name
- Indicate your response by writing or making tick/√/ against the box of your choice or fill out the required information on the space provided
- Note that all the questions raised here are of equal importance to attain the objective of the evaluation. Therefore, please answer all questions

Section 1: General Information

Code of the participant _____ (will be given by the researcher)

1. Name of the school

_____

2. your grade level

☐ 9th

☐ 10th

3. Your age _____

4. Your gender

☐ Male

☐ Female

5. Number of siblings at home ____

6. Age of a similar gender brother or sister very closer to you in terms of age _____

7. Maternal education

Illiterate ☐
Elementary level ☐
High school level ☐
College/University certificate ☐
College/University diploma ☐
College/University degree ☐
College/University masters and above ☐
Other/ please specify _____

8. Paternal education

Illiterate ☐
Elementary level ☐
High school level ☐
College/University certificate ☐
College/University diploma ☐
College/University degree ☐
College/University masters and above ☐
Other /please specify _____

9. Maternal occupational status

Unemployed ☐
Government employee ☐
Private employee ☐

10. Paternal occupational status

Unemployed ☐
Government employee ☐
Private employee ☐

Section 2: Sibling Inventory of Differential Experience (SIDE)

Read the statements below in the table and make a mark in the box that corresponds to the number of your choice. When you are responding, please focus on the treatment your mother/father provided to you in comparison with your closer age-similar gender sibling. Provide the maternal treatment and Paternal treatment separately in the two tables given below.

1 = applies more to my sister/brother,
2 = applies a little more to my sister/brother,
3 = applies equally to me and my sister/brother
4 = applies a little more to me
5 = applies more to me

Maternal Treatment

No.	Items	1	2	3	4	5
1	My mother is strict					
2	My mother is proud of the things I have done					
3	My mother enjoys doing things with me					
4	My mother is sensitive to what I think and feel					
5	My mother punishes me for my misbehavior					
6	My mother shows interest in things I like to do					
7	My mother blames me for the things that other family members do					
8	My mother tends to favor one child over the other					
9	My mother discipline me					

Paternal Treatment

No.	Items	1	2	3	4	5
1	My father is strict					
2	My father is proud of the things I have done					
3	My father enjoys doing things with me					
4	My father is sensitive to what I think and feel					
5	My father punishes me for my misbehavior					
6	My father shows interest in things I like to do					
7	My father blames me for the things that other family members do					
8	My father tends to favor one child over the other					
9	My father discipline me					

Section 3: Sibling Relationship Questionnaire

Respond to the following questions by putting a mark in the box that corresponds to your answer. While answering the questions please consider only your relationship with the closer aged similar gender sibling to you.

No.	Questions	Hardly at all	Not too much	Somewhat	Very much	Extremely much
1.	Some siblings do nice things for each other a lot, while other siblings do nice things for each other a little. How much do both you and this sibling do nice things for each other?					
2.	Some siblings care about each other a lot while other siblings don't care about each other that much. How much do you and this sibling care about each other?					
3.	How much do you and this sibling go places and do things together?					
4.	How much do you and this sibling insult and call each other names?					
5.	How much do you and this sibling like the same things?					
6.	How much do you and this sibling tell each other everything?					
7.	Some siblings try to out-do or beat each other at things a lot, while other siblings try to out-do each other a little. How much do you and this sibling try to out-do each other at things?					
8.	How much do you admire and respect this sibling?					
9.	How much does this sibling admire and respect you?					
10.	How much do you and this sibling disagree and quarrel with each other?					
11.	Some siblings cooperate a lot, while other siblings cooperate a little. How much do you and this sibling cooperate with other?					
12.	How much do you and this sibling love each other?					
13.	Some siblings play around and have fun with each other a lot, while other siblings play around and have fun with each other a little. How much do you and this sibling play around and have fun with each other?					
14.	How much are you and this sibling mean to each other?					
15.	How much do you and this sibling have in common?					
16.	How much do you and this sibling share secrets and private feelings?					
17.	How much do you and this sibling compete with each other?					
18.	How much do you look up to and feel proud of this sibling?					
19.	How much does this sibling look up to and feel proud of you?					

20.	How much do you and this sibling get mad at and get in arguments with each other?					
21.	How much do both you and your sibling share with each other?					
22.	How much is there a strong feeling of affection (love) between you and this sibling?					
23.	Some kids spend lots of time with their siblings, while others don't spend so much. How much free time do you and this sibling spend together?					
24.	How much do you and this sibling bug and pick on each other in mean ways?					
25.	How much are you and this sibling alike?					
26.	How much do you and this sibling tell each other things you don't want other people to know?					
27.	How much do you and this sibling try to do things better than each other?					
28.	How much do you think highly of this sibling?					
29.	How much does this sibling think highly of you?					
30.	How much do you and this sibling argue with each other?					

Section 4: Adjustment scale

In the table below, some questions are covering your school problems, which have two response alternatives 'YES' and 'NO'. Read every question carefully and decide whether you want to answer it with YES or NO. If your answer is in 'YES', then put a mark (x) on the cell under 'YES', and if in 'NO', put a mark (x) on the cell under 'NO'.

№	Items	Yes	No
1	Are you always afraid of something in your school?		
2	Do you avoid meeting your classmates?		
3	Do you forget soon what you have read?		
4	Suppose, your classmates do something unreasonable unknowingly, do you immediately get angry with them?		
5	Are you of a shy nature?		
6	Are you afraid of examinations?		
7	Do you worry about your teacher scolding you for your mistakes?		
8	Do you hesitate in asking a question when you don't understand something?		
9	Is it difficult for you to understand the lessons taught in the class?		
10	Are you jealous of those friends whom teachers appreciate very much?		
11	When some of your teachers are together, do you go there without any complex?		
12	Can you note down the lessons taught in class correctly?		
13	Do you envy those classmates whom you think better than you?		
14	Do you feel sometimes, as if you have no friends in your school?		
15	Do you yawn when a lesson in taught in your class?		
16	When you see, some students talking themselves, do you think they are gossiping about you?		
17	Are you able to get friendly with everyone easily?		
18	Are you satisfied with the method of teaching of your teachers of this school?		
19	Do you express your anger to others when you are not asked to come forward in any		

	program in your school?		
20	When some students are talking together, do you join them freely?		
21	Do you think that the teachers in the school do not pay any attention to your problems?		
22	Are you often sad and distressed in school?		
23	Do you like to join your classmates working together?		
24	Are you satisfied with the progress in your studies?		
25	Do you feel the teachers neglect you?		
26	Do you try to attract the attention of your teacher to yourself in the class?		
27	Is it a burden for you to study something?		
28	Do you get yourself worked up and try to harm a student when he complains against you?		
29	Do you often like to be alone?		
30	Are your teachers always ready to solve your problems concerning your studies?		
31	Are you often dissatisfied with your school?		
32	Do you establish a friendly relationship with the students in the school?		
33	Do your teachers in the school praise you?		
34	Do you try to rationalize your mistake?		
35	Do you like to sit in the front seats in the class?		
36	Do you often get less marks in an examination?		
37	Do you resent it when your teachers ask you a question in the class?		
38	Do you have a friendly association with your fellow students?		
39	Do you like the idea of having more holidays in school?		
40	Do you get wild when one of your classmates jokes with you?		
41	Do you openly take part in the school assemblies?		
42	Do you often quarrel with your classmates?		
43	Do you sometimes go home before the school closes?		
44	Do you take part in school sports?		
45	Do some of your teachers often keep on scolding you for the studies?		
46	Do you often have doubt on others in the schools?		
47	Are you shy of talking to the senior students in school?		
48	Do you look at your teachers respectfully?		
49	Do you show impertinence (arrogance) towards something good sent by a mate with whom you don't get along well?		
50	Do you have some intimate friends in this school?		
51	Do you pay attention to the lesson being taught in class?		
52	Do you develop resentful feelings towards your teachers when you get less marks?		
53	Are you always ready to help your classmates in every way?		
54	Do you borrow books and magazines from the school library and read them?		
55	Are you often afraid of meeting the senior students?		
56	Do you enjoy irritating other students in the school?		
57	Do you take part in the debates?		
58	Do you feel mentally depressed when you meet the senior students?		
59	Do you lend your books or note-books gladly when your classmates ask for it?		
60	Are you interested in the things regarding education?		

Part 5: Personality inventory

№	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I am not a worrier					
2	I like to have a lot of people around me					
3	I enjoy concentrating on a fantasy or daydream and exploring all its possibilities, letting it grow and develop					
4	I try to be courteous to everyone I meet					
5	I keep my belongings neat and clean					
6	At times I have felt bitter and resentful					
7	I laugh easily					
8	I think it's interesting to learn and develop new hobbies					
9	At times I bully or flatter people into doing what I want them to					
10	I am pretty good about pacing myself so as to get things done on time					
11	When I am under a great deal of stress, sometimes I feel like I am doing to pieces					
12	I prefer jobs that let me work done alone without being bothered by other people					
13	I am intrigued by the patterns I find in art and nature					
14	Some people think I am selfish and egotistical					
15	I often come into situations without being fully prepared					
16	I rarely feel lonely or blue					
17	I really enjoy talking to people					
18	I believe letting students hear controversial speakers can only confuse and mislead them					
19	If someone starts a fight, I am ready to fight back					
20	I try to perform all the tasks assigned to me conscientiously					
21	I often feel tense and jittery					
22	I like to be where the action is					
23	Poetry has little or no effect on me					
24	I am better than most people and I know it					
25	I have a clear set of goals and work towards them in an orderly fashion					
26	Sometimes I feel completely worthless					
27	I shy away from crowds of people					
28	I would have difficulty just letting my mind wander without control or guidance					
29	When I haven't been insulted, I just try to forgive and forget					
30	I waste a lot of time before settling don to work					
31	I rarely feel fearful or anxious					
32	I often feel as I am bursting with energy					
33	I seldom notice the moods or feelings that different environment produce					

34	I tend to assume the best about people					
35	I work hard to accomplish my goals					
36	I often get angry at the way people treat me					
37	I am a cheerful, high-spirited person					
38	I experience a wide range of emotions or feelings					
39	Some people think of me as cold and calculating					
40	When I make a commitment, I can always be counted on to follow through					
41	Too often, when things go wrong, I get discouraged and feel like giving up					
42	I don't get much pleasure from chatting with people					
43	Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement					
44	I have no sympathy for beggars					
45	Sometimes I am not as dependable or reliable as I should be					
46	I am seldom sad and depressed					
47	My life is fast-paced					
48	I have little interest in speculating on the nature of the universe or the human condition					
49	I generally try to be thoughtful and considerate					
50	I am a productive person who always gets the job done					
51	I often feel helpless and want someone else to solve my problems					
52	I am a very active person					
53	I have a lot of intellectual curiosity					
54	If I don't like people, I let them know it					
55	I never seem to be able to get organized					
56	At times I have so ashamed I just wanted to hide					
57	I would rather go my own way than be a leader of others					
58	I often enjoy playing with theories or abstract ideas					
59	If necessary, I am willing to manipulate people to get what I want					
60	I strive for excellence in everything I do.					

The Adapted Amharic Version Tools Used in the Study

አዲስ አበባ ዩኒቨርስቲ

የትምህርትና የስነ -ባህርይ ጥናት ኮሌጅ

ሣይኮሎጂ ትምህርት ቤት

<u>በተሜዎች የሚሞላ ማጠይቅ</u>

በቅድሚያ ለዚህ ጥናት ተሳታፊ ለመሆን ፈቃደኝነ ትህነ /ሽን በማየ ትህ/ሽ የ ከበረ ምስጋናዬን ለማቅረብ እወዳለሁ፡ ፡ ስሜታደለ ዘብሬ ይባላል፡ ፡ በአሁኑ ወቅት የ ሶስተኛ ዲግሪ ትምህርቴን በአዲስ አበባ ዩኒቨርስቲ በአፕላይድ ደቨሎፕመን ታል ሳይኮሎጂ የ ትምህርት ዘርፍ በማከታተል ላይ ስሆን ለመመረቂያ ማሚያ የ ሚሆን ወላጆች በልጆቻቸውመካከል የ ሚያሳዩትን የ አስተዳደግ ልዩነ ትና ከሚያሳድረወን ተጽእኖ ጋር የ ተያያዘ ጥናት በማከራት ላይ እገኛለሁ፡ ፡

የ ዚህ ጥናት ዋናው አላማ በአፍላ ወጣትነ ት እድሜ ላይ የ ሚገኙ ተሜዎች ወላጆቻቸው በነ ሱና በነ ሱ ታላቅ ወይም ታናሽ መካከል የ ሚያሳዩትን የ አያያዝ/እንክብካቤ ልዩነ ት እንዴት እንደሚመከቱት ማጥናትና ይህም ከተሳታፊዎች የ ትምህርት፤ ማህበራዊ ህይወትና ስሜታዊ ሁኔታ ጋር ያለወን ተዛምዶ በማየ ት በልጆችና ወላጆች መካከል ያለን ግንኙነ ት ለማሻሻል የ ሚረዱ የ መፍትሄ አቅጣጫዎችን ማመላከት ይሆናል፡ ፡

ይህ ማጠይቅ በአራት ክፍሎች ስር የ ቀረቡ የ ተለያዩ ጥያቄዎችን የ ያዘ ሲሆን ጊዜ በመወሰድ ሁሉም ጥያቄዎች በአግባቡ በማንበብ ምላሽ እንድትሰጥ/ጭትብበርህን/ሽን እጠይቃለሁ፡ ፡

በማጠይቁ ላይ ምላሽ የ ሚሰጡው ተሜሪ ማንነ ት የ ሚገለጽ ሲሆን የ ሚሰበሰበወም ሚጃ ማህጥራዊነ ቱ ተጠበቆ ለዚህ ጥናት አላማ ብቻ እንደሚወል አረጋግጣለሁ፡ ፡ ለዚህ ጥናት አለማ መሳካት የ አንተ/ቺ ሁሉንም ጥያቄዎች መመለስና የ ሚሰጠወም ምላሽ ትክክለኛ መሆን ላይ መሰረት ያደረገ በመሆኑ ለሁሉም ጥያቄዎች ከአንተ/ቺ አንጻር ትክክለኛ ምላሽ በማጠት ለጥናቱ መሳካት የ ሚይተካ ሜህን/ሽን እንዲትወጣ/ጪበታላቅ ትህትና እጠይቃለሁ፡ ፡

በቅድሚያ ጊዜህን/ሽን ሰጥተህ/ሽ በትእግስት ምላሽ ስለምትሰጥ/ጭታላቅ ምስጋናዬን አቀርባለሁ

አጠቃላይ መረጃ

1. የ ትምህርት ቤቱ ስም _____
2. የ ትምህርት ደረጃ
   - ☐ 9ኛ
   - ☐ 10ኛ
3. እድሜ _____
4. ጾታ
   - ☐ ወንድ
   - ☐ ሴት
5. በቤት ወስጥ ያሉ የ ወንድምና እህቶች ብዛት (አንተን/ቺን ሳይጨምር) _____
6. ከአንተ/አንቺ በጾታ ተመሳሳይ የ ሆነ ወሰቸውና በእድሜ በጣም የ ሚቀራረበ ወ/ምትቀራረበ ውወንድም ወይም እህት እድሜ_____
7. የ እናት የ ትምህርት ደረጃ
   - ☐ በብና መጻፍ የ ማችል
   - ☐ ጀመሪያ ደረጃ (1-8)
   - ☐ ተኛ ደረጃ (9-12)
   - ☐ ጅ/ ዩኒቨርስቲ ሰርተፊኬት/ዲፕሎማ
   - ☐ ጅ/ ዩኒቨርስቲ ዲግሪ
   - ☐ ጅ/ ዩኒቨርስቲ ማስተርስ ዲግሪና በላይ
   - ሌላ ካለ ግለጽ/ጪ_____
8. የ አባት የ ትምህርት ደረጃ
   - ☐ ማንበብና መጻፍ የ ሚችል
   - ☐ የ መጀመሪያ ደረጃ (1-8)
   - ☐ ሁለተኛ ደረጃ (9-12)
   - ☐ ኮሌጅ/ ዩኒቨርስቲ ሰርተፊኬት/ዲፕሎማ
   - ☐ ኮሌጅ/ ዩኒቨርስቲ ዲግሪ
   - ☐ ኮሌጅ/ ዩኒቨርስቲ ማስተርስ ዲግሪና በላይ
   - ሌላ ካለ ግለጽ/ጪ_____
9. የ እናት የ ስራ ሁኔታ
   - ☐ ስራ የ ሌላት የ ቤት እማቤት
   - ☐ የ መንግስት/የ ግል ድርጅት ሰራተኛ
   - ☐ የ ግል ስራ
   - ሌላ ካለ ግለጽ/ጪ_____
10. የ አባት የ ስራ ሁኔታ
    - ☐ ስራ የ ሌለው
    - ☐ የ መንግስት/የ ግል ድርጅት ሰራተኛ
    - ☐ የ ግል ስራ
    - ሌላ ካለ ግለጽ/ጪ_____

ክፍል 1፡ በልጆች መካከል የ አያያዝ/እንክብካቤ ልዩነ ት መለኪያ ማጠይቅ

ከስር የተዘረዘሩትን ጥያቄዎች በማንበብ ለኔ ሚዛን ይሆናል ብላችሁ ያሰባችሁትን ከተሰጡት አማራጮች መካከል በመምረጥ በጥያቄውትይዩ በሚገኘው ምርጫቁጥር ስር ምልክት /X/ በማድረግ ምላሽ ስጡ ፡ ምላሽ በምትሰጠበት ግዜ ከአንተ/ቺ በእድሜበጣም ከሚቃረብ ወይምትቀራረበወና ተመሳሳይ ጾታ ካለውወንድም ወይምእህት አንጻር የአንተ/ቺ እናት ወይምአባት የሚያሳዩትን ባህርይ በማወዳደር መሆን አለበት፡ ፡

የእናትና የአባትን ባህርይ ለየብቻ የሚመላ ይሆናል፡ ፡

1 = የበለጠ ወንድሜን/እህቴን ይመለከታል

2 = በተወሰነ መልኩ ወንድሜን/እህቴን የበለጠ ይመለከታል

3 = እኔንም ወንድሜንም/እህቴንም እኩል ይመለከተናል፡ ፡

4 = በተወሰነ መልኩ እኔን የበለጠ ይመለከተኛል

5 = የበለጠ እኔን ይመለከተኛል

የእናት አያያዝ/እንክብካቤ

ተ.ቁ.		1	2	3	4	5
1	እናቴ ጥፋትን ወይም የባህርይ ችግርን በተመለከተ ድርድር አታውቅም፡ ፡					
2	እናቴ በጣም ትኮራብኛለች፡ ፡					
3	እናቴ ከኔ ጋር ነገሮችን መከወን/መነራት ያስደስታታል፡ ፡					
4	እናቴ ስለሚበውና ስለሚሰማኝ ስሜት ትኩረት ትሰጣለች ፡ ፡					
5	እናቴ ለጥፋቴ ትቀጣኛለች ፡ ፡					
6	እናቴ እኔ ሚድረግ የምወደወን/ የምፈልገወን ነገር እንዳደርግ ታበረታታኛለች ፡ ፡					
7	እናቴ የየቀን ወሎኣችን ላይ ቁጥጥርና ክትትል ታደርጋለች፡ ፡					

የአባት አያያዝ/እንክብካቤ

	ባህርያት	1	2	3	4	5
1	አባቴ ጥፋትን ወይም የባህርይ ችግርን በተመለከተ ድርድር አያወቅም፡ ፡					
2	እባቴ በጣም ይኮራብኛል፡ ፡					
3	እባቴ ከኔ ጋር ነገሮችን መከወን/መነራት ያስደስተዋል፡ ፡					
4	አባቴ ስለሚበውና ስለሚሰማኝ ስሜት ትኩረት ይሰጣል፡ ፡					
5	እባቴ ለጥፋቴ ይቀጣኛል፡ ፡					
6	እባቴ እኔ ሚድረግ የምወደወ/የ ምፈልገ ወን ነገር እንዳደርግ ያበረታታኛል፡ ፡					
7	እባቴ የየቀን ወሎኣችን ላይ ቁጥጥርና ክትትል ያደርጋል፡ ፡					

ክፍል 2: በቤተሰብ ወስጥ በልጆች መካከል ያለ ግንኙነ ት መለኪያ መጠይቅ

ከታች ለተዘረዘሩት ጥያቄዎች ላንተ/ቺ ምላሽ ይሆናል በምትለወን/ይወን ከተሰጡት አማራጮች መካከል በመምረጥ በጥያቄውጥይዩ ባለው ቦታ ምልክት በማድረግ /X/ ምላሽ ስጥ/ጪ ፡ ምላሽ በሚነጥበት ግዜ ከአንተ/ቺ ጋር በእድሜበጣም ተቀራራቢ የሆነ ወንና ከእንተ/ቺ ጋር ተመሳሳይ ጾታ ያለወን እህት ወይም ወንድም በማሰብ ይሆናል፡ ፡

ተ.ቁ.	ጥያቄ	ሁሉም	ከሰንት አንዴ ግዜ	አልፎ አልፎ	ብዙ ጊዜ	ሁሉም ግዜ
1	ከወንድምህ/እህትሽ ጋር ምን ያህል አንዱለሌላውእንከብካቢ/ድጋፍ ያደርጋል?					
2	ከወንድምህ/ከእህትሽ ጋር ምን ያህል እርስ በእርስ መኖፎ ስድቦችን ትሰዳደባላችሁ?					
3	/ከእህትሽ ጋር ምን ያህል ሁሉንምነገሮች በግልጽ ታወራላችሁ?					
4	ለወንድምህ/ለእህትሽ ምን ያህል አድናቆትና ክብር አለህ/ሽ?					
5	ወንድምህ/እህትሽ ለላንተ/ቺ ምን ያህል አድናቆትና ክብር አለወ/አላት?					
6	ከወንድምህ/ከእህትሽ ጋር ምን ያህል አለመግባባትና ጭቅጭቅ ይፈጠራል?					
7	ከወንድምህ/እህትሽ ጋር በስራም ሆነ በሌሎች አጋጣሚዎች ምን ያህል እርስ በእርስ ትተባበራላችሁ?					
8	ከወንድምህ/ከእህትሽ ጋር ምን ያህል እርስ በእርስ ትዋደዳላችሁ?					
9	ከወንድምህ/ከእህትሽ ምን ያህል አብራቹ ትጫወታላችሁ አንዱ ለሌላውደስታን ለመጠር ይጥራል?					
10	ወንድምህን/እህትሽን ስታይ ምን ያህል በሱ/በሷ ኩራት ይሰማህል/ሻል?					
11	ወንድምህ/እህትሽ አንተን/እንችን አይቶ/አይታ ምን ያህል በአንተ/ቺ ኩራት ይሰማዋል/ታል?					
12	ከወንድምህ/እህትሽ ጋር ምን ያህል አንዳችሁ በሌላኛውበጣምተናዳችሁ ንትርክ ወስጥ ተገባላችሁ?					
13	ከወንድምህ/እህትሽ ጋር ምን ያህል ያላችሁን ነገሮችን ትጋራላችሁ/ትካፈላላችሁ (አንዱያለወን ሌላውይጠቀሜል)?					
14	ከወንድምህ/ እህትሽ ጋር ምን ያህል የጠበቀ የወንድምነት/የእህትነት ፍቅር ስሜት አላችሁ?					
15	ከወንድምህ/ እህትሽ ጋር አንዱሌላወን ተገቢ ባልሆነ መንገድ ለመኽደድና ለማበሸቅ ምን ያህል ትሞክራላችሁ?					
16	ለወንድምህ/እህትሽ የምትሰጠውጭውዋጋና ክብር ምን ያህል ትልቅ ነው?					
17	ወንድምህ/እህትሽ ለአንተ/ቺ የምትሰጠውዋጋና ክብር ምን ያህል ትልቅ ነው?					
18	ከወንድምህ/እህትሽ ጋር ምን ያህል እርስ በእርስ ትጨቃጨቃላችሁ?					

ክፍል 3: የ ወጣቶች የ ሚህበራዊ፣ የ ትምህርትና፣ ፣ ስሜታዊ ሁኔታ መዳሰሻ ጣቢይቅ

ይህ ክፍል በጉርምስና እድሜላይ የሚ ኙ ተሞሪዎች በትምህርት ሚህበረዊ ጉዳይና ስሜታዊ ሁኔታዎች ጋር በተያያዘ ያሉበትን ሁኔታ የሚዳስሱ ሲሆኑ በሁለት አማራጭመልሶች ቀርበዋል (አዎ ወይምአይ)፡ ፡ ጥያቄዎቹን በጥንቃቄ በማንበብ ከአንተ ወይምአንቺ አንጻር መልሱ አዎ ከሆነ በአዎ ስር የ /X/ ምልክት አይ ከሆን እንዲሁ በአይ ስር የ/X/ ምልክት በሚድረግ መልስ ስጥ/ጪ ፡

ተ.ቁ.	ጥያቄ	አዎ	አይ
1	በትምህርት ቤት ወስጥ ሀልግዜ የምትፈራወ/ሪውወይምየሚያስጋህ/ሽ የሆነ ነገር አለ ?		
2	በትምህርት ቤት የክፍል ጓደኞችህን/ሽን ላለማክኘት ሆን ብለህ/ሽ ለሚሽሽ ትሞክራለህ/ሪያለሽ ?		
3	ያነበከወን/ሽወን ቶሎትረሳለህ/ሺለሽ?		
4	በተፈጥሮ አይናፋር ነህ/ሽ?		
5	ፈተና ሜፈተን ያስፈራሀል/ያስፈራሻል?		
6	መምህራን ብሳሳት ተናደውይተቹኛል ብለህ/ሽ ትጨነቃለህ/ትጨነቂአለሽ?		
7	ያልገባህን/ሽን ነገር በክፍል ወስጥ ጥያቄ ከመጠየቅ ትቆጠባለህ/ቢያለሽ?		
8	በክፍል ወስጥ የሚነጡትምህርቶችን ለሚዳት ትቸገራለህ/ሪያለሽ?		
9	የ ተወሰኑ መምህራነን አብረውበተቀመጠበት ቦታ አንዱን መምህር ሜገር ቢኖርብህ/ሽ ያለምንምችግር ሂደህ/ሽ ታናግራለህ/ሪያለሽ?		
10	በክፍል ወስጥ የሚነጡትምህርቶችን ሚነታወሻ በትክክል መያዝ ትቸላለህ/ያለሽ?		
11	በትምህርት ቤት ከኔ ይሻላሉ ብለህ/ሽ በምታስባቸው/ቢያቸውየክፍል ጓደኞችህ/ሽ ትቀናለህ/ኛለሽ?		
12	አንዳንድ ግዜ በትምህርት ቤት ወስጥ ጭራሽ ምንምአይነት ጓደኛ የለኝምየሚል ስሜት ይሰማዛል/ሻል?		
13	በትምህርት ቤት አንዳንድ ተሞሪዎች እርስ በእርስ ሲያወሩ ብታይ/ዪ አንተን/ቺን እያመይሞክልሃል/ሻል?		
14	ከሁሉምተሞሪዎች ጋር የጓደኝነት ቅርርብ መፍጠር ትቸላለህ/ያለሽ?		
15	በትምህርት ቤቱ መምህራን የሚከተሞር ዘዴደስተኛ ነህ/ሽ?		
16	በትምህርት ቤት በብዛት የመከፋት ወይምመጨነቅ ስሜት ይሰማዛል/ሻል?		
17	ስራዎችን በጋራ ለማከራት ከክፍል ጓደኞችህ/ሽ ጋር አብሮ መሆንን ትፈልጋለህ/ጊያለሽ?		
18	በትምህርት ዙሪያ በራስህ/ሽ ላይ በምታየወ/ዪውለወጥ ደስተኛ ነህ/ሽ?		
19	መምህራን እኔን ቸል ይሉኛል ወይምስለኔ ደንታየላቸውምየሚል ስሜት ይሰማዛል/ሻል?		
20	የ ምትሜራቸወን/ሪያቸወን የ ትምህርት አይነ ቶች አጥንቶ መረዳት ላንተ/ቺ ከባድ ነው?		
21	የ ማትወደወን/ጂወን ወይምከዚህ በፊት የ ተጣላህወን/ሽወን ተሞሪ ለመጉዳት አስበህ/ሽ ወይምሞክረህ/ሽ ታውቂያለህ/ሽ?		

22	ብዙ ግዜ ብቻህን/ሽን ማሆን ትጦጣለህ/ሽ?		
23	በትምህርት ዙሪያ የሞጋጥሙችግሮችን ለመፍታት መምህራኖችህ/ሽ ሁሌም ዝግጁ ናቸው?		
24	በትምህርት ቤትህ/ሽ በብዛት ደስተኛ አደለህም/ሽም?		
25	ከትምህርት ቤት ካሉ ተሜዎች ጋር መልካምጓደኝነት መስርተሃል/ሻል?		
26	በትምህርት ቤት ያሉ መምህራን ያበረታቱሃል/ሻል?		
27	ከትምህርት ጋር በተያያዘ ወይምበሌላ ሁኔታለሰራህወሰሸውስህተትህ/ሽ ሰበብለመድርደር ትሞክራለህ/ሪያለሽ?		
28	ብዙ ግዜ በፈተናዎች ዝቅተኛ ውጤን ታመጣለህ/ጪለሽ?		
29	አንዱየክፍል ተሜ በአንተ/ቺ ዙሪያ ቢቀልድ ራስህን/ሽን መቆጣጠር ያቅትህል/ሻል?		
30	በመምህራን የሚሰጡየክፍልና የቤት ስታዎችን የመስራት ፍላጎት የለህም/ሽም?		
31	አንዳንዴየትምህርት ሰአት ከመለቁ በፊት በመሀል ፎርፈህ/ሽ ወደ ቤት ትሄዳለህ/ጃለሽ?		
32	አንዳንድ መምህራን ከትምህርት ጋር በተያያዘ በብዛት ይተቹሃል/ሻል?		
33	በትምህርት ቤት በክፍል ደረጃቸውከፍ ካሉ ተሜዎች ጋር መወራት ታፍራለህ/ሪያለሽ?		
34	በትምህርት ቤት የቅርብጓደኛ አለህ/ሽ?		
35	በክፍል ውስጥ የሚሰጥ ትምህርት በትኩረት ትከታተላለህ/ያለሽ?		
36	የክፍል ተሜዎችን በሁሉምአይነት መንገድ ለመርዳት ሁሌምእግጁ ነህ/ሽ?		

ክፍል 4: የተሳታፊዎችን ስብዕና አይነት መዳሰሻ መጠይቅ

ይህ ክፍል የጥናቱ ተሳታፊ ተሜዎች ስብዕና አይነት ለመለካት እንዲያስችል በሚሰብየተዘጋጀ ሲሆን ጥያቄወን በማንበብ ለናንተ መልስ ይሆናል በምትሉት ምርጫስር የ /**X**/ ምልክት በሚድረግ ምላሻችሁን አስቀምጡ ፡

ተ.ቁ	ጥያቄዎች	በጣም አልስማማም	አልስማማም	ላላ ውቅም	አስማማሁ	በጣም አስማማሁ
1	ያሉኝን ንብረቶች ጽዳና ንዳህ አድርጌ እይዛለሁ					
2	የሚሰጠኝን ስራዎች በሰአታቸውለመጨረስ ራሴን በማትጋት ረገድ በጣምጥሩ ነኝ					
3	ስዕሎችን ወይምተፈጥሮን ስመለከት በማኘውትርጉምእሳባለሁ					
4	አልፎ አልፎ የብቸኝነት ወይምየድብርት ስሜት ይሰማኛል					
5	የሚሰጠኝን ስራዎች በሙሉ በጥንቃቄ ለመስራት እሞክራለሁ					
6	ብዙ ግዜ የሚበሽ ወይምየሚበትበት ስሜት ይሰማኛል					
7	ግልጽ የሆነ ግብ ያለኝና ግቤን ለማሳካት በእዕቅድየምንቀሳቀስ ሰውነኝ					
8	አንዳንዴ ፍጹምዋጋ ቢስ የሆንኩ አይነት ስሜት ይሰማኛል					
9	በጣምአልፎ አልፎ የፍርሃት ወይምየጭቀት ስሜት ይሰማኛል					
10	የህይወት ግቤን ለማሳካት ጠንክሬ እሰራለሁ					
11	ሰዎች እኔን የሚየዩበትና የሚከባከቡበት መንገድ በብዛት ያናደኛል					
12	በተለያየ ወቅት ብዙየተለያዩ አይነት ስሜቶችን አስተናግዳለሁ					
13	ለአንድነገር ቃል ከገባሁ፣ ሁልግዜምበዛውመሳረት ለመፈድየምታመን ነኝ					
14	በብዛት ነገሮች ሲበላሹብኝ የመተወና ተስፋየመቁረጥ ስሜት ይሰማኛል					
15	አንዳንዴ ግጥምሳነብ ወይምየሆነ የስነጥበብ ውጤት ሳይየመሳጥ ወይምየመደነቅ ስሜት ይሰማኛል					
16	ስራወን በአግባቡየሚሰራ ውጤታማሰውነኝ					
17	ነገሮችን የማወቅና የመረዳት ከፍተኛ ፍላጎት አለኝ					
18	አንዳንዴበጣምየሀፍረት ስሜት ይሰማኝና ለመደበቅ እፈልጋለሁ					

ስለ ቀና ትብብርህ/ሽ የከበረ ምስጋናዬ ይድረስህ/ሽ!!!!

Appendix C: Letters of Permission from Authors to Use Tools of Data Collection

Mar 10, 2021

Plomin, Robert

Dear Tadele,
I am happy for you to use the SIDE measure in your study.

Please find attached the full scale, contained within the Daniels & Plomin 1985 paper, which includes instructions for scoring the SIDE.
I have also attached some related papers which may be of interest – a Rowe and Plomin paper from 1981, and two of the papers from which SIDE items were drawn (Dibble & Cohen's 1975 paper and Schaefer's 1965 paper).

I hope that these resources will benefit your research.

Sincerely,

Robert Plomin

~~~~~~

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~~~~~~

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Enclosed you will find a copy of the Sibling Relationship Questionnaire (SRQ). I would be pleased to have you use it, but I do have two requests.

1) You may only want to use certain scales. I do not mind this kind of reduction, but I would appreciate it if the scales that are used are kept intact (i.e., not reducing the number of items to one or two or rewriting specific items). These kinds of changes make it difficult to compare results.

2) I would appreciate receiving information about the results of your work.

I hope you find these scales useful. This letter gives you permission to use the questionnaire. Good luck with your research!

Sincerely,

Wyndol Furman, Ph.D.

Professor

Appendix D: Tools Validation Results

Table

Face Validity Index and Content Validity Index of SIDE.

Items	I-CVI	I-FVI		
		Clarity	Comprehension	Universal
1	0.90	0.83	0.90	0.87
2	0.90	0.80	0.87	8.83
3	1.00	0.87	0.83	0.85
4	0.90	0.90	0.80	0.85
5	1.00	0.83	0.90	0.87
6	1.00	0.87	0.77	0.82
7	0.90	0.87	0.80	0.80
8	0.80	0.77	0.77	0.74
9	1.00	0.80	0.77	0.78
	S-CVI	0.93		

Table

Face Validity and Content Validity Index of Sibling Relationship Questionnaire

Items number	I-CVI	I-FVI		
		Clarity	Comprehension	Universal
1	1.00	0.83	0.87	0.85
2	1.00	0.90	0.93	0.91
3	1.00	0.93	0.93	0.93
4	0.70	0.87	0.80	0.83
5	1.00	0.96	0.93	0.95
6	0.90	0.96	0.87	0.91
7	1.00	0.80	0.83	0.82
8	1.00	0.93	0.83	0.88
9	0.90	0.96	0.96	0.96
10	1.00	0.87	0.93	0.90
11	1.00	0.83	0.90	0.87
12	1.00	0.93	0.93	0.93
13	1.00	0.83	0.93	0.88
14	0.70	0.93	0.90	0.91
15	1.00	0.93	0.93	0.93
16	0.90	0.87	0.83	0.85
17	1.00	0.90	0.87	0.88
18	1.00	0.90	0.93	0.91
19	0.80	0.96	0.96	0.96
20	1.00	0.87	0.77	0.82
21	1.00	0.83	0.90	0.87
22	0.70	0.96	0.93	0.95
23	1.00	0.93	0.93	0.93
24	0.70	0.87	0.93	0.90
25	0.90	0.80	0.90	0.85
26	1.00	0.80	0.74	0.77
27	1.00	0.87	0.87	0.87
28	0.60	0.93	0.93	0.93
29	0.60	0.93	0.90	0.91
30	1.00	0.93	0.90	0.91
	S-CVI	0.91		

Table

Face and Content Validity Index of Adjustment and Personality Inventories

Items	**Adjustment inventory**	**Personality inventory**

number	I-CVI	I-FVI				I-FVI		
		Clarity	Comprehension	Universal	ICVI	Clarity	Comprehension	Universal
1	1.00	0.84	0.84	0.84	0.90	0.97	0.94	0.95
2	0.80	0.77	0.77	0.77	0.90	0.84	0.84	0.84
3	1.00	0.94	0.87	0.90	0.90	0.94	0.87	0.90
4	0.90	0.84	0.84	0.84	1.00	0.87	0.90	0.89
5	1.00	0.94	0.90	0.92	0.90	0.94	0.97	0.95
6	1.00	0.87	0.90	0.89	0.90	0.81	0.87	0.84
7	0.80	0.87	0.94	0.90	0.90	0.87	0.84	0.85
8	0.80	0.90	0.87	0.89	0.70	0.87	0.97	0.92
9	1.00	0.81	0.94	0.87	0.80	0.84	0.90	0.87
10	1.00	0.84	0.84	0.84	1.00	0.94	0.94	0.94
11	1.00	0.81	0.87	0.84	0.90	0.87	0.84	0.85
12	0.90	0.94	0.97	0.95	0.90	0.94	0.94	0.94
13	1.00	0.81	0.87	0.84	1.00	0.97	0.94	0.95
14	1.00	0.87	0.94	0.90	0.80	0.90	0.90	0.90
15	1.00	0.90	0.87	0.89	1.00	0.84	0.87	0.85
16	1.00	0.81	0.87	0.84	0.80	0.94	0.94	0.94
17	1.00	0.87	0.90	0.89	0.90	0.94	0.97	0.95
18	1.00	0.90	0.84	0.87	0.80	0.97	0.94	0.95
19	1.00	0.77	0.81	0.79	1.00	0.77	0.81	0.79
20	1.00	0.81	0.84	0.82	1.00	0.84	0.94	0.89
21	1.00	0.94	0.94	0.94	0.90	0.90	0.90	0.90
22	1.00	0.94	0.90	0.92	1.00	0.94	0.84	0.89
23	1.00	0.94	0.97	0.95	0.90	0.84	0.97	0.90
24	1.00	0.94	0.90	0.92	1.00	0.84	0.84	0.84
25	1.00	0.87	0.94	0.90	1.00	1.00	0.97	0.98
26	1.00	0.94	0.87	0.90	0.90	0.94	0.94	0.94
27	1.00	0.94	0.94	0.94	0.90	0.94	0.90	0.92
28	0.80	0.84	0.87	0.85	0.90	0.97	0.94	0.95
29	1.00	0.94	0.84	0.89	0.90	0.90	0.84	0.87
30	0.90	0.94	0.94	0.94	0.90	0.77	0.87	0.82
31	1.00	0.90	0.90	0.90	1.00	0.84	0.87	0.85
32	1.00	0.97	0.94	0.95	1.00	0.84	0.84	0.84
33	0.80	0.84	0.77	0.81	0.80	0.81	0.81	0.81
34	0.80	0.94	0.87	0.90	0.80	0.87	0.97	0.92
35	0.70	0.97	1.00	0.98	0.80	0.97	1.00	0.98
36	1.00	0.84	0.97	0.90	0.90	0.94	0.87	0.90
37	1.00	0.87	0.94	0.90	1.00	0.97	0.97	0.97
38	1.00	0.94	0.90	0.92	1.00	0.94	0.90	0.92
39	0.80	0.87	0.94	0.90	0.80	0.87	0.87	0.87
40	1.00	0.81	0.94	0.87	1.00	0.84	1.00	0.92
41	1.00	0.84	0.97	0.90	1.00	0.90	0.90	0.90
42	0.40	0.87	0.90	0.89	0.70	0.90	0.87	0.89
43	0.70	0.81	0.87	0.84	0.90	0.87	0.87	0.87
44	1.00	0.94	0.94	0.94	1.00	0.81	0.84	0.82
45	1.00	0.84	0.94	0.89	0.90	0.90	0.87	0.89
46	1.00	0.90	0.90	0.90	1.00	0.81	0.81	0.81
47	0.90	0.94	1.00	0.97	0.90	1.00	0.94	0.97
48	0.80	0.94	0.84	0.89	0.90	0.87	0.87	0.87
49	1.00	0.81	0.84	0.82	1.00	0.97	0.94	0.95
50	1.00	0.97	0.94	0.95	1.00	0.94	0.94	0.94
51	0.90	0.90	0.94	0.92	0.90	0.90	0.94	0.92
52	1.00	0.84	1.00	0.92	0.90	0.94	0.90	0.92
53	0.80	0.84	0.87	0.85	0.80	0.90	0.87	0.89
54	1.00	0.94	0.94	0.94	1.00	0.84	0.87	0.85
55	1.00	0.84	0.84	0.84	1.00	0.90	0.90	0.90
56	0.70	0.81	0.90	0.85	0.80	0.94	0.84	0.89
57	1.00	0.87	0.84	0.85	0.90	0.87	0.87	0.87
58	0.90	0.77	0.81	0.79	1.00	0.94	0.84	0.89
59	1.00	0.94	0.90	0.92	0.90	0.87	0.87	0.87
60	1.00	0.90	0.97	0.94	1.00	0.94	0.94	0.94
	S-CVI	0.94			S-CVI	0.91		

Table

Results of Principal Component Analysis of SIDE

	Component	
SIDE items	1	2
2. My father is proud of the things I have done	.774	
4. My father is sensitive to what I think and feel	.739	
3. My father enjoys doing things with me	.697	
8. My father tends to favor one child over the other	.600	
6. My father shows interest in things I like to do	.517	
1. My father is strict		.795
5. My father punishes me for my misbehavior		.754
9. My father discipline me		.630
7. My father blames me for the things that other family members do		.495

Figure 4

Factor Structure of PDT (Paternal)

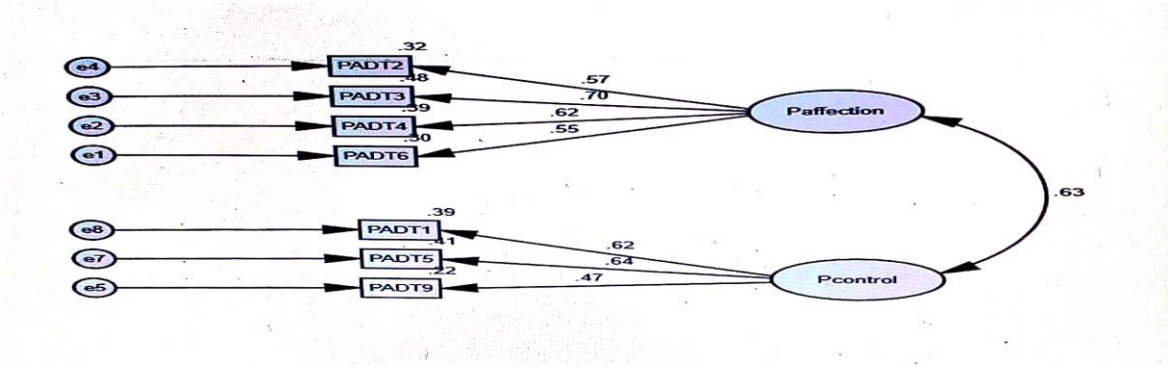
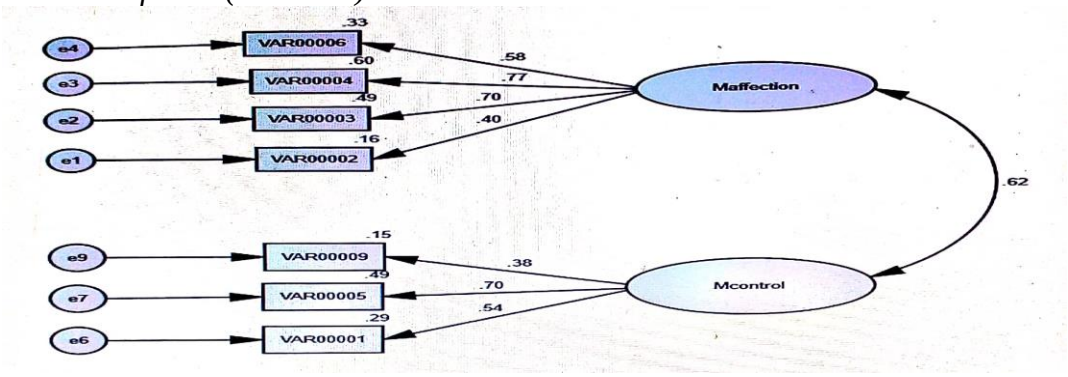


Figure 5

Factor Structure of PDT (Maternal)



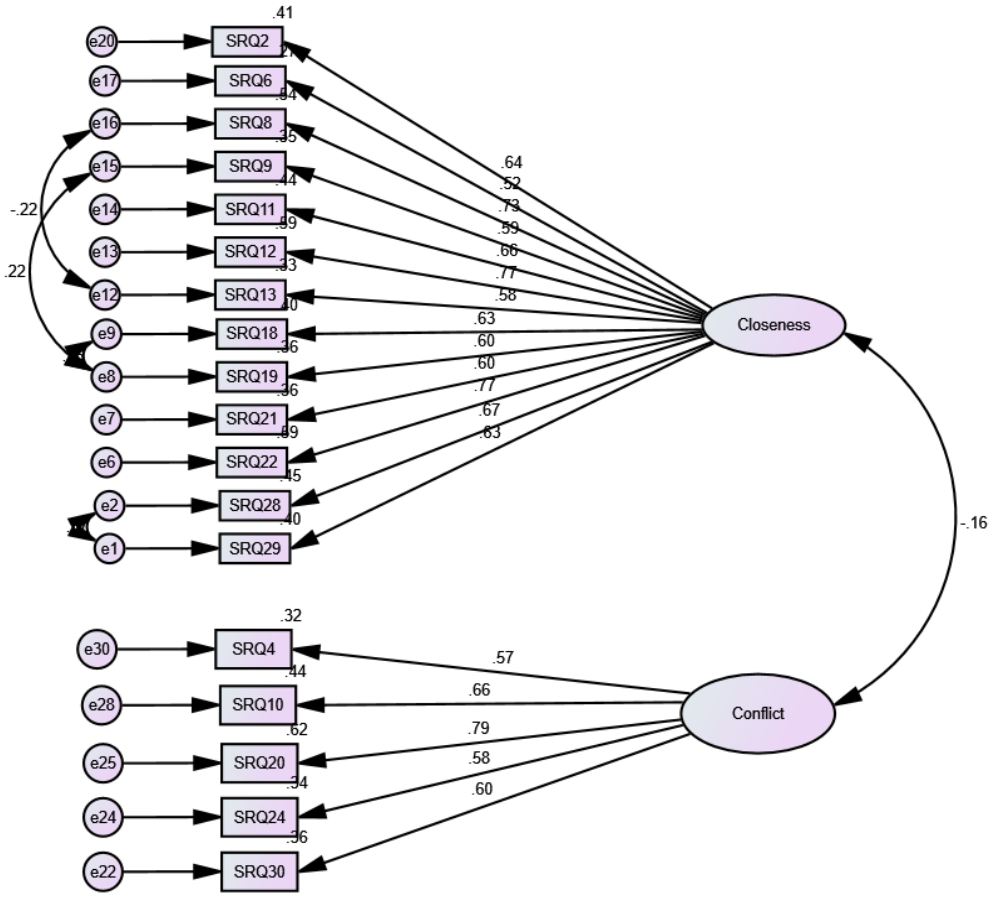
Table

Results of PCA of SRQ

Items of sibling relationship questionnaire	Component 1	Component 2
22. How much is there a strong feeling of affection (love) between you and this sibling?	.771	
12. How much do you and this sibling love each other?	.734	
29. How much does this sibling think highly of you?	.704	
8. How much do you admire and respect this sibling?	.681	
11. Some siblings cooperate a lot, while other siblings cooperate a little. How much do you and this sibling cooperate with other?	.674	
18. How much do you look up to and feel proud of this sibling?	.673	
28. How much do you think highly of this sibling?	.671	
19. How much does this sibling look up to and feel proud of you?	.662	
2. Some siblings care about each other a lot while other siblings don't care about each other that much. How much do you and this sibling care about each other?	.651	
21. How much do both you and your sibling share with each other?	.632	
9. How much does this sibling admire and respect you?	.627	
13. Some siblings play around and have fun with each other a lot, while other siblings play around and have fun with each other a little. How much do you and this sibling play around and have fun with each other?	.597	
6. How much do you and this sibling tell each other everything?	.595	
1. Some siblings do nice things for each other a lot, while other siblings do nice things for each other a little. How much do both you and this sibling do nice things for each other?	.559	
23. Some kids spend lots of time with their siblings, while others don't spend so much. How much free time do you and this sibling spend together?	.551	
16. How much do you and this sibling share secrets and private feelings?	.549	
5. How much do you and this sibling-like the same things?	.479	
15. How much do you and this sibling have in common?	.464	
25. How much are you and this sibling alike?	.445	
27. How much do you and this sibling try to do things better than each other?	.428	
14. How much are you and this sibling mean to each other?		.373
3. How much do you and this sibling go places and do things together?	.344	
26. How much do you and this sibling tell each other things you don't want other people to know?	.328	
20. How much do you and this sibling get mad at and get in arguments with each other?		.723
10. How much do you and this sibling disagree and quarrel with each other?		.678
30. How much do you and this sibling argue with each other?		.644
4. How much do you and this sibling insult and call each other names?		.635
24. How much do you and this sibling bug and pick on each other in mean ways?		.606
17. How much do you and this sibling compete with each other?		.570
7. Some siblings try to out-do or beat each other at things a lot, while other siblings try to out-do each other a little. How much do you and this sibling try to out-do each other at things?		.415

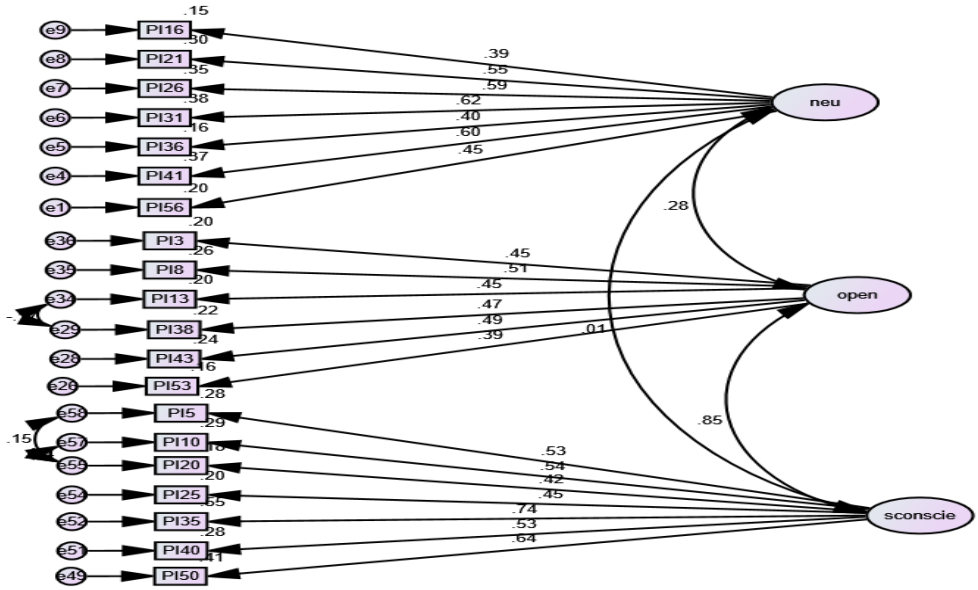
Figure

Factor structure of SRQ



Figure

Factor Structure of PI



Appendix E: Correlation Matrix among Dependent Variables and Predictors

Variables	G	ACS	BO	ELM	ELF	MOS	POS	MA	MC	PA	PC	SCL	SC	C	N	O	EA	SA	EA	A
Age of the Respondents (AR)	.056	.307**	.034	-.076	-.042	-.059	-.083	.147**	-.151**	.103*	-.161**	.134**	-.142**	.117**	-.089*	.102*	-.247**	-.251**	-.266**	-.301**
Gender (G)		.058	-.004	-.061	-.007	-.036	.021	.194**	-.154**	.131**	-.087*	.285**	-.120**	.219**	-.142**	.226**	-.232**	-.261**	-.187**	-.267**
Age of a closer age sibling (ACS)			-.774**	-.073	.020	.016	-.112*	.045	-.090*	-.046	-.112**	.088*	-.156**	.042	-.028	.072	-.075	-.050	-.079	-.081
Birth order (BO)				.030	.010	-.022	.042	-.036	.037	.024	.087*	-.087*	.149**	-.061	.068	-.049	.040	.018	.028	.034
Educational Level of the Mother (ELM)					.562**	.232**	.146**	-.041	.042	-.042	.004	-.036	.025	-.017	-.014	-.049	-.009	.034	-.062	-.016
Educational Level of the Father (ELF)						.197**	.060	.004	-.032	-.025	-.055	-.040	-.063	-.007	-.041	.029	-.096*	-.022	-.060	-.070
Mathernal Occupational Status (MOS)							.102*	.054	.019	.074	-.033	.023	-.005	.037	-.002	.079	-.071	.006	-.067	-.052
Paternal Occupational status (POS)								.032	.010	.079	.014	-.010	.006	-.008	-.048	-.002	-.069	-.016	-.046	-.051
MaAff (MA)									-.140**	.603**	-.123**	.519**	-.380**	.459**	-.388**	.323**	-.251**	-.310**	-.301**	-.340**
MaCon (MC)										-.152**	.571**	-.268**	.337**	-.258**	.340**	-.311**	.323**	.301**	.263**	.349**
PaAff(PA)											.004	.435**	-.344**	.410**	-.301**	.293**	-.210**	-.245**	-.238**	-.273**
PaCon(PC)												-.224**	.289**	-.190**	.296**	-.234**	.317**	.330**	.285**	.367**
SibClo (SCL)													-.560**	.645**	-.507**	.439**	-.193**	-.263**	-.230**	-.270**
SibCon (SC)														-.535**	.505**	-.365**	.207**	.315**	.243**	.301**
Conscientiousness (C)															-.474**	.561**	-.197**	-.273**	-.176**	-.254**
Neuroticism (N)																-.348**	.227**	.259**	.275**	.300**
Openness (O)																	-.304**	-.287**	-.223**	-.320**
Emotional Adjustment (EA)																		.621**	.570**	.859**
Social Adjustment (SA)																			.537**	.847**
Educational Adjustment (EA)																				.834**
Adjustment Total																				

***p<0.01, *p<0.05*

Appendix F1

Table:

Conditional indirect effects of sibling warmth and adolescents personality traits

Path	**Maternal Affection** →	**Adolescents adjustment**			
Sibling Warmth	Openness	Effect	Se	LLCI	ULCI
-1.07	-11.06	-1.63	.44	-2.49	-.77
-1.07	.00	-2.82	.44	-3.69	-1.90
-1.07	11.06	-4.02	.62	-5.25	-2.79
.00	-11.06	-.38	.48	-1.33	.56
.00	.00	-1.58	.34	-2.24	-.92
.00	11.06	-2.77	.45	-3.63	-1.92
1.07	-11.06	.87	.71	-.52	2.25
1.07	.00	-.33	.51	-1.33	.67
1.07	11.06	-1.53	.46	-2.44	-.62
Path	**Maternal Control** →	**Adolescents adjustment**			
Sibling Warmth	Neuroticism	Effect	Se	LLCI	ULCI
-1.07	-12.19	3.36	.68	2.01	4.70
-1.07	.00	2.54	.48	1.60	3.47
-1.07	12.19	1.72	.48	.78	2.66
.00	-12.19	2.68	.43	1.84	3.53
.00	.00	1.87	.32	1.23	2.50
.00	12.19	1.05	.52	.03	2.06
1.07	-12.19	2.01	.42	1.18	2.84
1.07	.00	1.19	.51	.20	2.19
1.07	12.19	0.37	.76	-1.12	1.87
Sibling Warmth	Openness	Effect	Se	LLCI	ULCI
-1.07	-11.07	1.57	.48	.63	2.51
-1.07	.00	2.57	.45	1.69	3.46
-1.07	11.07	3.58	.62	2.36	4.79
.00	-11.07	.72	.50	-.26	1.71
.00	.00	1.72	.32	1.09	2.35
.00	11.07	2.72	.40	1.94	3.50
1.07	-11.07	-.13	.72	-1.55	1.28
1.07	.00	.87	.50	-.10	1.84
1.07	11.07	1.87	.42	1.04	2.70

Appendix F2

Table
Conditional indirect effects

Path	**Maternal Affection** →	**Adolescents adjustment**			
Sibling conflict	Openness	Effect	Se	LLCI	ULCI
-1.11	-11.06	-.38	.63	-1.61	.85
-1.11	.00	-1.12	.46	-2.02	-.22
-1.11	11.06	-1.86	.45	-2.75	-.98
.00	-11.06	-.85	.43	-1.70	.01
.00	.00	-1.59	.32	-2.21	-.97
.00	11.06	-2.33	.43	-3.17	-1.49
1.11	-11.06	-1.31	.41	-2.12	-.51
1.11	.00	-2.05	.41	-2.87	-1.24
1.112	11.055	-2.793	.59	-3.96	-1.63
Path	**Maternal Control** →	**Adolescents adjustment**			
Sibling Warmth	Conscientiousness	Effect	se	LLCI	ULCI
-1.11	-11.81	4.47	.77	2.96	5.98
-1.11	.00	3.34	.48	2.40	4.28
-1.11	11.81	2.21	.41	1.42	3.01
.00	-11.81	3.18	.53	2.14	4.22
.00	.00	2.07	.32	1.43	2.68
.00	11.81	.93	.47	.01	1.85
1.11	-11.81	1.90	.48	.96	2.84
1.11	.00	.77	.48	-.18	1.72
1.11	11.81	-.36	.73	-1.79	1.08

Appendix F3

Table
Conditional indirect effects

Path	paternal affection → Adolescents adjustment				
Warmth	Neuroticism	Effect	SE	LLCI	ULCI
-1.07	-12.18	-2.22	.59	-3.37	-1.06
-1.07	.00	-1.81	.42	-2.63	-1.00
-1.07	12.18	-1.41	.43	-2.25	-.58
.00	-12.18	-1.49	.41	-2.29	-.69
.00	.00	-1.09	.30	-1.67	-.50
.00	12.18	-.69	.45	-1.56	.19
1.07	-12.18	-.76	.41	-1.58	.05
1.07	.00	-.36	.44	-1.23	.51
1.07	12.18	.04	.64	-1.21	1.29
Warmth	Openness	Effect	Se	LLCI	ULCI
-1.07	-11.06	-1.11	.40	-1.89	-.32
-1.07	.00	-2.38	.41	-3.17	-1.58
-1.07	11.06	-3.65	.57	-4.77	-2.53
.00	-11.06	.22	.40	-.57	1.01
.00	.00	-1.05	.29	-1.62	-.48
.00	11.06	-2.32	.40	-3.11	-1.53
1.07	-11.06	1.54	.58	.41	2.68
1.07	.00	.27	.42	-.55	1.09
1.07	11.06	-1.00	.41	-1.81	-.19
Path	**Paternal control → Adolescents adjustment**				
Warmth	Conscientiousness	Effect	SE	LLCI	ULCI
-1.07	-11.79	1.58	.44	.71	2.44
-1.07	.00	2.32	.46	1.43	3.22
-1.07	11.79	3.07	.71	1.67	4.47
.00	-11.79	1.31	.51	.30	2.31
.00	.00	2.05	.28	1.50	2.61
.00	11.79	2.80	.43	1.96	3.64
1.07	-11.79	1.04	.79	-.52	2.59
1.07	.00	1.78	.49	.81	2.75
1.07	11.79	2.53	.38	1.77	3.28
Warmth	Neuroticism	Effect	Se	LLCI	ULCI
-1.07	-12.18	2.88	.58	1.73	4.02
-1.07	.00	2.07	.42	1.24	2.90
-1.07	12.18	1.26	.45	.38	2.15
.00	-12.18	2.64	.37	1.91	3.37
.00	.00	1.84	.29	1.27	2.40
.00	12.18	1.03	.47	.12	1.94
1.07	-12.18	2.41	.39	1.65	3.17
1.07	.00	1.60	.45	.72	2.48
1.07	12.18	.80	.67	-.51	2.10
Warmth	Openness	Effect	Se	LLCI	ULCI
-1.07	-11.06	1.38	.42	.56	2.21
-1.07	.00	2.28	.42	1.46	3.11
-1.07	11.06	3.19	.58	2.05	4.32
.00	-11.06	1.02	.41	.21	1.82
.00	.00	1.92	.28	1.38	2.46
.00	11.06	2.82	.37	2.09	3.55
1.07	-11.06	.65	.60	-.53	1.84
1.07	.00	1.56	.42	.73	2.38
1.07	11.06	2.46	.38	1.70	3.21

Appendix F4

Path	**paternal affection** →		**Adolescents adjustment**		
Conflict	Conscientiousness	Effect	SE	LLCI	ULCI
-1.11	-11.79	-2.46	.68	-3.80	-1.11
-1.11	.00	-1.67	.45	-2.55	-.78
-1.11	11.79	-.88	.42	-1.71	-.04
.00	-11.79	-1.95	.46	-2.86	-1.05
.00	.00	-1.16	.30	-1.74	-.58
.00	11.79	-.37	.45	-1.25	.51
1.11	-11.79	-1.45	.42	-2.26	-.63
1.11	.00	-.66	.43	-1.51	.20
1.11	11.79	.13	.66	-1.17	1.44
Conflict	Openness	Effect	Se	LLCI	ULCI
-1.11	-11.06	.04	.56	-1.06	1.14
-1.11	.00	-.72	.41	-1.53	.09
-1.11	11.06	-1.48	.42	-2.30	-.66
.00	-11.06	-.26	.39	-1.03	.51
.00	.00	-1.02	.28	-1.58	-.46
.00	11.06	-1.78	.40	-2.56	-1.00
1.11	-11.06	-.56	.39	-1.32	.21
1.11	.00	-1.32	.39	-2.09	-.55
1.11	11.06	-2.08	.55	-3.16	-1.00
Path	**Paternal control** →		**Adolescents adjustment**		
Conflict	Conscientiousness	Effect	SE	LLCI	ULCI
-1.11	-11.79	2.76	.69	1.39	4.12
-1.11	.00	2.70	.44	1.83	3.56
-1.11	11.79	2.63	.38	1.89	3.38
.00	-11.79	2.07	.47	1.15	2.99
.00	.00	2.01	.28	1.45	2.56
.00	11.79	1.95	.42	1.12	2.77
1.11	-11.79	1.38	.43	.53	2.23
1.11	.00	1.32	.44	.45	2.18
1.11	11.79	1.26	.66	-.04	2.55

Appendix F4:

Path	**Maternal control**	⟶	**Adolescents adjustment**		
Conflict	Conscientiousness	Effect	SE	LLCI	ULCI
-1.113	-11.806	4.468	.768	2.958	5.977
-1.113	.000	3.341	.478	2.402	4.280
-1.113	11.805	2.214	.406	1.418	3.011
.000	-11.806	3.183	.530	2.142	4.224
.000	.000	2.056	.318	1.431	2.681
.000	11.805	.929	.469	.007	1.851
1.114	-11.806	1.898	.479	.957	2.838
1.114	.000	.771	.482	-.177	1.719
1.114	11.805	-.356	.731	-1.792	1.081