THE IMPACT OF PARENTAL DIFFERENTIAL TREATMENT ON SELF-ESTEEM AND QUALITY OF SIBLING RELATIONSHIPS IN YOUNG ADULTHOOD

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Abstract

PDT refers to preferential behavior that is displayed by parents of a family with two or more siblings, and is operationalized as favoritism and differential treatment. Favoritism tends to more of an attitude that parents provide to their children and can be verbal or nonverbal. Differential treatment tends to focus on differences in parental behavior (e.g., affection, control, etc.) towards one sibling compared to another. The purpose of the current study is to examine the impact of parental differential treatment (PDT), defined as favoritism and differential treatment, on self-esteem and quality relationships in young adulthood. Absolute and differential differences in control and affection (measured by the SIDE), and favoritism variables are used to predict each criterion variable (i.e., self-esteem, sibling warmth, sibling rivalry, and sibling conflict.). Participants completed an online survey comprised of a demographic questionnaire and measurements of each variable. The following instruments were used: Sibling Inventory of Individual Experiences (SIDE), Adult Sibling Relationship Questionnaire Shortened Version (ASRQ-S), Rosenberg Self-Esteem Scale (RSES), and a Favoritism Questionnaire that was developed for this study. Participants were recruited using various social media resources (e.g., Facebook, Reddit, etc.) and by posting flyers at local community centers. The final sample consisted of 191 individuals between 18 to 25 years old, who had at least one sibling within 5 years of their age, and were raised in a two-parent household (at least one biological parent). The results revealed that directional and absolute differences as measured by the SIDE are more salient in predicting the quality of sibling relationships. Findings regarding absolute differences did not directly support the researcher's predictions. Nonetheless, findings for absolute differences were significant in predicting sibling rivalry and sibling warmth. As predicted, general favoritism was found to be positively associated with sibling warmth. Of the favoritism

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variables, three were found to be significant in predicting the quality of sibling relationships (i.e., Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling). The findings indicate the importance of parental and caregiving behaviors on young adults' adjustment and quality of sibling relationships.

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CHAPTER 1

INTRODUCTION

Statement of the Problem

The family unit is made up of many subsystems that contribute to an offspring's development. Children raised in the same family do not grow up having the same experience of family dynamics (Shebloski, Conger, & Widaman, 2005). One area of family dynamics of growing interest is the phenomenon of parental differential treatment (PDT). PDT refers to preferential behavior that is displayed by parents of a family with two or more siblings. Research has shown that PDT impacts children's and adolescents' behavior, adjustment, self-esteem, the quality of sibling relationships and overall socio-emotional well-being (Daniels & Plomin; 1985; Kowal & Kramer, 1997; Crick, Kowal, Kramer, & Krull, 2002; Noller, 2005; Jensen, Fingerman, & Birditt, 2013) and is, therefore, a significant factor in children's development into adulthood. It is important to understand how PDT impacts these dimensions of adjustment within a culturally diverse population.

The research literature on PDT has approached PDT from two perspectives: favoritism and differential treatment. Each approach has led to the development of somewhat different types of measures. Measures of favoritism tend to ask generally whether a child felt more favored or unfavored by each of his or her parents. These measures usually generate a single overall score of favoritism. An example of such a measure of overall favoritism is the Favoritism Scale (Zervas & Sherman, 1994). Measures of differential treatment tend to focus on whether a child perceives having received higher or lower amounts of parental caregiving than his or her sibling on specific and important dimensions of parent behavior, such as parental affection and parental control. Typically, separate scores are provided for each dimension of

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behavior assessed. An example of a measure that uses this approach, which will also be used in the current study is the Sibling Inventory of Differential Experience (SIDE) (Daniels & Plomin, 1985). Up to now, there has been little attempt to determine how these two ways of conceptualizing and assessing parental differential treatment are related, or which approach to assessing PDT may result in stronger associations with children's behavior and adjustment (Jensen, et al., 2013)

There are many factors that can contribute to PDT. Research has suggested that demographic factors may be associated with PDT. For example, it has been found that families of lower socioeconomic status (SES) tend to experience higher levels of PDT and that this may be due to higher levels of stress experienced in lower SES families (Atzaba-Poria & Pike, 2008). Birth order, age, and gender are other demographic variables that have been found to contribute to the amount of favoritism or differential treatment a sibling receives from his or her parents (Crick, Kowal, Kramer, & Krull, 2002). Research has also suggested that child characteristics such as temperament and personality can be related to PDT. For instance, children who are more difficult to handle than their sibling may receive less affection and more parental discipline from their parents (Brody, Stoneman, & McCoy, 1992). There has also been some research that has suggested that being the recipient of higher levels of parental favoritism or positive parental behaviors than one's sibling may sometimes have negative consequences for children's adjustment. Signs of negative behavioral adjustment found in these studies have included a tendency towards becoming overly dependent, a tendency to develop narcissistic attitudes, and a tendency to exhibit behaviors associated with problematic social relationships (Rauer & Volling, 2007; Cramer, 2015; Crocker & Canevello, 2015).

Moreover, there has been research that indicates that PDT can impact sibling

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relationships. Sibling relationships are often the longest lasting relationship in an individual's life and can be important in helping a sibling through transitions in life (Lanthier, Stocker & Furman, 2000). Differences in type and direction of PDT can contribute to rivalry and conflict amongst sibling subsystems within the family unit across the lifespan. However, some research has also suggested that, depending on certain family factors, PDT many not always impact the quality of sibling relationships. For example, it has been suggested that children from families who experience more cohesion and harmony, including the ability to discuss family problems, may be less susceptible to the impact of PDT (Brody, Stoneman, McCoy, & Forehand, 1992). Also, siblings who understand the reasons why their sibling may receive differential treatment may be less susceptible to the impact of PDT (Crick et al., 2002).

Most studies of PDT that have been done to date have focused on the impact of PDT during childhood and adolescence. However, psychological, emotional, and social development extends beyond childhood (Shebloski et. al., 2005; Young & Ehrenberg, 2007, Jensen et al., 2013) and the impact of PDT has now begun to be studied beyond adolescence into the early adulthood years. For example, studies by Zervas and Sherman (1994), Panish (2002), and Jensen et al., (2013) found that PDT impacted mental well-being and the quality of sibling relationships in young adulthood.

A major limitation to previous research on PDT is that it has not been studied across culturally diverse populations (Van Leeuwen & Vermulst, 2004; Suitor & Pillemer, 2007; Young & Ehrenberg, 2007; Meunier et al., 2011). Most studies have focused on White populations and this has particularly been true of the studies of PDT in young adults. Kowal, Krull & Kramer (2006) encouraged that future research on PDT include families from more diverse backgrounds, including families of different ethnicity and socioeconomic status, since patterns of parental

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behavior, including discipline, supervision, affection, and parental involvement, differ cross-culturally (Van Leeuwen & Vermulst, 2004). Differences in normative patterns of caregiving behavior as well as other cultural factors may affect both the magnitude of PDT and how it impacts the children in a family. Suitor & Pillemer (2007) have suggested that using nationally representative data would be useful in exploring the impact of culture on PDT.

Current Study

This study will add to the current literature on PDT by examining the relationship of PDT experienced during childhood to self-esteem and to the quality of sibling relationships in young adults. This study will be one of the few that examines the impact of PDT on young adults and may shed further light on whether PDT experienced during childhood continues to have an impact on young adults. Moreover, previous studies have chosen to examine either overall perceptions of parental favoritism or specific areas of differential treatment, but usually not both together. The current study will include measures reflecting both conceptualizations of PDT. In doing so, the current study will also seek to shed light on which conceptualization of PDT is more salient to young adults' self-esteem and to the quality of their sibling relationships. Additionally, in the aspect of the study that involves assessing PDT as differential treatment, the current study will attempt to separate a participant's perception of the actual level of a parent's caregiving along the two caregiving dimensions studied, from that participant's perception of the absolute or directional amount of difference there was between how a parent treated siblings within a family. This should help rectify a problem in earlier studies in which it was difficult to separate the possible effects of differential treatment in caregiving from the possible effects of the actual level of caregiving provided to the children along the dimensions studied.

The current study will investigate PDT in a more culturally diverse sample than has been

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done in previous studies, which investigated families that were predominantly of White European descent. The hope is to explore whether PDT is a salient issue that affects a wide spectrum of individuals in our society. Finally, while acknowledging that many children grow up in single parent families or in other non-traditional family constellations, the current study will target offspring from two parent families. This will allow the current study to shed light on the question of whether the impact of PDT on self-esteem and on the sibling relationship is different when it is expressed by mothers or fathers within the same family.

Chapter 2

LITERATURE REVIEW

Parental Differential Treatment (PDT)

Conceptualizing PDT

Researchers have operationalized PDT in two ways: the overall extent to which a parent is perceived as favoring one child over another, and the magnitude of differential treatment along particular dimensions of caregiving, without specifically determining whether the perceived differences lead to the individual being perceived as being favored in an overall sense (Jensen et al., 2013). Also, the occurrence of PDT has been inconsistent and varies across studies, and may differ according to results of conceptual and methodological differences (Jeannin & Van Leeuwen, 2015). PDT can be measured using objective measures, self-reports, or a child's perceptions. In my study, I decided to focus on young adults' recollection of PDT experiences while they were growing up.

Favoritism, as it is applied to PDT, is a general attitude or evaluation of favoring one sibling over another. A parent can conceivably display or express favoritism either verbally or

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nonverbally (i.e., providing more praise or attention). Research has suggested that when a sibling perceives his or her sibling being more favored, this may have negative consequences for a child's adjustment, including leading to the development of low self-esteem (Shebloski et al., 2005; Jeannin & Van Leeuwen, 2015). On the other hand, research on the impact of perceiving onself as being the more favored child is more equivocal. Some studies have found that experiencing favoritism from one's parents enhances a child's sense of well-being (Dunn, Stocker, & Plomin, 1990; Zervas & Sherman, 1994; Richmond, Stocker, & Rienks, 2005), but a few studies have also found that perceiving oneself as being the favored child may have a negative impact on some areas of development and adjustment (Finzi-Dottan & Cohen, 2010).

The second way of conceptualizing PDT assesses the degree to which parents may utilize different amounts, frequencies, or degrees of particularly salient positive and negative caregiving behaviors with one child compared to another child. When it has been conceptualized as differential treatment, PDT has often been measured along two specific aspects of caregiving behavior: affection and control. If a parent interacts in a more or less affectionate manner or in a more or less controlling manner with one child compared to another child, from this conceptualization, there is ongoing PDT (Daniels and Plomin, 1985; Tucker, McHale, & Crouter, 2003). Research has suggested that siblings who perceive receiving less affection and more control than their sibling may develop low self-esteem and unsatisfactory sibling relationships (McGuire, Dunn, & Plomin, 1995; Shebloski et al., 2005; Jeannin & Van Leeuwen, 2015). Research has also found that children who experience receiving lower parental affection and higher parental control tend to develop internalizing behavior problems (i.e., depression, anxiety) and externalizing behavior problems (e.g., delinquent behavior) (Jeannin & Van Leeuwen, 2015). Tucker et al., (2003) suggested that, beyond the dimensions of affection and

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control, there are also additional caregiving domains that may be important in exploring PDT conceptualized as differential treatment. They suggested that additional domains of PDT that might be investigated include such factors as differences in the perceived amount of parental supervision provided, differences in perceptions of chore assignments, differences in perceptions of privileges granted, and differences in perceptions of time spent with a parent. Tucker et al. (2003) suggested that differential treatment along these domains might have important socialization implications.

Demographic, Individual Difference, and Family System Factors that May Influence PDT

Researchers have begun to look at how PDT develops and what demographic factors, individual difference factors, and family system factors may impact PDT. This research will be reviewed.

The Impact of Offspring Gender on PDT. The amount and type of differential treatment a child receives may depend in part on the child's gender. Differential treatment may also impact male and female siblings differently. According to Lytton & Romney (1991), parents often emphasize gender-roles through their different caregiving behaviors towards their sons and daughters, their different style of play with their sons and daughters, and their assignment of different household chores to their male and female children.

Tucker et al. (2003) utilized a rating scale adapted from the SIDE to investigate the role of children's gender in PDT. Their sample consisted of 188 white and biracial (White/African American) working and middle class families with first and second-born siblings. They examined five domains of PDT: affection, discipline, temporal involvement, chores, and privileges. Thus, their study assessed PDT beyond the two primary caregiving domains of affection and control that have usually been targeted for PDT assessment with the SIDE. The

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study's outcome measures included measures of the offspring's sex-typed personal qualities and family relationship experiences.

Adolescents' sex-typed personal qualities were assessed through adolescents' reports of their instrumentality (e.g., leadership, competitiveness) and expressiveness (e.g., sensitivity, kindness) using the Anthill Trait Questionnaire in which participants rated how well the traits described them using a 5-point Likert scale. Parents, using the Emotionality, Activity, Sociability (EAS) temperament measure, rated siblings' activity level.

Tucker et al.'s (2003) results indicated that differential treatment in regards to temporal involvement (time spent with their children) was strongly associated with adolescent's sex. Mothers were found to spend more time with daughters while fathers spent more time with their sons. It was found that mothers spent more time with first and second-born girls, whereas, fathers spent more time with first and second-born boys compared to girls. Researchers speculate that the reason for differences in mothers and fathers' temporal involvement with their children could be due to the responsibility of facilitating and encouraging gendered behavior in their same-sex children (Harris & Morgan, 1991). The researchers also found significant differences in the levels at which mothers and fathers encouraged sex-typed behaviors through time spent with their children. Fathers were more likely to engage in differential treatment based on an offspring's sex compared to mothers, i.e., their parenting behaviors involved more gender role expectations and socialization. Overall, these findings suggest that siblings' sex may have an impact on PDT among the following domains: affection, time spent with children, and differential discipline.

A study by Crouter, McHale & Tucker (1999) examined family members' perspectives on PDT by collecting data from 187 families using the SIDE. Mothers, fathers, first-born

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adolescent siblings and second-born adolescent siblings provided reports of PDT. Four distinct patterns or clusters of PDT were identified: Cluster 1 consisted of families in which all family members concurred that PDT was below average. Cluster 2 consisted of families in which all family members reported high levels of PDT. Cluster 3 consisted of families in which parents and younger siblings reported that PDT was below average but older siblings reported PDT was well above average, and Cluster 4 consisted of families in which fathers and children reported above average levels of PDT but mothers reported below average PDT. Results of this study indicated that when there were gender differences between siblings, all family members reported PDT to be higher. These findings also provide further support for the idea that siblings' gender influences PDT and that parents may engage in PDT to encourage certain gender-role socialization.

Furthermore, a study by McHale, Updegraff, Shanahan, Crouter, & Killoren, (2005) suggested that child gender differences in PDT were related to culturally prescribed roles related to gender held by mothers and fathers among Mexican-American families. In these families, mothers are seen as caregivers while fathers are seen as providers and disciplinerers. Research has found that parents who are more oriented to the Mexican culture display more PDT towards daughters than sons – particularly, more control and warmth with daughters compared to sons (Crouter et al., 1999; McHale et al., 2005) – because there is an emphasis on gender-typed differential treatment within the Mexican culture. McHale et al (2005) found there to be more gender-typed differential treatment in Mexican-oriented families compared to Anglo-oriented families. For example, it was found that siblings from more Mexican-oriented families demonstrated more gender-typed patterns of differential treatment in the area of chores. Specifically, it was found that sisters in girl-boy dyads scored highest in assignment of chores

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and older brothers in boy-girl dyads scored lowest in assigned chores. These findings indicate that a family's cultural practice may lead to PDT, intended to promote certain gendered behavior.

The Impact of Parent Gender on PDT. There has been limited research on the influence of parent's gender on PDT. Tucker et al.'s (2003), in discussing the impact of fathers' roles in promoting sex-typed behavior in boys and girls, suggested that fathers may differentiate more based on a child's sex. Also, research on parent characteristics has focused on parental sex-roles or type of expression of affection demonstrated. A study by Kowal and Kramer (1997) found that children tend to perceive both parents as exhibiting similar levels of differential treatment. This study used the SIDE to assess PDT in the domains of affection and control among 61 Caucasian children ages 11 to 13.

Furthermore, in a study by Brody et al., 1992 PDT was examined while families engaged in problem solving activities among 152 Caucasian school-aged siblings. It was found that during these problem-solving situations, fathers' and mothers' differential treatment was associated with the level of sibling conflict. For example, it was found that parents engaged in less equal treatment among siblings when there was high emotional negativity. In addition, from this research, authors speculated that, because fathers tend to spend less time with their school-aged children than mothers, father's unequal treatment may be more salient and induce more angry and rivalrous emotions during sibling interactions, whereas unequal treatment from mothers may not provoke such emotions. Instead, Brody et al. speculated that mothers may contribute to children's perceptions of their sibling relationships across time.

Social Comparison, Gender Dyad, and Age Difference Between Siblings. Jensen et al., (2015) has suggested that social comparison occurs within families, in which siblings often serve as targets of comparison. When a child engages in social comparisons and as a result feels

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inferior and weak compared to his or her sibling, this may affect his or her prosocial behavior, relational and emotional development and well-being (Jensen et al., 2013; Jensen et al., 2015; Noller, 2005). Research suggests that when PDT occurs within a family, sibling' closeness in age may be associated with greater depressive symptoms and well-being for the less favored sibling or for the sibling who receives less affection and more control (Jensen et al., 2015). Jensen et al. conducted a series of Ordinary Least Squares Hierarchical Regression models to examine the main effects of sibling social comparison and possible moderating roles of sibling social comparison and age difference on the relation between PDT and youths' depressive symptoms. It was found that siblings tended to engage in social comparison with a sibling close in age, and that sibling's closeness in age, in interaction with social comparison and PDT, reported higher depressive symptoms. They speculated that this might occur because siblings closer in age are more similar and present a more salient target for comparison.

In another study by Jensen et al. (2013), which examined the impact of PDT on young adults' individual well-being and the quality of sibling relationships, literature was reviewed, which suggested that social comparison among individuals who are objectively similar will have a greater impact on one's well-being (Wills, 1991). In Jensen et al.'s study, it was found that less favored siblings in same-gender dyads (e.g., sister-sister or brother-brother) reported greater depressive symptoms when fathers showed greater differential treatment between the siblings. They speculated that mixed-gender dyads are less likely to compare parental treatment during young adulthood. Differential treatment might not affect siblings who are more than ten years apart because siblings tend to compare themselves to siblings closer in age. Nonetheless, it is important to think about the cultural context of age differences, since the age gap beyond which social comparison is less likely to occur may differ across cultures.

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Impact of Birth Order on PDT. In the studies by Kowal & Kramer (1997) and Tucker et al., (2003) reviewed above, it was also found that birth order was related to higher levels of PDT. It was found that earlier and later born children differed in their reports of PDT along the SIDE dimensions of affection and control. Specifically, it was found that all children perceived later-born siblings (younger) as receiving more parental affection. Earlier-born children (older) viewed themselves as receiving more control from mothers and fathers, and later born children (younger) viewed themselves as receiving less paternal and maternal control (Kowal & Kramer, 1997). Similarly, in Tucker et al.'s (2003) study that examined five domains of PDT, it was found that a sibling's age and birth order were related to parents' reports of differences in privileges and chore allocation. Mothers were found to assign more chores to firstborns, and both mothers and fathers allocated more privileges to firstborns.

Tucker et al. (2003) also found that mothers were more affectionate toward second-born girls than second-born boys, and that mothers were more affectionate towards second-born boys and girls who were reported to show less instrumentality (e.g., bravery, independence) than their sibling. Tucker speculated that mothers may have perceived second-born children as less instrumental and more vulnerable, and therefore, needing more affection. On the other hand, Tucker et al. speculated that mothers may provide more affection to first-born siblings who are more instrumental, because, by showing more affection, they could reinforce their children's independence – a trait that they likely value. In regards to privileges, age and birth order was a significant factor. Mothers and fathers gave more privileges to older first-borns and older second-borns. Unlike mothers, fathers showed no difference in assignment of chores to first-born and second-born siblings. Tucker et al. speculated that when mothers and fathers gave more chores and privileges to older siblings, parents might have had the idea that older siblings

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could serve as a possible role model for their younger siblings. Also, differences in parental behavior in chore allocation and privileges could depend on the parent's perceptions of a child's level of maturity, with the older sibling receiving more freedom and responsibility.

Child Emotional Expression and PDT. There has been a very small amount of research on children's emotional functioning related to PDT. Research has shown that children who experience more negative moods, such as frustration and anger, are described as being more 'difficult', and therefore, elicit more negative parenting and more parental control compared to a sibling who may not express these negative moods (Brody et al., 1992).

Temperament, defined by Brody, Stoneman & McCoy (1992), involves emotional expression and is described as behavior that individuals use as they relate to others and the environment. In this study, children's emotional expression, a dimension of temperament, was examined in relationship to PDT among 98 Caucasian middle and upper-middle class families with same-sex children ranging from ages 6 to 11. PDT, in this study, was examined among domains that measured differential positivity, responsiveness, verbal, negativity, and control. Children interacted with their mother and father during separate sessions, which were held a week apart in families' living rooms, and were rated on negative emotionality by using the Temperament Assessment Battery (TAB). These interactions were designed to create interactional situations that imitated typical interactions in the home environment and they involved a hand-held computer game that children could play with. PDT was measured along each of the 5 dimensions of observed behavior described above. Observations were taken in 5-second intervals. The proportion of total intervals in which each particular behavior was directed to the younger sibling was calculated and then compared to the proportion of intervals that the

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same behavior was directed toward the older sibling. This method yielded 5 dimensions of differential treatment: positivity, negativity, verbal, responsiveness, and control.

Positive behavior was examined through assessing the parents' verbal and physical interaction with the child, such as hugging and affectionate touching of the child, laughs, and giggles. Negative behavior was examined by observing parents' threats, insults, and quarrels with the child, such as name-calling, yelling, and negative facial expressions. Verbal expression was examined through assessing whether the parent spoke to the child or made sounds in attempt to communicate with the child. Researchers examined responsive behavior by observing parents' modeling, or showing their children how to perform a task, and assisting their children. Controlling behavior was examined through assessing each parent's direct or indirect requests that the child perform (or not perform) a certain behavior.

Brody et al., (1992) found that children who expressed more negative emotionality received less favored parental treatment compared to their siblings. Younger siblings who received a higher rating on negative emotionality from both parents received higher differential behavior compared to their older sibling. Mothers who rated their younger children as having higher negative emotionality directed more controlling, negative, and responsive behavior to their younger children when compared to their older sibling. Similarly, fathers who rated their younger children as having higher negative emotionality directed more positive, negative, and responsive behavior toward their younger children when compared to their older siblings. Overall, Brody found that parents directed more negative behavior towards younger siblings who received higher rates of negative emotionality compared to their older siblings. On the other hand, older siblings who received high negative emotionality ratings received more equal

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treatment, in which parental behavior was shifted away from the younger sibling toward more equal treatment.

Parental Emotional Factors and PDT. There is not much research on the relationship of parent emotional factors to PDT. However, there have been two studies (Atzaba-Poria & Pike, 2008; Crouter et al., 1999) on the role of parental stress on PDT and on the impact of parental depression and stress on PDT. These studies will be reviewed in the section below because they link parental emotional factors to family factors.

Impact of Family Variables on PDT. It is idealized that parents treat siblings equally in American culture. However, there are several contextual factors that may contribute to how a family functions, such as culture, race, ethnicity, parental stress and parents' level of education, which is an indicator of socioeconomic status (SES), and one-parent vs. two-parent households.

Parents' Mental Well-Being and Stress. According to a study by Atzaba-Poria & Pike (2008), parents of lower SES backgrounds may experience elevated stress levels, which may mediate differential treatment and harsher discipline in parent-child relationships. This study explored the relationship between contextual factors (e.g., marital relationship, household chaos, and SES) related to PDT and family type (single vs. two parents) related to PDT. PDT, in this study, was measured in the domains of warmth and hostility. The study consisted of 172 working and middle-class families, almost exclusively Caucasian, with older siblings (average age of 7.4 years) and younger siblings (5.2 years) in which parents reported about their children's characteristics, psychological resources, and contextual factors. Of the families, 118 were two-parent households and the remaining were single mother households. Compared to two-parent households, single mothers were younger and had a lower education.

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PDT was measured through child and parent reports of warmth and hostility. Children participated in a puppet-like interview that asked questions regarding a family member's caregiving behavior – two identical puppets made opposing statements, "My mom is nice to me" and "My mom is not nice to me." Researchers then asked the participating child to reflect on their experiences and to respond to the question, "How about your mom?" Children's' scores were rated on a 7-point scale, 1 being the most negative score and 7 the most positive, with higher scores indicating more warmth or hostility. The warmth subscale consists of items, such as, "My mom is nice to me " or "My mom is not nice to me" and the hostility subscale consists of items, "My mom is mean to me" and "My mom is not mean to me."

Similarly, parents were asked about the level of warmth and hostility they engaged in with their children by using the Expression of Affection Inventory (Hetherington & Clingempeel, 1992), the Parent – Child Relationship Scale (Hetherington & Clingempeel, 1992), the Parental Feelings Questionnaire (Deater-Deckard, 2000), and the Parental Discipline Interview (Deater-Deckard, 2000). These questionnaires were hoped to align with the child reports. Contextual factors (marital relationship, household chaos, and SES) believed to be associated with PDT were measured by using the following: Golombok Rust Inventory of Marital State (Rust, Bennum, Crowe, & Golombok, 1990), which measured marital satisfaction; the Confusion, Hubbub, and Order Scale (CHAOS; Matheny, Wachs, Ludwig, & Phillips, 1995), which measured the level of calm within a household. SES was indexed by parents' level of education.

This study included 4 measures of PDT: parents' based reports on hostility and warmth and child reports on hostility and warmth. For each dimension, the measure was based on the absolute difference in the way parents reported they treated the two siblings and the way children

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reported their parents to behave. PDT was assessed separately based on parents report on parental behavior and children's' report on parental behavior. For parent rated PDT, mothers and fathers separately rated the amount of warmth and hostility they showed to the older sibling and younger sibling. Parents' reports for warmth were calculated as the absolute difference for the mother's rating for each child. The same rating was used to assess for father's PDT. To assess children's reports of PDT, older and younger siblings each rated their mothers and fathers among the same dimensions of warmth and hostility. PDT was measured as the absolute difference between siblings' ratings of parent's warmth and hostility. Thus, there were 4 measures of PDT: mother warmth, mother hostility, father hostility, and father warmth. The results of the study pointed to a complicated interaction between parental stress, parental emotional experience, and PDT.

According to Atzaba-Poria & Pike (2008), both parents tend to engage in PDT in households characterized by elevated disorganization. It was found that mothers who were unable to manage household chaos experienced more anger and malaise that led to behaviors of differential warmth. This was particularly true for single mothers. On the other hand, mothers from two-parent households showed the lowest levels of hostility when coupled with low household chaos. Atzaba-Poria & Pike speculate that this could be due to the fact that single mothers cannot rely on their partners for emotional support, which in turn may impact the way they interact with their children. If this is true, it could suggest that children who grew up in single-parent households may have experienced more negativity and higher levels of PDT.

For fathers, household chaos and education were predictive of children's reports of PDT. Atzaba-Poria & Pike (2008) speculated that this could be due to idea that fathers' roles are less

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scripted compared to mothers. This study is important because it suggests that chaos within the household may mediate links between maternal anger and poor well-being and PDT.

Additionally, in a study by Crouter et al., (1999), differences in family structure (e.g., sex of siblings and age spacing) and parents' perceived level of stress (e.g., marriage, work, and individual stressors) was examined in relation to PDT among 187 Caucasian families. Crouter reviewed studies that have found connections between parental stress and PDT (Dunn & Plomin, 1986; McHale, Crouter, McGuire, & Updegraff, 1995) and hypothesized that families who reported high PDT experienced the most family stress. The study examined the impact of family structure and parents' well-being on PDT by conducting home interviews with mothers, fathers, first-born and second-born adolescents – older siblings were 15 years old and younger siblings were 12.5 years old. Families were interviewed in their homes with the mother, father, first-born, and second-born siblings about work, family roles and relationships, psychological well-being, and parenting behaviors within the family unit, including PDT.

Researchers used the SIDE to measure differences in the two most common domains of PDT discussed in current literature, affection and control. They also asked questions that explored other domains of PDT, such as the granting of privileges, chore assignments, differential parent-child conflict, and patterns of shared time to measure PDT. Parents reported on their own behavior in the domains of affection, control, privileges, chore assignment, differential parent-child conflict, and patterns of shared time, and siblings reported their experiences of PDT in the domains of privileges, chores, affection, discipline, time, and conflict. Respondents answered these questions on a 5-point Likert scale ranging from 1 (younger sibling a lot more) to 5 (older sibling a lot more). In addition, 3-point scales were used to represent absolute values of differential treatment: 1 (equal treatment), 2 (a little differential treatment),

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and 3 (a lot of differential treatment) to help determine whether parental stress exacerbated differential treatment and favoritism. A total differential treatment score was calculated across domains and ranged from 10 to 30 for adolescents, 10 to 28 for first-borns and second-borns, and 6 to 18 for parents (6 to 15 for mothers and 6 to 17 for fathers).

Parents' perceived stress was measured through interview questions regarding total number hours parents work per week and their perceptions of economic pressure, work pressure, and job satisfaction. Work pressure was measured using the Work Pressure scale, a subscale from the Work Environment Scale (Moos, 1986). Marital conflict was measured using the Marital Conflict and Negativity Scale (Braiker & Kelley, 1979). Parents' job satisfaction was measured with the Job Opinion Questionnaire (Campbell, Converse & Rodgers, 1976), and economic pressure was measured by averaging parents' responses to two items, "How difficult is it for you to pay your family's bills each month?" "How much money do you have left over each month after paying your bills?" (Conger & Elder, 1994), and parents' depressive affect was measured with the short form of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).

PDT was assessed using a rating scale adapted from the SIDE. Cluster analyses were used to group families who exhibited similar profiles across a variety of measures, which revealed four clusters: all four family members concurred that PDT was below average (cluster 1); all family members reported relatively high levels of PDT (cluster 2); mothers, fathers, and younger siblings reported PDT was below average but older siblings reported PDT was well above average (cluster 3); fathers and children reported above average PDT levels but below average reports for mothers (cluster 4). It was found that parents' perceived and experienced stress in economic pressure, low job satisfaction, marital conflict, and depressive affect

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exacerbated PDT among siblings. Parents who experienced stress in these areas engaged in higher levels of PDT reported by family members. These results suggest that parents' who experience high levels of economic pressure, low levels of job satisfaction, marital conflict, and more depressive affect may be influential to parenting behaviors and are more likely to engage in PDT. This is supported by Crouter et al.'s (1999) finding that higher levels of stress was associated with above average reports of PDT, in which fathers and adolescents reported above average PDT, but mothers reported below average PDT (cluster 3). It was also found that for mothers, high levels of stress may interfere with their ability to monitor their behavior and may make them behave less effectively with their children.

Parenting Style and PDT. Parental behaviors are shaped by goals and values that are socialized within a particular ethnic or cultural group – parental expectations may organize parenting behaviors to help achieve goals for their children (Solmeyer, Killoren, McHale & Updegraff, 2011; Ren & Edwards 2015). PDT may be related to a parent's broader parenting style. Four major parenting styles have been described in the child development literature (Baumrind, 1967): authoritative, neglectful, permissive, and authoritarian. Each style has different characteristics and is thought to have different impacts on children's development. Although there is no research on parenting styles and PDT, one can speculate that parenting styles could influence PDT and that the impact of parenting styles on PDT could be mediated by one's culture.

Agreement and Conflict in Co-parenting and PDT. Co-parenting is described as the partnership between two parents. When cooperation and equilibrium in parenting is disrupted, this can lead to incongruent co-parenting. Sometimes, culturally-based differences in values can lead to conflicts over parenting strategies and differences in the way that parents treat their

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children. Parents who are experiencing dissatisfaction within their relationship may also fail to treat their children similarly in an attempt to resolve their conflict (Solmeyer et al., 2011) and their preoccupation with their own conflicts may lead to their being less aware of their parenting behaviors when they are engaging in unfair and differential treatment (Tucker et al., 2003).

In a study conducted with 243 Mexican-origin families, Solmeyer et al., (2011) examined how co-parenting patterns of differential treatment were related to these parents' reports of familism, values, gender role attitudes, and cultural orientations. Individual bilingual interviewers gathered data during home interviews. The following co-parenting patterns were examined: families in which both mothers and fathers treated their 2 offspring equally, incongruent families in which 1 parent treated both offspring equally while the other parent favored 1 offspring, and congruent families in which both parents favored the same offspring. Mothers and fathers reported on their differential affection and discipline toward their offspring using the SIDE. They also reported on familism values using a 16-item subscale of the Mexican American Cultural Values Scale for Adolescents and Adults, and reported on co-parenting satisfaction using a five-item index of marital satisfaction. Adolescents reported on their involvement in risky behavior using a 24-item questionnaire on which they rated items such as getting high or drunk.

It was found that siblings who experienced incongruent parenting, i.e., one parent was perceived as treating the children equally while the other parent was perceived as treating them unequally, reported that they engaged in more risky behaviors than youth who experienced both their parents treating their offspring equally. Children who perceived their parents treating all their offspring with equal affection and discipline, reported stronger familism values, compared to children who perceived one parent treating the children unequally (the incongruent group) or

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both parents treating their children unequally (the congruent group). Based on their findings, Solmeyer et al. (2011) suggested that parents who have similar cultural beliefs (e.g., familism) may engage in more equal parenting, fostering a healthy co-parenting relationship that involves more equal treatment, whereas, disagreement in parenting behavior may lead to PDT.

Equal Treatment of Siblings and its Role in Family Cohesion. In another study by Brody et al., (1992), family subsystems were examined (i.e., spousal or marital, parent-child, and the sibling relationship), in regard to the different ways in which families attempted to solve siblings' problems and their associations with sibling conflict. Participants included 152 middle and upper middle class school-aged Caucasian children and their mothers and fathers, who had college education or were college graduates. Older siblings ranged from 7 to 14 years old and younger siblings ranged from 5 to 12 years old, with an average age difference of 2 to7 years. Each participating sibling was asked to describe three problems he or she had with the other participating sibling and was then asked to select one of the three issues to discuss with mother and sibling. Family problem solving was examined by observing interactions between parents and siblings regarding the conflict the sibling described. Sibling interactions were observed during two home visits that took place prior to the problem-solving discussions.

Family problem solving was scored using a rating scale on the following dimensions: the Family Conflict-Harmony Scale (ranging from (1) *conflicted* to (7) *harmonious*); the Problem-Solving Style Scales (ranging from (1) *overcontrolling* – where many commands and threats of punishment with little or no discussion to (5) *moderate control* and encouragement of expression – parents allow and respect children's free expressions within limits); the Equality of Treatment of Siblings Scales (ranging from (1) *younger sibling clearly favored* – the younger sibling's problem is thoroughly more discussed and the older sibling is blamed for the problems to (4)

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equal treatment of siblings). Older siblings' perceptions of conflict were measured by the Sibling Relationship Questionnaire (SRQ), which assessed for sibling conflict. Family relationships were assessed using a couple of assessments including: Dyadic Adjustment Scale (DAS), the O'Leary Porter Scale (OPS), and the Family Relationship Inventory (FRI). Each scale assessed for family cohesion. PDT is related to the sibling relationship, negative conflict and behavior.

After examining several family variables (e.g., paternal and maternal equality of treatment, family harmony, and maternal and paternal cohesion) simultaneously, Brody et al. (1992) found that paternal equality and treatment along with family harmony during family discussions about sibling conflict and parents' perceptions of family cohesiveness are associated with lower sibling conflict levels. Findings were significant for both mothers and fathers. The study looked at a cluster of parenting behaviors, family relationship behaviors and family problem-solving behaviors. It was found that equal treatment by a parent uniquely predicted the amount of sibling conflict.

Brody et al. (1992) found that parental equal treatment, parents' perception of family cohesiveness, and family cohesion and harmony during family discussions about sibling conflict were all associated with lower sibling conflict. These findings suggest that PDT may not always be the determine the amount of sibling conflict, since having a closer relationships with parents and siblings may buffer the development of adjustment problems.

Family Ethnicity and Cultural Heritage. PDT may be influenced by cultural values and attitudes (Solmeyer et al., 2011; Chen-Buock & Patterson, 2015). It is possible that, within a family, parents may show favoritism or differential treatment toward children who subscribe to their culturally-based expectations. For example, it has been found that Latino families often

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tend to use gender as a way to organize family roles and structure – women are typically expected to be caregivers while males are expected to be providers and discipliners (Cauce & Domenech-Rodr´ıguez, 2002). In Latino families, parenting styles may be directed to promoting these gender-based roles. Particularly, boys may be favored more when they engage in masculine behavior, whereas, girls may be disciplined more for displaying similar behavior because their behavior is viewed as not gender-appropriate (Baca Zinn, 1980; Coltrane & Valdez, 1993).

Studies have found broad patterns between culture and parental levels of control and affection. For example, in a study reviewed above, Ren & Edwards (2015) found that Chinese parents tend to utilize more authoritarian and authoritative parenting styles compared to parents from communities that may have more access to resources (e.g., parent education programs). Up to now, however, there have been no studies that have directly compared PDT among different cultural groups using measures of differential control and affection with an instrument such as the SIDE. As far as the author is aware, there have also not been previous studies that compare PDT defined as general favoritism among different cultural groups. While there have been no studies comparing cultural groups, Solmeyer examined whether, within a Mexican sample, the level of Mexican-orientation impacted levels of PDT.

PDT may result from traditional cultural attitudes and practices. Also, based on cultural expectations, parents may expect different achievements for their children and may engage in differential treatment to influence certain outcomes in development (Chen-Buock & Patterson, 2015). In the same study discussed above, Solmeyer et al. (2011) examined the level of parent's cultural orientation (e.g., Anglo or Mexican-oriented) and its impact on PDT. It was found that parents with stronger Mexican-orientation were more likely to engage in equal treatment that

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involved equal distribution of affection and discipline among offspring. They speculated that this could be due to their higher level of familism values. The differences in congruent and incongruent parenting could be due to the greater emphasis on individual achievement in Anglo culture compared to Mexican-oriented culture in which family cohesion is emphasized. Familism's core value is family unity; therefore, mothers and fathers work together to endorse these principles and promote family harmony by providing equal treatment to offspring.

In comparison to Latino families, African American families have been found to be less concerned with gender and may value similar qualities among boys and girls (Lader, 1972; Swanson & Spenser, 1997). If this is the case, one might expect that their cultural values and attitudes could lead to lower levels of PDT than would be the case with non-African American families.

While there have been no studies that have looked specifically at cultural differences in scores on specific measures of PDT, based on the above discussion, it is reasonable to expect that cultural differences in the treatment of children holding various roles and positions in the family would lead to either overall favoritism shown to some offspring or differential treatment given to some offspring on the salient PDT dimensions of affection and control.

The Impact of PDT on Siblings' Adjustment

Young adulthood is an important developmental period. During young adulthood, individuals face critical developmental tasks, such as beginning to live independently, seeking work and a career, seeking romantic relationships, and developing increased emotional and psychological maturity (Arnett, 2007). Bryant & Crokenberg (1980) suggested that experiencing parental responsiveness while growing up makes children feel that their needs are being met which could be speculated to increase their chance of meeting the developmental tasks of young

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adulthood successfully. Jensen et al. (2013) have hypothesized that experiencing differences in parental treatment compared to one's siblings can impact one's adjustment and the quality of one's sibling relationship.

One way to understand the importance that PDT may play in young adult's adjustment is to view PDT in the context of social comparison theory. According to social comparison theory, individuals have the inherent drive to evaluate their own ability by comparing themselves to other people (Gibbons & Bunk, 1999) and these comparisons have an impact on their emotional and relational development (Butzer & Kuiper, 2006). It is possible to extend social comparison theory to include not only the child's evaluation of his or her abilities compared to a sibling but also the child's evaluation of how he or she is treated by parents compared to a sibling. The process of comparison involves a sibling's contrast of parental treatment within the family environment (Jensen et al., 2013). Based on this idea, it is reasonable to believe that PDT could also impact one's emotional and relational development. Research has shown that siblings who spend more time comparing parental treatment to that of a sibling have greater emotional reactions to such comparisons (Jensen, Pond, & Padilla-Walker, 2015). Research has also shown that differences between how parents treat their children (e.g., affection and support) can create hostility and conflict in the sibling relationship, which may also lead to maladjustment.

Jensen et al. (2013) conducted a study that examined the relationship of PDT, defined as favoritism and differential treatment, to individual well-being in young adulthood. They also attempted to distinguish the different impacts that these two types of PDT may have. Parents and young adult siblings completed interviews in which siblings reported levels of well-being, as well as their experience of parental favoritism. They also reported their perceptions of the magnitude of parental differential treatment in their families using a survey. Siblings reported

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their individual well-being and amount of support they received from their parents, and rated the quality of their sibling relationship with their participating sibling.

The measures of favoritism and differential parental behavior were based on the Intergenerational Support Index (Fingerman, Miller, Birditt, & Zarit, 2009). This tool explored siblings' maternal and paternal support across six dimensions: emotional, practical, financial, social, advice giving, and communication. Favoritism was measured from siblings' reports of paternal and maternal support in which difference scores were calculated for each sibling. Positive values indicated favored treatment (i.e., more support) compared to their siblings. Differential treatment was measured by taking the absolute value of the calculated difference scores used to create the favoritism variables (values ranged from 0 to 7). Scores closer to zero indicated equal treatment and higher values indicated greater differential treatment regardless of which sibling was favored. Depression was measured using the 5-item Depression subscale from the Brief Symptom Inventory. Siblings rated the extent to which they felt lonely, blue, not interested in things, hopeless about the future, or worthless in the last 7 days. Sibling intimacy was measured using items from Blyth, Hill, and Thiel's Relationship Intimacy Scale (Blyth, Hill, & Thiel, 1982), in which siblings responded to items assessing their level of intimacy with their sibling. Sibling conflict was measured using items adapted from a scale of sibling negativity in which siblings reported how often they argued, got mad or upset, and annoyed with their sibling.

Jensen et al (2013) found different results for mothers and fathers. For fathers, findings showed that siblings who were less favored by fathers tended to have more depressive symptoms. In addition, it was found that for fathers, the impact of PDT, defined as differential treatment, on well-being was larger for same gendered sibling dyads (e.g., sister-sister, brother-brother) and was associated with greater depressive symptoms. Opposite of this was the finding

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that favored siblings and siblings who reported less magnitude of differential treatment reported fewer depressive symptoms. These findings suggested that the absolute difference in parental treatment (i.e., receiving less support from one's father compared to a sibling) had a greater impact on well-being compared to just favoritism alone. For mothers, the following was found: siblings reported greater depressive symptoms when mothers engaged in greater magnitude of differential treatment, favored and less favored siblings reported more depressive symptoms when mothers engaged in greater differential treatment, and siblings who reported not receiving favoritism reported less depressive symptoms.

These results show that fewer depressive symptoms were reported when siblings experienced equal treatment compared to siblings who reported either favored or less favored treatment and differences in treatment. These results also show that PDT, defined as either favoritism or differential treatment, may have different implications for offsprings' well-being. Overall, these findings suggest that differential treatment and favoritism are associated with one's well-being, but that the magnitude of differential treatment may have more of an impact than whether one is or is not the recipient of the favoritism (i.e., receiving less favorable treatment from fathers, such as support, compared to one's sibling). Findings showed that fathers who differentiated to a greater degree among siblings resulted in greater depressive symptoms in siblings who were less favored. Furthermore, these findings are consistent with the social comparison theory and show that social comparisons among siblings can harm an individual' self-concept and result in depressive symptoms, especially in same-gendered sibling dyads.

Jeannin & Van Leeuwen (2015) conducted a study that examined the relationship of PDT to emotional adaptation such as internalizing (emotional symptoms) and externalizing

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(oppositional and aggressive) behavior. The study assessed PDT both as favoritism and as differential parenting. The study consisted of 435 nuclear families residing in Belgium who were mostly middle and upper class. Participants included the two parents and two non-twin offspring between the ages of 8 and 13. The sibling pairs included mixed gender sibling dyads. The two siblings reported about PDT and parents reported on their offsprings' conduct problems and emotional symptoms. Researchers separately examined favoritism and parenting differences using both indirect (validated measures of parenting behavior) and direct measures (based on children's perceptions of PDT).

Children completed the Parental Behavior Scale (PBS), which measured parenting practices, by rating the frequency of observable behaviors they received from each parent on a 5-point Likert scale ranging from 'never' to 'always'. These items were assigned two dimensions – positive parenting and negative behavioral control. Positive parenting reflected involvement and rule setting, whereas negative behavioral control included disciplining and corporal punishment of the child. Psychological control refers to constrain and manipulation of children's psychological and emotional experience and expression.

Individual sibling differences in parenting behavior were discussed through comparing the child reports of parents' behavior toward their sibling. Specifically, indirect sibling differences in parenting behavior were measured by subtracting the family-level mean from the child's individual score on the parenting dimensions of 'positive parenting', 'negative behavioral control', and 'psychological control'. A positive indirect difference score indicated that the child reported more of the parenting dimension as being received by himself/herself than by the sibling, and a negative indirect difference score indicated that the child reported less of that

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parenting dimension than themselves by the sibling. The absolute value of the mean scores represents the amount of differentiation among the parenting dimensions.

Direct sibling differences in parenting behavior was measured by children's answers to questions regarding *differential support*, *differential strictness*, and *differential responsibility/autonomy demands*, which were rated on a 5-point relative scale, indicating whether parental treatment was directed towards the sibling much more, same towards the sibling and me, and towards me a bit more, towards me much more. To measure indirect favoritism, children were asked to respond to two items regarding rivalry for parental attention on a 5-point Likert scale: 'How often do you feel your mother/father treats target sibling better than you?' and 'How often do you feel your mother/father treats you better than target sibling?' The child's score on the first item was subtracted from the score on the second. Direct difference scores were examined by examining items that targeted perceptions of favoritism using a 5-point relative scale, ranging from (-2) much more towards the sibling, to (2) much more towards them: 'Mom/dad treats one of us better'. Absolute scores represented the amount of differentiation in favoritism. Lastly, mothers and fathers rated '*conduct problems*' and '*emotional symptoms*' by completing the Strength and Difficulties Questionnaire (SDQ).

Jeannin & Van Leeuwen (2015) found that, among these participants, favoritism was less prevalent than perceived parenting differences. Also, direct scores showed lower differentiation between siblings than indirect scores. Paternal PDT was found to be particularly related to children's problem behavior. Favoritism was related to more problem behavior, regardless of which child received the favored treatment. The study further found that although parenting differences can be interpreted as parental favoritism, this is not always the case and therefore, differential treatment and favoritism should continue to be distinguished. In general, favoritism

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was reported less often than differential treatment. It was also found that the amount of Favoritism was lower for direct ratings compared to indirect ratings. The authors also found that perceptions of favoritism were related to perceiving more support and lower strictness (e.g., control) from their parents compared to the sibling, but it was found that differences in responsibility/autonomy demands were not related to perceptions of favoritism. Also, favoritism ratings were not related to indirect differences in positive parenting and psychological control, which suggest that not all parenting differences translate perceptions of favoritism. The authors found that absolute levels of positive parenting and psychological control were more strongly related to perceptions of favoritism than direction of differential parenting with regard to the domains of positive parenting and psychological control. With regard to absolute favoritism scores, those siblings who reported higher absolute levels of favoritism reported higher levels of positive parenting and lower levels of psychological control. The researchers also found that earlier-born and later born children in agreement with their parents' distribution of differential attention, however, they may still have different views on whether or not parents favor one of the siblings more than another sibling.

It was also found that differences in control and strictness were related to a sibling's perception of being favored or disfavored. Results also showed that absolute levels of positive parenting and psychological control showed stronger relations to perceptions of favoritism than differential parenting in the domains of support and control. This supports Jensen et al.'s (2013) idea that absolute differences in parenting behavior may be more significant than directional differences Therefore, researchers speculate that the absolute level of psychological control that one child receives in comparison to his or her sibling is predictive of internalizing behavior,

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externalizing behavior, antisocial behavior (Meunier et al., 2011; Hunter et al., 2015; Jeannin & Van Leeuwen, 2015), and may lead to conduct problems (Scholte et al., 2007).

Previous research has steadily shown that a sibling who receives less favored treatment and more behavioral control compared to his or her sibling(s) develop behavioral problems, depression, anxiety, and low self-esteem (Dunn, Stocker, & Plomin, 1990; McGuire, Dunn, & Plomin, 1995; McHale, Updegraff, Jackson-Newson, Tucker, & Crouter, 2000; Bean et al., 2003; McHale, Updegraff, Shanahan, Crouter, & Killoren, 2005). Research that has studied the impact of PDT and favoritism will be reviewed in the Self-Esteem and Sibling Relationship sections below.

Factors that Mitigate PDT's Impact on Adjustment.

Research has shown that the impact of PDT is mediated by the child's own characteristics and by characteristics of the parent other than that parent's use of PDT. (Crick et al., 2002; Kowal et al., 2006).

Siblings' Understanding of the Legitimacy of PDT. Although there has not been much exploration about children's perceptions of the legitimacy of preferential treatment (Crick et al., 2002), a few researchers have argued that children should be seen as constructors of their own social environment (Kowal et al., 2006). This study examined shared understanding of differential processes in families with adolescents ages 11 to 13 and their siblings. From this research, authors also find it is important to consider children's perspectives about the reasons for and meaning of differences in parental behaviors. Furthermore, these authors also speculated that PDT might not have a highly negative effect on a child's well-being if the child understands why the differential treatment has occurred and believes that these reasons were legitimate (Kowal et al., 2006). It is also unclear whether children who are preferred can enjoy the

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increased positive attention because they may become aware that a sibling is unnoticed. This awareness can potentially lead preferred children to feel poorly about themselves and suggests that siblings who view treatment of themselves vs. their siblings as fair or legitimate may experience higher well-being.

Some research has also found that siblings' level of agreement on whether and how much PDT exists in their family determines whether a sibling relationship is negatively impacted by differences in parental behaviors. In a study conducted by Kowal et al., (2006), it was found that siblings who agree more with each other about the fairness of differential treatment, or siblings who perceive their parents' differential behavior to be justified, describe their relationships to be more satisfactory compared to siblings who disagree about the fairness of differential treatment. Kowal et al. have suggested that sharing a common understanding about the differences in parent is part of these siblings overall better understanding of family process.

A few studies have suggested that PDT may not have as significant an impact on siblings' adjustment if one experiences more maternal and paternal closeness, more positive peer and sibling relationships, participation in family decision-making, and more family cohesion (Daniels, Dunn, Furstenberg & Plomin, 1985; Daniels and Plomin, 1985; Brody et al., 1992; Panish, 2002). In a study by Daniels, Dunn, Furstenberg, and Plomin (1985), environmental differences within the family unit and sibling behavioral differences among 346 adolescent sibling pairs between the ages of 11 and 17 were examined. Participants consisted of Caucasian families and minority families, who were mostly Black. Researchers interviewed mothers and siblings separately regarding family, friends, school, and psychological adjustment. Teachers were also asked to comment about each child's behavior. Adolescent behavioral adjustment was measured using eight scales: *parental perception of emotional distress, parental perception of*

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delinquency, parental perception of disobedience, self-perception of emotional distress, self-perception of delinquency, self-perception of dissatisfaction, teacher report of disobedience, and parent-sibling-teacher aggregate score of disobedience. Furthermore, the following nine environmental measures were utilized to assess parent-child agreement: *family stress, family cooperation, parental rule expectations, parental chore expectations, maternal closeness, paternal closeness, child's say in decisions, sibling friendliness, and peer friendliness*. Mothers provided a separate report for six of the nine measures and provided one report for the family cooperation, family stress, and parental rule expectations measures.

It was found that differences in maternal closeness, differential peer friendliness, and differences in a child's ability to be part of family decisions are predictors of differences in sibling adjustment. Despite siblings' perceptions of differential experience within the family unit, siblings who reported less peer friendliness and less maternal closeness compared to his or sibling experienced greater emotional distress as rated by the parent. Moreover. Siblings who perceived himself or herself to be more delinquent compared to their sibling reported less maternal closeness and less parental chore expectations as reported by the parent. Overall, these findings suggest that siblings' perception of the family environment may be a predictor of differences in sibling adjustment.

Furthermore, in a study conducted by Crick et al. (2002), siblings' perceptions about the legitimacy of PDT were examined in relationship to socio-emotional well-being. The study involved 135 White families and their children. The average age of the younger siblings was 11.74 years and the average age of the older siblings was 14.64 years. Researchers interviewed both siblings separately to gather information about their perceptions of their parents'

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distribution of affection and control. In an attempt to normalize differential treatment, the participants were informed that there is no correct or incorrect way for families to behave.

Siblings were given the opportunity to discuss parental preferential treatment separately from their own experiences. Two hypothetical scenarios, which were clear representations of preferential control and affection, mirrored participants' age and gender and were presented to the participants in random sequence. In one hypothetical scenario, the older child received preferred treatment and in the other scenario, the younger child received preferred treatment. The SIDE was then administered to participants to report both paternal and maternal behavior. Participant's perceptions of the fairness of parental preferential treatment were coded as 0 ("unfair) and 1 ("fair"). Socio-emotional well-being was measured by maternal reports on the Child Behavioral Checklist (CBCL) and by participants' reports on the Global Self-Worth subscale of the Perceived Competence Scale for Children. Mothers filled out the CBCL for both the older and younger child and rated the degree to which their child exhibited behaviors.

The study found that siblings who perceived parental differential behavior to be fair had lower internalizing behavior and greater self-esteem. Findings showed that siblings who perceived preferential treatment to be fair had greater self-worth and fewer internalizing problems, whereas, siblings who perceived preferential treatment to be unfair experienced lower self-worth and more behavior problems. This study's results support the idea that siblings who receive unfavorable or non-preferred treatment may not always suffer from poorer well-being and that it is important to examine how siblings construct their family experiences and environment. These findings are consistent with Kowal & Kramer's (1997) study, in which children's justification of PDT was related to the quality of his or her relationship with their sibling. This study will be reviewed later in the "Sibling Relationships" section.

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Parental Warmth. Experiencing one's parents as warm and accepting, overall, may lessen the impact of perceiving these parents as favoring one sibling over another and the impact of treating siblings in the family differently. In a study by Panish (2002), the impact of PDT during childhood on the quality of one's sibling relationship was examined. The study included 70 men and women between the ages of 19 and 58 who were biologically related to each other. Each sibling completed the Adult Sibling Rivalry Questionnaire (ASRQ), SIDE, Parental Bonding Instrument (PBI), and the Rosenberg Self-Esteem scale. The PBI measured how cold or warm siblings felt about their mother and father during their childhood; the SIDE measured PDT; the ASRQ measured sibling relationship quality; the Rosenberg Self-Esteem scale measured self-esteem.

Panish (2002) found that siblings who perceived mothers and fathers as affectionate during childhood reported better sibling relationships, felt that their sibling was less favored, and felt that their mothers and fathers were warm toward them. In addition, siblings who experienced more paternal and maternal warmth growing up were less concerned about their sibling being favored. Furthermore, it was found that as sibling conflict increased, sibling warmth decreased. These findings suggest that perceived parental and maternal warmth and affection during childhood is associated with higher self-esteem and may facilitate the quality of sibling relationships through providing support and affection during situations in which PDT occurs.

The current study will investigate how parental favoritism and parental differential treatment along the dimensions of affection and control are related to two important dimensions of adjustment in young adulthood. One of these dimensions, self-esteem, is an aspect of the young adult's internal adjustment, while the other, having satisfying sibling relationships, is an

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aspect of the young adult's social adjustment. Both of these dimensions will be reviewed below, with the review focusing first on theoretical issues, then on how parenting behavior generally impacts that dimension of adjustment, and finally, on how PDT, more specifically, has been found to have, or may be speculated to have, an impact on that dimension.

Self-Esteem

Importance and Development of Self-Esteem.

Developing positive self-esteem is a prerequisite for achieving many of the developmental tasks of young adulthood, and is especially relevant to becoming autonomous and independent (Tucker et al., 2003). The development of self-esteem occurs through one's social interactions with others (Tesser, 1980). Leary (1990) and Crocker and Park (2004) described self-esteem as a compilation of an individual's history, which is constructed throughout childhood and into adulthood, beginning with relational and emotional experiences from caregivers, family, and peers. Self-esteem is described to be a self-evaluation that a person maintains. Coopersmith (1967) and Tesser (1980) have divided self esteem into four areas: general feeling about the self, self-perception in relation to school and academics, self-perception related to social relations and peers, and self-perception in relation to parents and one's home life.

Campbell (1990) and Zervas and Sherman (1994) have shown that self-esteem, a form of affective evaluation, is involved in the development of how one views himself or herself, and has been shown to influence social behavior (Campbell, 1990; Leary, 2003; Zeigler-Hill, Fulton & McLemore, 2011). Self-esteem has also been described as a gauge of one's past, present, and future perceived relational value that is in response to one's social experiences with others (Anthony, Holmes, Wood, 2007). According to these researchers, individuals with high self-

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esteem feel like they were and will be valued by others, whereas, individuals with low self-esteem doubt their value as a social partner, which may be projected onto future relationships. It was found that self-esteem is associated with taking social initiative in social interactions and that the higher self-esteem one has, the more likely he or she will initiate social interactions (Hunter et al., 2015). This could be due to the higher level of confidence in one's self-image during social situations (Campbell, 1990), whereas, individuals with lower self-esteem may struggle with social interactions because they lack confidence in their self-image during these interactions. People with lower self-esteem are poor at articulating who they are or what they are, and are less confident about their personality attributes (Campbell, 1990).

Leary (2003) and Zeigler-Hill, and Fulton and McLemore (2011) have shown that self-esteem also influences how individuals respond to events that threaten their feelings of self-worth (Zeigler-Hill, Fulton, & McLemore, 2011) and also provides an avenue for people to find belongingness in social relationships (Leary et al., 1999). Self-esteem is an indicator of acceptance and affirmation of belongingness (Baumeister, 1998; Murray, Holmes, & Griffin, 2000), resiliency, and healthier psychosocial adjustment, all of which are important for relationship satisfaction and well-being (Betts, Trueman, Chiverton, Stanbridge, & Stephens, 2013). According to Campbell (1990), one's uncertainty of his or her self-worth can lead to deleterious consequences, including mental health, social, emotional, and motivational deficits. Research has suggested that, because individuals with high self-esteem are more likely to initiate social interactions, they are more likely to be resilient to internalizing problems, such as depression and anxiety as well. This could be due to their ability to gather social support.

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Impact of Parenting Behavior on the Development of Self-Esteem.

Researchers have suggested that parents play an important role in assisting children and adolescents to develop appropriate tools for self-esteem development. These tools include social skills and emotional regulation skills, which are used to navigate through the social world. It is through levels of affection and hostility distributed within the family relationship that a child begins to integrate his or her concept of the self in the social world (Panish & McCluskey, 1994; Zervas & Sherman, 1994; Simons, Landor, Bryant, & Beach, 2014). Also, according to Erikson (1993), children begin to feel confident about reaching their goals if they are encouraged and reinforced for their behavior between the ages of 5 and 12, the Industry vs. Inferiority stage. If parental behavior does not support children and instead causes children to feel restricted, then children begin to feel incapable of achieving their goals. In a study of African American children by Bean et al., (2003) maternal support was found to be significantly related to a child's self-esteem and achievement levels. Although this finding is specific to African American families, one can speculate parental support to be important in self-esteem development across diverse cultural backgrounds. Without appropriate levels of parental support, children may begin to doubt their ability to do well and may develop low levels of self-esteem.

Research has also indicated that parenting behavior encourages children to believe that they are loveable and worthy of others' affection and that one's self-worth is reinforced by the stable impression and perceptions that others have of you (Baumeister, 1998). According to Zervas & Sherman's symbolic interaction theory (1994), children's overall feelings about their abilities are dependent upon how their parents view them. A child's self-worth/self-esteem may be related to his or her perception of parental treatment because of the tendency to process and

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evaluate relevant information that is congruent with the pre-existing beliefs that one has about oneself (Shebloski et al., 2005).

Given the importance of parental responsiveness, it is possible that experiencing a lack of affection and warmth growing up may follow a sibling into adulthood and continue to impact young adults' self-esteem. A young adult may also continue to feel incapable of performing certain tasks due to the unstable perceptions or impressions that he or she may have received from parents during childhood and adolescence.

The Impact of PDT on Self-Esteem.

Researchers have found evidence that PDT, which has been reported to be common in family households, can impact the development of self-esteem (Dunn, McGuire, & Plomin, 1995; Jensen et al., 2015), especially when low levels of support and affection and higher levels of psychological control are present (Bean et al., 2003). Disfavored children may feel inferior, angry, depressed, or unattractive because they not provided with the same amount of affection and warmth compared to a sibling while growing up. PDT, both defined as favoritism and differential treatment, can cause children to feel unloved, unattractive, and unworthy, resulting in lower self-esteem and lower reports of positive well-being (Panish & McCluskey, 1994; Zervas & Sherman, 1994; Jensen et al., 2013). It has also been found that siblings' disagreement about PDT may impact self-esteem development (Kowal et al., 2002; Finzi-Dottan & Cohen, 2010).

In a study by Zervas & Sherman (1994), the role of perceived favoritism was examined in relation to self-esteem among 91 male and female college students who were asked to fill out a favoritism questionnaire and the Self-Esteem Inventory (SEI). The SEI evaluates attitudes across several domains that pertain to the self, such as social, school, school-academic, and home-parent. The favoritism questionnaire measured current favoritism, was created for the

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study and was pilot tested with college students. It asks participants to respond to questions twice, once for mother and once for father. Depending on the participants' reports on favoritism, participants were divided into three groups: favored, nonfavored and no favoritism (neither sibling was perceived as the favored child).

Results showed that participants in the three groups differed significantly in self-esteem. It was found that the no-favoritism group had significantly higher self-esteem scores. Both the favored and no-favoritism groups had significantly higher self-esteem than the non-favored group on the Home-Parent Subscale, but these two groups did not differ from each other. There was also a significant difference in total self-esteem between the no-favoritism group and non-favored groups. It was also found that the no-favoritism group had higher social self-esteem than the favored group. Zervas & Sherman (1994) suggest that non-favored siblings may perceive the parent-child relationship to be less rewarding compared to favored siblings or siblings who do not experience favoritism. Also, one reason for these findings could be that no-favoritism participants had higher social self-esteem because they learned how to treat others equally, which may enhance their interaction with peers; whereas, favored participants may become self-centered, and their behaviors reflecting this could lead them to reject peers or vice versa (Bieber, 1977), resulting in lower social self-esteem.

Some research has found that differential experience of parental warmth is related to self-esteem. In a study by Panish (2002), the relation between PDT, defined by differential treatment, and self-esteem among seventy men and women between the ages of 19 and 58 was examined. They found a correlation between parental affection and self-esteem. A majority of the participants were Caucasian, but the sample included African American and Latino participants as well. Participants completed the Adult Sibling Relationship Questionnaire

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(ASRQ), SIDE, and the Rosenberg Self-Esteem Scale (RSES). It was found that siblings who felt more warmth and affection from their parents compared to their sibling while growing up had higher self-esteem while those siblings who experienced less warmth and affection compared to their sibling had lower self-esteem.

Being the non-favored child can have numerous consequences for the development of self-esteem. Non-favored children may feel inferior, depressed, unloved, unattractive, and incompetent when they are treated differently compared to favored siblings (Zervas & Sherman, 1994; Noller, 2005; Rauer & Volling, 2007).

Research has shown that when parents engage in high levels of psychological control (e.g., manipulative and intrusive behavior), this may interfere with an individual's development of self-esteem (Silk, Morris, Kanaya, & Steinberg, 2003). It might be expected that when children in the family experience differences in parental control, this may negatively impact self-esteem. However, up to now there have not been clear research findings linking PDT on the dimension of control and self-esteem.

A study by Rauer & Volling (2007) examined 200 young adults, who were mostly White, from a psychology course at a university. Participants were asked to complete the two scales from the SIDE – one that measured control and affection – and another subscale to measure sibling jealousy, the Rosenberg Self-Esteem Scale to measure self-esteem, the Relationship-Questionnaire to measure models of attachment, and the Braiker and Kelley Intimate Relations Scale (1979) to assess for distress in their current relationship. For the purpose of this literature review, only the relationship between PDT and self-esteem will be discussed. Participants' self-esteem was measured by having participants complete the Rosenberg Self-Esteem Scale, which asked participants to rate statements about how they felt about themselves on a 5-point Likert

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scale. PDT was measured using the SIDE. It was found that individuals who perceived themselves to be less favored in comparison to their sibling on the Affection domain had more insecure views of themselves and lower self-esteem.

Although most research has suggested that experiencing being favored among siblings is beneficial for self-esteem development and promotes positive social behaviors and interactions, some research has been ambiguous about the overall effects of being favored (Finzi-Dottan & Cohen 2010). The authors suggested that perceived favoritism might leave the non-favored child feeling inferior, angry, unattractive, and depressed, whereas, the favored child may be left feeling both positive and negative about his or her treatment experiences. The favored sibling may feel more positive with greater adoration, affection, and overall, higher self-esteem. However, the favored child may also feel negatively about his or her experiences because sibling jealousy may arise from being treated differently than one's sibling (Finzi-Dottan & Cohen 2010).

Findings in this Finzi-Dottan & Cohen's study suggest that there may be an interaction between parental favoritism and the development of narcissism. The authors speculated that individuals who grew up being the more favored sibling might develop grandiosity and self-entitlement characteristics that encourage individuals to behave in ways that protect their self-esteem and egos. Individuals who were coddled or favored may become use to their needs being gratified, which may interfere with the development of self-esteem and self-perception in adolescence when they are expected to become more independent.

Other research has implied that non-favored children are at risk for developing narcissistic vulnerability behaviors that are a result of feeling unworthy and unloved by their parents (Finzi-Dottan & Cohen, 2010). Such a vulnerable individual may behave in ways that will fill in voids that were not responded to during childhood. Despite ambiguous findings,

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studies have suggested a common trait among siblings who experience differential treatment (i.e., more or less warmth and more or less control), which is the tendency to develop adjustment problems, lower self-esteem and narcissistic behaviors (Finzi-Dottan & Cohen 2010; Hunter et al., 2015).

Sibling Relationships

Importance of Sibling Relationships Across Development.

Sibling relationships are one of the longest enduring relationships that an individual may have. Through their sibling relationships, individuals learn social skills and how to navigate future peer relationships (Noller, 2005). Sibling relationships help teach individuals how to socialize, empathize, adapt, and adjust to presented problems (Leary, Tambor, Terdal, & Downs, 1999) that are learned from childhood to adolescence (Downey & Condron, 2004). Sibling relationships also teach social and cognitive skills that facilitate emotional regulation and cooperativeness. Research has found that siblings who have positive relationships are more likely to share their feelings with each other (Noller, 2005), which may later influence and encourage future communication about feelings with others. On the other hand, children who experience poorer quality sibling relationships may be at greater risk for the development of internalizing symptoms, such as depressed mood (Richmond, Stocker, & Reinks, 2005).

Stocker, Lanthier & Furman (1997) addressed the importance of sibling relationships in young adulthood. They described sibling relationships in early adulthood as serving as a source of support as the individual navigates different developmental transitions in life, such as getting married, developing a career, and caring for one's aging parents. They suggest that the quality of sibling relationships may be associated with overall psychological well-being. Stocker et al. also suggest that young adults who experience rivalry or conflict in their sibling relationships

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may develop low self-esteem, anxiety, and depression. Given that research has shown that sibling relationships play an important role in one's development, it is important to consider ways that PDT may impact the quality of sibling relationships.

Impact of Parenting on Sibling Relationships.

It is important to examine and understand different factors that can affect the sibling relationship, and to explore the influence caregivers have on the quality of sibling relationships and on an individual. Parental behavior and broader family-related experiences may influence the quality of sibling relationships **(**Portner & Riggs, 2016). It is suggested that parents who engage in controlling behavior rather than treating their children with care and warmth may foster the development of abnormal sensitivity that may lead to conflict, aggressiveness, rivalry and protective behavior between siblings. In addition, parental behavior that is harsh, controlling and exhibits a lack of concern or affection, has been found to be associated with emotionally distant and conflicted sibling relationships (Noller, 2005).

Parents may influence the quality of sibling relationships through social learning and congruent behavior from the parent-child relationship, which suggests that the family context provides an environment that shapes future behavior and relationships (Bandura, 1977). Taking from social learning theory, Boer, Goedhart, & Treffers (1992) and Derkman, Engels, Kuntsche, van der Vorst, & Scholte (2011) suggested that the parent-child relationship is modeled in the sibling relationship. The presence of warm and positive parent behavior encourages siblings to engage in similar behaviors with their sibling; whereas, the presence of negative behaviors in the parent-child relationship, such as punitive treatment, may carry over as harsh and aggressive behavior in sibling relationships.

Also, Brody et al. (1992) suggested that family harmony and family discussions about

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sibling problems are associated with lower sibling conflict and less likelihood of developing conflicted sibling relationships. This study also suggested that when parents engage in family discussion about sibling disputes, this could help reduce sibling conflict. These findings suggest that if families engage in thoughtful discussion regarding family experiences, perhaps including direct discussions about PDT, this may reduce the risk of developing sibling conflict.

Impact of PDT on Sibling Relationships.

There has been some research specifically focusing on the association between PDT and the quality of sibling relationships. Several studies have found that when siblings compare themselves to their siblings more, they are at higher risk for developing sibling rivalry (Finzi-Dottan & Cohen, 2010; Jensen, Pond, & Walker, 2015). Research has found that disparities in parents' treatment toward offspring undermine the quality of the sibling relationship and can create feelings of resentment and jealousy toward the favored sibling (Finzi-Dottan & Cohen, 2010). Research has also found that differences in perceived amount of affection can produce more negativity, jealousy, and tension within the sibling relationship, which in turn may indirectly impact both siblings' self-esteem and behavioral adjustment, including the occurrence of delinquent behavior (Scholte et al., 2007; Rauer, & Volling, 2007; Jensen & Whiteman, 2014).

Finzi-Dottan & Cohen (2011) have suggested that sibling relationships during adolescence are susceptible to differences in paternal affection. They suggest that siblings are fighting for the same resources, including love, support and attention. It has also been suggested that children's and adolescents' prior experiences of differential treatment can affect their psychological functioning and can create sibling rivalry that may persist into adulthood (Stocker et al., 1997; Panish & Stricker, 2002). For example, siblings may compare the amount and

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distribution of love, attention and control that parents offered while they were growing up, which can contribute to the extension of sibling rivalry into young adulthood, especially during times of transition (e.g., marriage or becoming independent by moving out (Stocker et al., 1997). Overall, these social comparisons can cause siblings to become hostile and jealous of one another, and the impact of these disruptions in their relationship can be heightened because of the closeness and duration of the sibling relationship throughout one's lifetime (Noller; 2005; Finzi-Dottan & Cohen, 2011; Birditt et al., 2013).

In an article that Noller (2005) reviewed, sibling relationships in adolescence were examined, which included work done by her research team. Her overall assessment of these findings were the following: parent-child relationships are linked with the quality of sibling relationships and that differential treatment of siblings may lead to poorer adjustment (e.g., low self-esteem) for the disfavored child. It was found that when siblings experienced unfavorable differential treatment, i.e., they perceived having received less affection and more control, which could lead to sibling jealousy. This review gathered information and results from Noller's previous studies with colleagues on sibling relationships to discuss the impact that PDT has on the sibling relationship. She conducted several studies that examined the relation between twins' perceptions of PDT and differences between twins in their experiences of communication in the sibling relationship and the link between PDT, child adjustment, and the quality of sibling relationships. The SIDE was used to assess PDT and the Conflict Resolution Style Questionnaire was used to assess sibling conflict. Twins and parents reported on the absolute difference in parenting focusing on the affection and control domains. Video observations were also used in examining the interaction between the twins. It was found that higher levels of PDT were associated with more negative behaviors reported and observed in the videotaped sessions.

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For example, it was found that twins' reports of maternal differential affection were related to the observer rating the disfavored twin as more negative during the interaction than the favored co-twin.

Additionally, in Rauer & Volling's (2007) study reviewed above, it was found that participants' reports of less parental affection in comparison to one's sibling was associated with increases in sibling jealousy, whereas, reports of more parental affection in comparison to one's sibling was associated with decreases in sibling jealousy. However, sibling jealousy was not found to be associated with parental control.

Other research has suggested that PDT may not always have a negative impact on sibling relationships. Siblings who understand the context behind differential treatment within their family (e.g., siblings who acknowledge that their sibling is different from them and is in need of differential treatment) and siblings who have better adjusted personality traits are more resilient to their experiences of differential treatment (Meunier et al., 2012). Siblings who do not perceive PDT as threatening and instead find reasons to justify or legitimize the differential treatment have better sibling relationships (Scholte et al., 2007).

Siblings who perceive PDT in similar ways may engage in better sibling relationships because they have a common understanding of the familial process (Kowal, Krull, & Kramer, 1997). In Kowal & Kramer's (1997) study reviewed earlier, siblings' perceptions of PDT and quality of current sibling relationships were examined. This study emphasizes the importance of understanding the siblings' participantive experience of PDT. Siblings were interviewed in their homes about their family relationships. The Sibling Relationship Quality (SRQ) questionnaire was used to assess participants' perceptions of one's sibling relationship on three domains: warmth and closeness, relative status/power, and conflict. It was found that higher levels of PDT

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were associated with lower levels of sibling warmth and closeness, and a greater power differential. Additionally, it was found that older siblings who perceived maternal differential treatment as fair reported less of a power differential than children who reported that PDT was unfair. Also, older siblings who reported paternal differential treatment as more fair reported higher levels of sibling warmth and closeness and lower conflict compared to those who felt it was more unfair.

Current Study

The current research will investigate the possible impact of PDT on self-esteem and sibling relationship quality, operationalized as warmth, conflict, and rivalry. Achieving success in both of these areas can be considered important developmental tasks of adolescence. In the literature review many studies were cited that examined the importance of PDT during childhood. PDT has been consistently found to impact children's development and adjustment. However, not many studies have examined the impact of PDT in young adulthood. Furthermore, in past research, PDT has focused on the negative impact of being the unfavored child. This study will also explore whether being the favored child can sometimes have a negative impact.

Moreover, most previous studies have measured PDT either as overall Favoritism or as parental differential treatment along specific parenting dimensions. The study will use both kinds of measures and therefore allow for an exploration of which conceptualization of PDT may be more salient to the outcome measures being investigated. Finally, most studies that have assessed PDT as differential treatment have not attempted to account for the actual amount of Affection and Controlling behavior the parent engages in, focusing only on whether there is a difference in the amount of behavior shown to each sibling. The current study will assess

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absolute levels of each parenting behavior dimension in order to control for this when PDT is being assessed. The sibling relationship

Hypotheses

Given the findings from previous research I predict the following:

1. It is predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling will be positively associated with Self-Esteem as measured by the Rosenberg Self-Esteem Scale. It is predicted that Maternal Directional Differential Control and Paternal Directional Differential Control will be negatively associated with Self-Esteem.
2. It is predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling will be positively related to Sibling Conflict as measured by the SIDE and Favoritism Questionnaire.
3. It is predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Differential Control, Mother General Favoritism, and Father General Favoritism will be negatively related to Sibling Warmth as measured by the SIDE and Favoritism Questionnaire.
4. It is predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism

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Towards Participant vs. Sibling will be positively related to sibling rivalry as measured by the SIDE and Favoritism Questionnaire.

Exploratory Research Questions

1. Does PDT measured as Favoritism differ from PDT measured as mother's and father's differential affection or control in its ability to predict self-esteem and the quality of the sibling relationship.
2. Does PDT when measured as an absolute difference score between affection and control received by the participant and by the sibling, impact self-esteem and the quality of the sibling relationship differently than when PDT is measured as a directional difference score for affection and control?

Chapter 3

Method

Participants

A power analysis was conducted for a Pearson correlation between sibling jealousy and paternal affection with an 80% power (1- β) and an $\alpha = .05$ and an effect size of .21 based on Rauer & Volling, 2007. The results of the power analysis indicate a minimum of 175 participants. However, we will recruit 200 ethnically diverse, male and female young adults between the ages of 18 and 25 in case of possible dropouts and other miscellaneous unforeseen circumstances. Participants volunteered to take part in a study about relationships in their family of origin. Participants were recruited in several ways: through flyers posted at school bulletin boards and community settings (e.g., gyms, churches, cafes, community centers, etc.), through recommendations of other participants, through various social media applications (e.g., Facebook, Reddit, Instagram, etc.), and through posting the study on a listing of research studies

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available to obtain extra credit for courses. For their participation, participants were entered in a raffle to receive one of three $25 gift cards to Amazon in which the winner was announced via email.

Participants were required to have been raised by at least one biological parent and to have been raised by two parents. The other parent may be a stepparent. Participants were also required to have one or more biological siblings within five years of their age, with whom they have lived for at least five years while growing up.

Measures

Favoritism Scale. Due to the lack of favoritism scales in current research, I developed a questionnaire that is aimed to assess favoritism among siblings more generally and among all children within a family unit. This scale consisted of five questions regarding favoritism – five directed towards a sibling closest in age and five directed toward all siblings. Research has shown an association between sibling's age and tendency to compare parental treatment (Jensen et al. 2015); therefore, participants will be asked to answer the following questions by comparing their experience with a sibling closest in age, once for father and once for mother: *"When I was growing up my mother favored…", "When I was growing up my mother preferred…", "When I was growing up my mother liked…", "When I was growing up my mother treated whom better?", and "When I was growing up my mother gave whom more privileges?"*. Participants were asked to rate these questions on a 7-point Likert scale ranging from, 1 = My closest sibling very much more than me, 2 = My closest sibling much more than me, 3 = My closest sibling somewhat more than me, 4 = me my closest sibling and me equally, 5 = Me somewhat more than my closest sibling, 6 = Me much more than my closest sibling, 7 = Me very much more than my closest sibling.

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In addition, the perception of general favoritism within the family as a whole will be assessed by asking participants to respond twice to the following question: once for father and once for mother: *"When I was growing up my mother showed favoritism in the way she treated the children in our family?"; When I was growing up there was a number one child in my mother's eyes", "When I was growing up my mother liked one child more than another."; "When I was growing up my mother treated one child better than another child."; "In our family my mother gave one child more privileges than another."* Participants were asked to rate these questions on a 5-point Likert scale ranging from, 1 = not at all, 2 = very little, 3 = somewhat, 4 = a lot, 5 = very much.

Sibling Inventory of Differential Experience (SIDE). The questionnaire explores the magnitude of psychosocial-affective differential sibling experiences within the family framework through siblings' perceptions (Daniels & Plomin, 1985) and has been used across multiple studies to examine the effects of differential treatment among siblings (Kowal & Kramer, 1997; Noller, 2005; Kowal et. al., 2006). Daniels & Plomin (1985) reported satisfactory test-retest reliability for the SIDE subscales, which ranged from .77 to .85, $p < .001$, show significant correlations among all items, and show a median correlation between sibling perception of differential experience $r = -.49$. The questionnaire was developed from well-known questionnaires from between-family influences and was created to assess children's relative experiences.

Following this preliminary assessment, participants completed the original SIDE questions. The SIDE contains a total of four scales; however, only one will be used for the purpose of this study and is called *Differential Parental Treatment.* It included nine items that assessed two factors: affection and control. The Control scales included items that measure

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parental strictness, punishment, blame, and discipline. The Affection scales included items that measured parental pride, interest, favoritism, enjoyment, and sensitivity. Each item is answered on a 5-point Likert scale to rate the degree to which their mother and father treated them and their sibling differently. Parental treatment items are scored for both fathers and mothers as the following: 1 = toward sibling much more, 2 = toward sibling a bit more, 3 = no difference, 4 = a bit more this way toward sibling, 5 = much more toward me much more. The 5-point rating scales can provide a relative score of differential sibling experience, which takes into account the amount and direction of differential experience – which sibling perceives more conflict and how much more, and which sibling feels less parental love and how much less. High scores on all the directional variables (differential affection/control) means that the participant received more these parenting behaviors. Scores indicated the amount and direction of differential experiences. For example, which sibling felt that their mother or father "enjoyed doing things with us" and how much more or less.

For the current study, a modification of the SIDE was created that involved including an assessment of the level of parental affection and parental control shown toward the sibling participant while he or she was growing up. This involved having participants rate their parents' behaviors toward them on the 9 items of the SIDE used to assess PDT after answering the original 9 questions. Participant were asked to rate these items on a 5-point Likert scale ranging from 1 = not at all, 2 = very little, 3 = a moderate amount, 4 = a lot, 5 = very much. For example, the participant will rate an item, "has enjoyed doing things with us" using this 5-point rating scale.

The absolute amount of sibling differential experience was also scored in which the direction of differential sibling experience is disregarded. Each response was scored on a 3-point

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absolute scale in which a relative score of 3 is coded as 0 (*no difference in sibling experiences*), relative scores of 2 and 4 are coded as 1 *("a bit" of difference in sibling experiences*), and relative scores of 1 and 5 are coded as 2 (*much difference in sibling experiences*).

Based on the SIDE, twelve specific indices of PDT were calculated: Paternal Directional Difference in Control, Paternal Directional Difference in Paternal Affection, Maternal Directional Difference in Control, Maternal Directional Difference in Affection, Paternal Level of Differential Affection Towards the Participant, Paternal Level of Differential Control Towards the Participant, Maternal Level of Differential Affection Towards the Participant, Maternal Level of Differential Control Towards the Participant, Paternal Absolute Difference in Control, Paternal Absolute Difference in Affection, Maternal Absolute Difference in Control, and Maternal Absolute Difference in Affection.

Adult Siblings Relationship Questionnaire Short-Form (ASRQ - S). The ASRQ-S is a self-report questionnaire in which individuals are asked to evaluate the quality of their most important sibling relationship. The sibling with whom they have had the most important sibling relationship is defined as a sibling who has had the greatest impact on one's life, positive or negative. The original questionnaire consists of 81-items (Lanthier, Stocker, & Furman, 1997) and is used to assess features of sibling relationships in young adulthood and beyond. For the purpose of this study I will be using the shortened version of the ASRQ, the ASRQ-S, which consists of 47 items that assess the sibling relationship and parental favoritism. The ASRQ-S (Lanthier, Stocker & Furman, 2000) was normed on a sample of 356 female and 189 male young adult college undergraduates with a mean age of 19.48 years old. Scores show high levels of internal consistency, with warmth ($\alpha = .96$), conflict ($\alpha = .93$), and rivalry ($\alpha = .91$). Moreover,

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Warmth and Conflict scales on the ASRQ-S are highly correlated with the long versions of the scales with .95 for Warmth and .97 for Conflict.

A slightly different form of the ASRQ-S (Wallace, 2012) was used for the current study. This form of the ASRQ-S consists of the same questions as the original ASRQ-S (Lanthier et. al., 2000). However, two additional questions were added by Wallace (2014) to assess for Emotional Support – "*When you are stressed is this sibling more likely to provide emotional or practical support?" "When your sibling is stressed are you more likely to provide emotional or practical support?"* Also, the scoring in this version differs. The original ASRQ-S is scored on a 5-point Likert scale (1 = hardly at all, 2 = a little, 3 = somewhat, 4 = very much, 5 = extremely). In the ASRQ-S version being used in this study, responses for the Warmth and Conflict factors are scored on either a 3 or 4-point scale ranging from 1 to 3 (1 = hardly anything, 2 = very little, 3 = a lot; 1 = hardly at all, 2 = a little, 3 = quite a lot 4 = a lot) or 1 to 4 (1= never, 2 = rarely, 3 = occasionally, 4 = regularly). It has shown to correlate highly with the original ASRQ – *warmth* (r = .95) and *conflict* (r =. 97) and consists of three factors that show high levels of internal consistency. These factors included: *warmth* (α = .96), *conflict* (α = .93), and *rivalry* (α = .91). Warmth consists of three scales: Intimacy, Support, and Knowledge. Conflict also consists of three scales: Quarrelling, Antagonism, and Dominance.

Rivalry is made up of Maternal and Paternal Rivalry, which ranges from 0 - 2, 0 indicating absence of rivalry and 2 indicating maximum rivalry. In addition, another option for response, "neither of us is/was favored", was added to assess for Rivalry. Research has shown that sibling rivalry has been significantly correlated with the SIDE's parental affection scale, r = -.53, $p < .001$, which indicates that the more affection one's parents showed the more an individual experiences receiving greater parental affection than his or her sibling, the less the

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individual felt that his or her sibling was favored (Panish & Stricker, 2002). The original questionnaire shows high levels of internal consistency for all of the scales (e.g., Acceptance, Competition, etc.), which ranged from .74 to .91, $p < .01$, and reported high test-retest reliability, which ranged from .75 - .92, $p < .01$.

The ASRQ-S contains four items that are particularly focused on the question of whether an individual experienced more favoritism by their parents. However, these items do not differentiate between favoritism experience during childhood and current favoritism in young adulthood. Therefore, these items were not be used to test the hypothesis related to favoritism in this study.

The current study assessed the sibling relationship on three scales representing the three factors that are derived from the ASRQ-S; warmth, conflict, and rivalry. Stocker et. al (2007) reported reliabilities and means of $\alpha = .88$; $M = .70$ (Rivalry), $\alpha = .93$; $M = 2.19$ (Conflict), and $\alpha = .97$; $M = 3.28$ (Warmth), which are very similar with the reliabilities found in this study.

Rosenberg Self-Esteem Scale (RSES). The Rosenberg Self-Esteem scale (1965) has been used across multiple samples to measure global self-esteem (Betts et al., 2012) and has been found to be significantly correlated with parental affection that is examined from the SIDE measure, $r = .73$ (Panish, 2002; Campbell et al., 2002). It consists of 10 items and measures evaluative attitudes, both negative and positive, across several domains of the self on a 4-point scale (1 = strongly disagree to 4 = strongly agree). Participants rate how much they agree with general feelings about themselves. Positively worded items reflect self-confidence while negatively worded items reflect self-depreciation. The participant rating on these items resulted in a single self-esteem score with high scores indicating high self-esteem. The scale

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demonstrated internal consistency of α = .52 (Betts et al., 2012). This scale was used to measure participants' self-esteem.

Procedure

Information was collected from social media (e.g., Facebook, Instagram, Reddit, etc.), and state and community college students' responses about their family of origin and sibling experiences while growing up. Participants completed a series of self-report questionnaires and an online survey. Questionnaires included the following: a demographic questionnaire, Sibling Inventory of Differential Experience (SIDE), Adult Sibling Relationship Questionnaire shortened version (ASRQ-S), Favoritism Scale, and Rosenberg's Self-Esteem Inventory (RSES). Participants were provided with a link to access the survey and self-report measures via the internet. The link provided led participants to a cover page that explains confidentiality, what the study is about, and the terms of the study. Participants clicked on "I Agree" if they agreed to the terms of the study and will then be directed to the questionnaires and survey, which was estimated to take about 33 minutes to complete.

To encourage students to participate, all participants who completed the surveys had the opportunity to enter a raffle drawing in which they will win one of three $25 gift cards to Amazon. Upon completing the survey, participants were asked to enter their email address if they want to enter the raffle. Participants were informed that their name and email will remain confidential and that they would only be used for the purpose of the raffle drawing. Random numbers would be generated through www.random.org to select three winners. The winners will be contacted via email to notify them of their prize.

Students who were currently enrolled in undergraduate courses may have the additional incentive of using their participation time to fulfill a research requirement. If agreed upon by

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departments, students will receive as many research credits as the department decides at the end of their participation.

Data Analyses

Demographic data for the study's participant was recorded. This will include information such as age, socioeconomic status (SES), gender, family of origin, and growing up in a two-parent household. A preliminary analysis was conducted to present data on the PDT variables as well as the measures of self-esteem and sibling relationship quality (sibling warmth, rivalry and conflict). This included a table containing each variable's means and standard deviations. Following this I ran a series of regression analyses in which all four PDT variables (absolute difference in perceived control, directional difference in perceived control, absolute difference in perceived affection, and directional difference in perceived affection), along with favoritism, participant gender, and how many years older or younger the participant is compared to the target sibling, are the predictor variables. In the first regression analysis, the extent to which Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling predict self-esteem were investigated. In the second regression analysis, the extent to which these variables predict sibling warmth, rivalry and conflict were investigated. Each of these regression analyses will also include covariates of age, gender, and other variables found to be associated with both the PDT measures and outcome variables.

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Chapter 4

Results

The purpose of this study was to examine the impact of parental differential treatment on self-esteem and quality of sibling relationships in young adulthood. In most of the previous studies, PDT was explored as either differential treatment (magnitude of differential treatment among certain caregiving dimensions, such as affection or control) or favoritism (general attitude of favoring one child over another) along specific parenting dimensions. This study was developed to use both kinds of measures to explore which conceptualization of PDT may be more salient to the outcome measures being investigated. Furthermore, most studies that have assessed PDT as differential treatment have not attempted to account for the actual amount of parental affection and control, focusing only on whether there is a difference in the amount of behavior shown to each sibling. The current study also assessed absolute levels of each parenting behavior dimension in order to control for this when PDT is being assessed.

Preliminary Findings

Characteristics of the Sample. Demographic information (means, standard deviations, etc.) for the participants can be found in table 1. Demographics included the age of the participant, ethnicity, sexual orientation, number of siblings within one's family, whether the participant's sibling had a physical or mental illness while living at home, whether there were others, in addition to siblings, living at home (e.g., grandparents, uncles, aunties, etc.), and whether the participant's parents are both biological parents.

The age requirement to participate in this study was between 18 to 25 years old (mean = 21.96, SD = 2.23). The most frequent age groups were 24 (16.8%), 22 (15.3%), 23 (14.7%), 21 (13.7%), 25 (14.2%) and 18 (12.6%) years old, while 4.7% were 19-years-old and 7.9% 20-

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years-old. Most participants reported that they had one sibling (49.7%), while others reported having two siblings (34%) and three or more siblings (16.2%). A majority of the participants identified as White (37.7%) and Asian (31.2%). Other ethnicities endorsed by participants included those who identified as Hispanic (6.1%), those who identified as Black/African American (1.8%), those who identified as Pacific Islander (1.8%) and those who endorsed a category titled Other (5.2%), which consisted of biracial and Native American. Participants who selected "other" were asked to clarify and type in their response in the blank space provided. For the purpose of including ethnicity in a hierarchical regression, ethnicity was broken down into three "dummy variables", which include the following: Asian/Non-Asian, Hispanic/Non-Hispanic, and Caucasian/Non-Caucasian. Sexual orientation was also broken down into three separate dummy variables so that it could be included in the hierarchical regression, and include the following: Gay/Lesbian/Not Gay/Lesbian, Heterosexual/Not Heterosexual, and Bisexual/Not Bisexual.

With regards to family dynamic, most participants lived with two biological parents (94.7.8%) and others had one biological parent and a step-parent (5.3%). Of the participants, 73.8% stated that their parents and siblings were the only ones living in the home while 26.2 % stated that they lived with others, including their aunts, uncles, cousins, and grandparents. Moreover, 22.9% of the participants stated that they had a sibling with a mental and/or physical illness, which consisted of the following: asthma, depression, anxiety, schizophrenia, Autism, eating disorders, ADHD, substance addiction, Asperger's, bipolar disorder, cerebral palsy, cancer, and severe allergies. Birth order of the participant and target sibling used for comparison in the ASRQ-S was also assessed. A majority of the participants were first born (42.4%) or second born (36.6.%). Of the remaining participants, 16.2% were third born, 3.1% were fourth

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born, and 1.6% were later born. A majority of target siblings' birth order was second born (53.4%) and first born (33%), while the remaining of the target siblings were third born (8.9%), fourth born (3.7%), and later born (1%). A large majority of the target siblings were the participants' biological sibling (not including twin) (93.7.%) while a very few were half-siblings (1%), twin (1%), step-sibling (1%), and "other" (4.2%). Participants who chose "other" did not specify in the space provided.

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Table 1

Demographic Characteristics

	N=191	(%)	Mean	SD
Participant Gender				
Female	131	68.6		
Male	60	31.4		
Participant Age				
18	24	12.6		
19	9	4.7		
20	15	7.9		
21	26	13.7		
22	29	15.3		
23	28	14.7		
24	32	16.8		
25	27	14.2		
Ethnicity				
White/Caucasian	86	45		
Asian	71	37.2		
Hispanic	14	7.3		
Black/African American	4	2.1		
Pacific Islander	4	2.1		
Other/Biracial	12	6.3		
Number of Siblings				
One	95	49.7		
Two	65	34		
Three or more	31	16.2		
			1.66	.74
Participant's Sibling with Mental or Physical Illness				
Yes	50	27.7		
No	141	72.3		
Biological Parents				
No	10	5.3		
Yes	180	94.7.		
			.95	.22
Sexual Orientation				
Heterosexual/Straight	141	73.8		
Gay/Lesbian	12	6.3		
Bisexual	38	19.9		
			1.46	.81

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Factor Analysis of the Favoritism Scale

Due to the lack of measures that assess for favoritism, a new measure was developed for this study. Two sets of questions were created for mother and father to assess for favoritism within the family, one set that assessed for general favoritism and the other set that assessed favoritism towards the participant and sibling. After running a principal factor analysis, a total of five factors emerged, which are identified as the following: Father General Favoritism (e.g., "When I was growing up my father showed favoritism in the way he treated the children in our family."), Mother Favoritism Towards Participant vs. Sibling (e.g., "When I was growing up my mother gave whom more privileges?"), Father Favoritism Towards Participant vs. Sibling (e.g., "When I was growing up my father favored..."), Mother General Favoritism (e.g., "When I was growing up my mother liked one child more than another."), and Parental Privileges Towards Participant vs. Sibling (e.g., "When I was growing up my mother gave whom more privileges?"). See table 2 for the loadings on each of these factors.

Fathers' General Favoritism accounted for the most variance in the items (36.4%), Mother's Favoritism Towards Participant vs. Sibling accounts for 23.35%, Father's Favoritism Towards Participant vs. Sibling accounts for 11.02%, Mother's General Favoritism accounts for 7.71%, and Parental Differential Privileges Towards Participant vs. Sibling accounts for 5.50% of the variance of the Favoritism scale. Parental Differential Privileges Towards Participant vs. Sibling emerged as a separate factor from the Mother General Favoritism and Father General Favoritism, which suggests that it is a different type of favoritism. This factor was notable, as it was a combination of mother and father's tendencies to grant more privileges towards the participant vs. the participant's siblings. It was the only factor that did not break down mother and father. See table 3 for reliabilities for the Favoritism Questionnaire.

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Table 2

Factor Pattern Matrix

	Factor				
Favoritism Scale Item	FGF	MGF	FFTP	MFTP	PP
9. F_treated	.920	--	--	--	--
6. Ffavchildren	.897	--	--	--	.101
8. F_liked	.893	--	--	--	--
7. F_numberone	.864	--	--	--	--
10. F_priv	.799	--	.103	--	-.211
11. M_favwho	--	.946	--	--	--
13. M_likedwho	--	.930	--	--	--
12. M_pref	--	.924	--	--	--
14. M_treatedwhom	--	.691		-.131	.157
17. F_prefwho	--	--	.911	--	--
16. F_favwho	--	--	.902	--	--
18. F_likedwho	--	--	.882	--	--
19. F_treatedwhom	--	--	.794	--	.197
2. M_numonechild	--	--	--	.959	--
3. M_liked	--	.105	-.119	.949	--
1. Mfavchildren	--	--	--	.847	--
4. M_treated	--	--	--	.843	--
5. M_priv	.112	-.110	--	.555	-.159
20. F_privwho	--	-.123	.286	--	.791
15. M_privwho	--	.244	--	-.109	.681

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.[a] Rotation converged in 7 iterations. FGF (Father General Favoritism); MGM (Mother General Favoritism); MFTP (Mother Favoritism Toward Participant vs. Sibling); FFTP (Father Favoritism Toward Participant vs. Sibling); PP (Parental Differential Privileges Towards Participant vs. Sibling). Numbers associated with each item refers to the item number on the Favoritism questionnaire, which can be found in Appendix 3.

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Table 3

Reliabilities for the Favoritism Questionnaire Items

Variable	*Cronbach's Alpha*	*Number of Items*
Mother General Favoritism	.931	5
Father General Favoritism	.948	5
Mother Favoritism Towards Participant vs. Sibling	.932	5
Father Favoritism Towards Participant vs. Sibling	.934	5
Parental Differential Privileges Towards Participant vs. Sibling	.718	5

Reliability and Descriptive Statistics of the Sibling Inventory of Differential Experiences (SIDE)

Reliability analyses were completed for the SIDE scale (see table 5). In the current study, the reliability for these four subscales was similar, ranging from .79 to .81. The current study also included additional scales that were calculated to obtain absolute scores rather than directional preference scores. The reliabilities for the absolute scales were slightly lower, ranging from .62 to .77. Furthermore, supplementary scales were created to measure the participant's experience of differential treatment (e.g., affection and control). Reliabilities for these scales ranged from .79 to .82.

The means and standard deviations for the SIDE subscales are shown in table 4. The reliabilities for the current study, including the newly added scales that assessed absolute differences, ranged from .71 to .74, which is similar to other studies that utilized the SIDE. Scholte et al., (2007) reported reliabilities of .74 and .64 for mothers and fathers (younger siblings) and .71 and .64 for mothers and fathers (older siblings)

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Table 4

Sibling Inventory of Differential Experiences (SIDE) Scale Statistics

Variable Name	*# of Items*	*Mean*	*Std. Deviation*	*N*
Maternal Directional Differential Affection	5	15.03	2.95	191
Maternal Directional Differential Control	4	13.04	2.91	191
Paternal Directional Differential Affection	5	14.71	3.39	191
Paternal Directional Differential Control	4	12.76	2.83	191
Maternal Level of Affection Towards Participant	5	17.02	4.11	191
Maternal Level of Control Towards Participant	4	11.84	3.77	191
Paternal Level of Affection Towards Participant	5	15.88	4.46	191
Paternal Level of Control Towards Participant	4	11.45	3.91	191
Absolute Maternal Difference in Control	4	.2.43	2.26	191
Absolute Maternal Difference in Affection	5	2.47	2.26	191
Absolute Paternal Difference in Control	4	2.33	2.16	191
Absolute Paternal Difference in Affection	5	2.76	2.59	191

Note. An additional 9 absolute difference variables were calculated from the 9 directional difference items, which ignores the direction of the difference. Possible absolute scores range from 9 to 27 (scores closer to 27 indicate "much difference in sibling experience").

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Table 5

Reliabilities of SIDE

SIDE subscales	*N*	*Cronbach's Alpha*
Maternal Directional Differential Control	189	.79
Paternal Directional Differential Control	190	.77
Maternal Directional Differential Affection	190	.75
Paternal Directional Differential Affection	191	.81
Maternal Level of Control Towards Participant	191	.82
Paternal Level of Control Towards Participant	191	.84
Maternal Level of Affection Towards Participant	189	.79
Paternal Level of Affection Towards Participant	189	.82
Maternal Absolute Difference in Control	189	.77
Maternal Absolute Difference in Affection	190	.71
Paternal Absolute Difference Affection	191	.77
Paternal Absolute Difference in Control	190	.74

Reliability and Descriptive Statistics of the Rosenberg Self-Esteem Inventory

Reliability for the Rosenberg Self-Esteem Scale (RSES) is shown in table 5. Cronbach's alpha for the current study was .925. The Rosenberg Total Self-Esteem score is based on the 10 items of the scale ranged from 3 to 29 with a mean of 17.58 and a SD of 6.84. In the current sample, the average Self-Esteem score was in the moderate range, which is a score of 15 to 25 (Rosenberg, 1965).

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Table 6

Reliability Statistics for Rosenberg Self-Esteem Inventory (RSES)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.925	.926	10

Reliability and Descriptive Statistics of the Quality of Sibling Relationships Questionnaire-Short Form (ASRQ-S)

The ASRQ-S consists of 47 items that create three subscales, Warmth, Conflict, and Rivalry. The Rivalry subscale is made up of Paternal and Maternal Rivalry items; Conflict is made up of Quarrelling, Antagonism, and Dominance items; and Warmth is made up of Intimacy, Support, and Knowledge items. Reliability, means, and standard deviations for each subscale of the ASRQ-S can be found in table 5. A summary of means and standard deviations for the ASRQ-S subscales are presented in table 6 below. The current study had reliabilities and means of α = .88; M = 8 (Rivalry), α = .92; M = 48.64 (Conflict), and α = .93; M = 60.32 (Warmth).

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Table 7

Reliability Statistics, Means and Standard Deviations for ASRQ-S

	Cronbach's Alpha	*N*	*M*	*SD*
Sibling Warmth	.93	188	60.32	13.27
Sibling Conflict	.92	187	48.64	12.76
Sibling Rivalry	.88	191	8	6.06

Correlations of Demographic Factors with Self-Esteem and Quality of Sibling Relationships

Correlations were conducted to determine if any of the demographic or sample characteristic variables were significantly associated with any of the criterion variables: total self-esteem and quality of sibling relationship (sibling warmth, rivalry, and conflict). See table 7 for correlations of demographic and characteristic factors with criterion variables. There is a significant negative correlation between identifying as Caucasian and Sibling Conflict (r = -.172, p < .05) and between identifying as gay/lesbian and Sibling Conflict (r = -.193, p < .05). Also, significant positive correlations were found between identifying as heterosexual and Sibling Conflict (r = .187, p < .05), meaning that participants who identified as heterosexual scored higher on Sibling Conflict. Identifying as heterosexual was also significantly positively correlated with Total Self-Esteem (r = .145, p < .05), meaning that participants who identified as heterosexual scored higher on Self-Esteem. Furthermore, having three or more siblings was significantly positively correlated with Sibling Rivalry (r = .202, p < .05), meaning that participants who reported to have three or more siblings experienced more rivalry with their

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siblings. There were no demographic or participant characteristic variables that were found to be associated with Sibling Warmth.

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Table 8

Correlations of Participant Characteristic and Demographic Variables with Criterion Variables

		Others	M/P Illness	Bio Parents	self_SE	age	femal e	male	one	two	three	Heter o	Bi	G/L	Asia n	Cauc	Hisp	Tot_Conf	Tot_War	Tot_Riv	Tot SE
Others	Pearson Correlation	1	.003	-.020	-.144*	-.029	.095	-.095	-.092	.075	.029	.030	-.028	-.007	.207**	-.204**	.107	.077	-.005	.122	-.101
	Sig. (2-tailed)		.963	.787	.047	.691	.191	.191	.205	.302	.695	.685	.698	.924	.004	.005	.142	.297	.949	.092	.165
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
M/P Illness	Pearson Correlation	.003	1	-.011	-.070	-.065	.142*	-.142*	-.079	.024	.076	-.190**	.218**	-.016	-.404**	.403**	-.129	-.050	-.032	.095	-.083
	Sig. (2-tailed)	.963		.880	.338	.375	.050	.050	.280	.744	.296	.009	.002	.827	.000	.000	.074	.494	.665	.192	.254
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Bio Parents	Pearson Correlation	-.020	-.011	1	-.033	.049	-.005	.005	.189**	.021	-.286**	.020	.000	-.036	.033	-.070	-.024	.134	-.001	-.127	-.126
	Sig. (2-tailed)	.787	.880		.652	.500	.941	.941	.009	.775	.000	.787	1.000	.625	.647	.339	.745	.069	.993	.080	.084
	N	190	190	190	190	189	190	190	190	190	190	190	190	190	190	190	190	186	187	190	190
self_SE	Pearson Correlation	-.144*	-.070	-.033	1	.187**	-.001	.001	.008	-.069	.078	.107	-.033	-.141	.099	-.088	.024	-.157*	.247**	-.210**	.719**

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Table 8

	Sig. (2-tailed)	.047	.338	.652		.010	.989	.989	.910	.342	.286	.140	.655	.052	.172	.228	.738	.032	.001	.004	.000
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
age	Pearson Correlation	-.029	-.065	.049	.187**	1	-.010	.010	.009	.020	-.038	.125	-.081	-.093	.240**	-.120	-.086	-.069	-.003	.104	.187**
	Sig. (2-tailed)	.691	.375	.500	.010		.895	.895	.897	.784	.599	.085	.265	.201	.001	.100	.237	.352	.966	.154	.010
	N	190	190	189	190	190	190	190	190	190	190	190	190	190	190	190	190	186	187	190	190
female	Pearson Correlation	.095	.142*	-.005	-.001	-.010	1	-1.000**	.042	.010	-.069	.033	.111	-.243**	-.086	.091	.060	.008	.105	.078	.002
	Sig. (2-tailed)	.191	.050	.941	.989	.895		.000	.568	.891	.342	.649	.126	.001	.235	.210	.406	.919	.152	.281	.977
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
male	Pearson Correlation	-.095	-.142*	.005	.001	.010	-1.000**	1	-.042	-.010	.069	-.033	-.111	.243**	.086	-.091	-.060	-.008	-.105	-.078	-.002
	Sig. (2-tailed)	.191	.050	.941	.989	.895	.000		.568	.891	.342	.649	.126	.001	.235	.210	.406	.919	.152	.281	.977
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
one	Pearson Correlation	-.092	-.079	.189**	.008	.009	.042	-.042	1	-.534**	-.335**	-.098	.055	.088	.037	-.016	-.039	.063	.123	-.118	.004

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	Sig. (2-tailed)	.205	.280	.009	.910	.897	.568	.568		.000	.000	.176	.449	.228	.616	.823	.595	.388	.092	.105	.953
	N	191	191	190	191	190	191	191	228	228	228	191	191	191	191	191	191	187	188	191	191
two	Pearson Correlation	.075	.024	.021	-.069	.020	.010	-.010	-.534**	1	-.251**	.101	-.081	-.049	-.027	.038	.010	-.074	-.038	-.033	-.051
	Sig. (2-tailed)	.302	.744	.775	.342	.784	.891	.891	.000		.000	.165	.264	.498	.715	.597	.891	.312	.601	.652	.488
	N	191	191	190	191	190	191	191	228	228	228	191	191	191	191	191	191	187	188	191	191
three	Pearson Correlation	.029	.076	-.286**	.078	-.038	-.069	.069	-.335**	-.251**	1	.004	.030	-.055	-.015	-.027	.040	.010	-.118	.202**	.059
	Sig. (2-tailed)	.695	.296	.000	.286	.599	.342	.342	.000	.000		.959	.684	.446	.833	.707	.586	.896	.106	.005	.417
	N	191	191	190	191	190	191	191	228	228	228	191	191	191	191	191	191	187	188	191	191
Hetero	Pearson Correlation	.030	-.190**	.020	.107	.125	.033	-.033	-.098	.101	.004	1	-.837**	-.435**	.286*	-.299**	-.015	.187*	.018	-.006	.145*
	Sig. (2-tailed)	.685	.009	.787	.140	.085	.649	.649	.176	.165	.959		.000	.000	.000	.000	.833	.010	.805	.935	.046
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Bi	Pearson Correlation	-.028	.218**	.000	-.033	-.081	.111	-.111	.055	-.081	.030	-.837**	1	-.129	-.248**	.234**	.011	-.088	-.003	-.020	-.105
	Sig. (2-tailed)	.698	.002	1.000	.655	.265	.126	.126	.449	.264	.684	.000		.075	.001	.001	.882	.230	.969	.789	.146

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Table 8

	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
G/L	Pearson Correlation	-.007	-.016	-.036	-.141	-.093	-.243**	.243**	.088	-.049	-.055	-.435**	-.129	1	-.110	.156*	.010	-.193**	-.028	.043	-.088
	Sig. (2-tailed)	.924	.827	.625	.052	.201	.001	.001	.228	.498	.446	.000	.075		.130	.031	.891	.008	.702	.556	.224
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Asian	Pearson Correlation	.207**	-.404**	.033	.099	.240**	-.086	.086	.037	-.027	-.015	.286**	-.248**	-.110	1	-.696**	-.216**	.080	.052	-.109	.085
	Sig. (2-tailed)	.004	.000	.647	.172	.001	.235	.235	.616	.715	.833	.000	.001	.130		.000	.003	.277	.475	.132	.241
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Cauc	Pearson Correlation	-.204**	.403**	-.070	-.088	-.120	.091	-.091	-.016	.038	-.027	-.299**	.234**	.156*	-.696**	1	-.255**	-.172*	-.017	.090	-.101
	Sig. (2-tailed)	.005	.000	.339	.228	.100	.210	.210	.823	.597	.707	.000	.001	.031	.000		.000	.019	.820	.213	.166
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Hisp	Pearson Correlation	.107	-.129	-.024	.024	-.086	.060	-.060	-.039	.010	.040	-.015	.011	.010	-.216**	-.255**	1	.005	.001	.037	.018
	Sig. (2-tailed)	.142	.074	.745	.738	.237	.406	.406	.595	.891	.586	.833	.882	.891	.003	.000		.951	.988	.616	.807
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191

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Tot_Conf	Pearson Correlation	.077	-.050	.134	-.157*	-.069	.008	-.008	.063	-.074	.010	.187*	-.088	-.193**	.080	-.172*	.005	1	-.039	.026	-.154*
	Sig. (2-tailed)	.297	.494	.069	.032	.352	.919	.919	.388	.312	.896	.010	.230	.008	.277	.019	.951		.602	.722	.035
	N	187	187	186	187	186	187	187	187	187	187	187	187	187	187	187	187	187	185	187	187
Tot_War	Pearson Correlation	-.005	-.032	-.001	.247**	-.003	.105	-.105	.123	-.038	-.118	.018	-.003	-.028	.052	-.017	.001	-.039	1	-.368**	.254**
	Sig. (2-tailed)	.949	.665	.993	.001	.966	.152	.152	.092	.601	.106	.805	.969	.702	.475	.820	.988	.602		.000	.000
	N	188	188	187	188	187	188	188	188	188	188	188	188	188	188	188	188	185	188	188	188
Tot_Riv	Pearson Correlation	.122	.095	-.127	-.210**	.104	.078	-.078	-.118	-.033	.202*	-.006	-.020	.043	-.109	.090	.037	.026	-.368**	1	-.206**
	Sig. (2-tailed)	.092	.192	.080	.004	.154	.281	.281	.105	.652	.005	.935	.789	.556	.132	.213	.616	.722	.000		.004
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191
Tot SE	Pearson Correlation	-.101	-.083	-.126	.719**	.187*	.002	-.002	.004	-.051	.059	.145*	-.105	-.088	.085	-.101	.018	-.154*	.254**	-.206**	1
	Sig. (2-tailed)	.165	.254	.084	.000	.010	.977	.977	.953	.488	.417	.046	.146	.224	.241	.166	.807	.035	.000	.004	
	N	191	191	190	191	190	191	191	191	191	191	191	191	191	191	191	191	187	188	191	191

Note. Others (Others Living at Home); M/P (Mental/Physical Illness); Bio Parents (Biological Parents); GL (Gay/Lesbian); Hetero (Heterosexual); Cauc (Caucasian); Tot Conf (Total Conflict); Tot War (Total Warmth); Tot Riv (Total Rivalry); Tot SE (Total SE). **Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

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Correlations Among the SIDE and Favoritism Variables

Correlations among all the PDT predictor variables, including all the Parental Differential Treatment variables based on the SIDE and all the Favoritism variables based on the newly developed Favoritism Questionnaire can be found in Appendix 6.

Correlations of Demographic Factors and Participant Characteristics with Parental Differential Treatment (PDT) and Favoritism Variables. Correlations of the SIDE variables and the Favoritism variables with participant demographics and participant characteristics are shown in table 8. The significant correlations for each demographic/participant characteristic variable are described below.

Female Participants. A significant positive correlation was found between being female and one SIDE variable: Mothers' Differential Control Toward Participant ($r = .174$, $p < .05$). Females were more likely to perceive their mothers as being more controlling toward them than toward their sibling.

Male Participants. A significant negative correlation was found between being male and one SIDE variable and one Favoritism variable. Males scored higher on Mother Differential Control Toward Participant ($r=-.174$, $p<.05$) which indicates that males were more likely than females to perceive their mothers as using more control with them than with their sibling. Males were also more likely to report lower scores on Parental Differential Privileges Towards Participant vs. Sibling ($r = .213$, $p < .05$).

Number of Siblings. Number of siblings was dummy coded into three different variables in order to include the different levels into the hierarchical regression (e.g., one = one sibling; two = two siblings, three = three or more siblings).

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There was a significant negative correlation between having one sibling and Paternal Level of Control Towards Participant (r = -.148, p < .05), Maternal Level of Control Towards Participant (r = -.163, p < .05), Paternal Absolute Difference in Affection (r = -.144, p < .05), and Father General Favoritism (r = -.230, p < .05). Having one sibling was also found to be significantly positively correlated with Paternal Directional Differential Affection (r = .174, p < .05), and with Paternal Level of Affection Towards the Participant (r = .192, p < .05).

Having two siblings was not found to be significantly correlated with any of the PDT variables.

Having three or more siblings was found to be significantly positively correlated with Paternal Absolute Difference in Control (r = .184, p < .05) and Father General Favoritism (r = .175, p < .05). A significant negative correlation was found between having three or more siblings and Father Favoritism Towards Participant vs. Sibling (r = -.203, p < .05).

Biological Parents. Whether the participant's parents were both biological was significantly negatively correlated with Paternal Absolute Difference in Affection (r = -.163, p < .05), Paternal Directional Differential Control (r = -.212, p < .05) and Father General Favoritism (r = -.159, p < .05.

Mental/Physical Illness. There was a significant negative correlation between having a sibling with mental or physical illness and Paternal Level of Control Towards the Participant (r = -.143, p < .05). There was a significant positive correlation between having a sibling with mental/physical illness and Maternal Absolute Difference in Affection (r = .159, p < .05).

Ethnicity. Ethnicity was broken down into three dummy variables to include the different levels (e.g., Asian/Non-Asian, Caucasian/Non-Caucasian, and Hispanic/Non-Hispanic) in the hierarchical regression.

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Caucasian. There was a significant positive correlation between identifying as Caucasian and Paternal Absolute Difference in Affection ($r = .165$, $p < .05$). A significant negative correlation was found between being Caucasian and Maternal Level of Control Towards the Participant ($r = -.151$, $p < .05$).

Asian. There was a significant negative correlation between identifying as Asian and Paternal Absolute Difference in Affection ($r = -.169$, $p < .05$). A significant positive correlation was found between being Asian and Maternal Level of Control Towards the Participant ($r = .154$, $p < .05$), meaning that those who identified as Asian perceived that they received higher levels of maternal differential control.

Hispanic. There was a significant positive correlation between identifying as Hispanic and Maternal Directional Differential Control ($r = .181$, $p < .05$), meaning that being Hispanic was associated with perceiving higher maternal directional difference in control.

Sexual Orientation. Sexual orientation was broken into three dummy variables in order to include the different levels (e.g., Heterosexual/Not Heterosexual, Gay/Lesbian – Not Gay/Lesbian, Bisexual/Not Bisexual).

Heterosexual. There were significant positive correlations found between being identified as heterosexual and Paternal Directional Differential Affection ($r = .224$, $p < .05$) and Paternal Level of Affection Towards the Participant ($r = .221$, $p < .05$). The first of these correlations indicates that those who identified as heterosexual experienced themselves as receiving more affection from their father compared to their sibling. The second of these correlations indicates that participants who identified as heterosexual experienced receiving more affection from their fathers. There was a significant negative correlation found between identifying as heterosexual and Maternal Absolute Difference in Affection ($r = -143$, $p < .05$), as

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well as Paternal Absolute Difference in Affection (r = -.218, p < .05). These two findings indicate that being identified as heterosexual was associated with lower perceived differences in the amount of affection given by both mothers and fathers to the participant versus the sibling, when direction of the differences in affection was not considered.

Gay/Lesbian. There was a significant positive relationship between identifying as gay/lesbian and Paternal Absolute Difference in Affection (r = .186, p < .05). This result indicated that participants who identified as gay/lesbian perceived their fathers as showing greater differences between the level of affection given to them and to their sibling without regard to which of the two was receiving the most affection. Significant negative correlations were found between identifying as gay/lesbian and Paternal Directional Differential Affection (r = -.157, p < .05) and Father Favoritism Towards Participant vs. Sibling (r = -.196, p < .05). These results indicate that identifying as gay/lesbian was associated with experiencing one's father as showing less affection toward oneself than toward the sibling, as well as with experiencing one's father as showing lower favoritism toward oneself in comparison to one's sibling.

Bisexual. There were significant negative correlations between being bisexual and Paternal Directional Differential Affection Towards the Participant (r = -.151, p < .05), and Paternal Level of Affection Towards the Participant (r = -.165, p < .05). This indicated that participants who identified as bisexual perceived their fathers as showing less affection towards oneself than toward the sibling.

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Table 9

Correlations of Participant Characteristic and Demographic Variables with PDT and Favoritism Variables

		OLAH	M/P	Bio	age	MDDA	MDDC	PDDA	PDDC	FGF	MGF	MFTPS	FFTPS	PP	Asian	Caucasian	Hispanic	Heterosexual	Gay Lesbian	Bisexual	female	one	male	two	three	MADC	MADA	PADA	PADC	PLCTS	MLCTS	MLATS	PLATS
OLAH	Pearson Correlation	1	.003	-.020	-.029	-.043	-.006	.001	.022	.101	.072	-.051	-.058	-.034	.207**	-.204**	.107	.030	-.007	-.028	.095	-.092	-.095	.075	.029	.008	.002	.019	-.057	-.028	.057	-.012	-.071
	Sig. (2-tailed)		.963	.787	.691	.559	.934	.985	.758	.166	.325	.482	.430	.638	.004	.005	.142	.685	.924	.698	.191	.205	.191	.302	.695	.917	.980	.797	.431	.698	.431	.871	.329
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
M/P	Pearson Correlation	.003	1	-.011	-.065	.041	.030	.053	-.008	-.020	.041	-.012	.065	-.031	-.404**	.403**	-.129	-.190**	-.016	.218**	.142*	-.079	-.142*	.024	.076	.050	.159*	.124	-.013	-.143*	-.119	.005	.056
	Sig. (2-tailed)	.963		.880	.375	.569	.681	.469	.911	.789	.569	.867	.374	.672	.000	.000	.074	.009	.827	.002	.050	.280	.050	.744	.296	.491	.029	.088	.857	.049	.100	.941	.444
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Bio	Pearson Correlation	-.020	-.011	1	.049	.114	-.122	.015	-.212**	-.159*	-.080	.126	-.067	.019	.033	-.070	-.024	.020	-.036	.000	-.005	.189**	.005	.021	-.286**	-.128	-.078	-.163*	-.128	-.081	-.116	.111	.079
	Sig. (2-tailed)	.787	.880		.500	.117	.094	.841	.003	.029	.273	.086	.361	.791	.647	.339	.745	.787	.625	1.000	.941	.009	.941	.775	.000	.081	.283	.025	.078	.267	.112	.129	.283
	N	190	190	190	189	190	190	190	190	189	190	188	187	189	190	190	190	190	190	190	190	190	190	190	190	188	190	190	189	190	190	188	188
age	Pearson Correlation	-.029	-.065	.049	1	.047	.067	-.050	.069	.085	.073	-.003	-.031	-.016	.240**	-.120	-.086	.125	-.093	-.081	-.010	.009	.010	.020	-.038	.082	-.038	.024	.084	.026	.061	-.003	-.048
	Sig. (2-tailed)	.691	.375	.500		.519	.359	.489	.345	.247	.315	.969	.678	.826	.001	.100	.237	.085	.201	.265	.895	.897	.895	.784	.599	.263	.605	.742	.248	.725	.400	.970	.515
	N	190	190	189	190	190	190	190	190	189	190	188	187	189	190	190	190	190	190	190	190	190	190	190	190	188	189	190	189	190	190	188	188
MDDA	Pearson Correlation	-.043	.041	.114	.047	1	.157*	-.227**	-.133	.084	-.235**	.750**	-.209**	-.011	.111	-.025	-.021	.071	.043	-.104	-.009	-.028	.009	.020	.013	-.282**	-.019	.102	-.013	-.084	-.239**	.562**	-.089

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	Sig. (2-tailed)	.559	.569	.117	.519		.030	.002	.067	.247	.001	.000	.004	.877	.125	.735	.768	.330	.554	.151	.901	.696	.901	.784	.859	.000	.796	.158	.854	.246	.001	.000	.222
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
MDDC	Pearson Correlation	-.006	.030	-.122	.067	.157*	1	.232**	.416**	.121	.220**	-.037	.036	-.314**	-.026	.013	.181*	.140	-.058	-.119	.174*	.006	-.174*	.040	-.059	.281**	.171*	.185*	.116	.170*	.315**	-.023	.123
	Sig. (2-tailed)	.934	.681	.094	.359	.030		.001	.000	.095	.002	.610	.626	.000	.717	.862	.012	.054	.422	.103	.016	.933	.016	.585	.415	.000	.018	.011	.112	.018	.000	.749	.093
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
PDDA	Pearson Correlation	.001	.053	.015	-.050	-.227**	.232**	1	-.299**	-.365**	-.102	-.235**	.775**	.321**	-.043	-.051	.113	.224**	-.157*	-.151*	.042	.174*	-.042	-.092	-.118	.008	-.142	-.306**	-.276**	-.265**	-.121	-.008	.641**
	Sig. (2-tailed)	.985	.469	.841	.489	.002	.001		.000	.000	.159	.001	.000	.000	.551	.488	.120	.002	.031	.037	.560	.016	.560	.204	.104	.917	.051	.000	.000	.000	.094	.911	.000
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
PDDC	Pearson Correlation	.022	-.008	-.212**	.069	-.133	.416**	-.299**	1	.292**	.252**	-.128	-.352**	-.399**	.006	-.014	.089	.024	.084	-.078	.041	-.062	-.041	.008	.074	.324**	.072	.256**	.438**	.582**	.421**	-.245**	-.338**
	Sig. (2-tailed)	.758	.911	.003	.345	.067	.000	.000		.000	.000	.079	.000	.000	.938	.844	.222	.741	.248	.286	.573	.395	.573	.914	.310	.000	.323	.000	.000	.000	.000	.001	.000
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
FGF	Pearson Correlation	.101	-.020	-.159*	.085	.084	.121	-.365**	.292**	1	.482**	-.037	-.398**	-.283**	.018	-.053	.044	-.133	.083	.096	.028	-.230**	-.028	.108	.175*	.280**	.336**	.682**	.528**	.406**	.310**	-.154*	-.338**
	Sig. (2-tailed)	.166	.789	.029	.247	.247	.095	.000	.000		.000	.616	.000	.000	.808	.470	.548	.067	.253	.188	.703	.001	.703	.136	.016	.000	.000	.000	.000	.000	.000	.035	.000
	N	190	190	189	189	190	190	190	190	190	190	188	187	189	190	190	190	190	190	190	190	190	190	190	188	189	190	189	190	190	188	188
MGF	Pearson Correlation	.072	.041	-.080	.073	-.235**	.220**	-.102	.252**	.482**	1	-.336**	-.138	-.354**	.050	-.039	-.062	.011	-.137	.071	.057	-.103	-.057	.060	.062	.601**	.593**	.298**	.250**	.203**	.477**	-.439**	-.095
	Sig. (2-tailed)	.325	.569	.273	.315	.001	.002	.159	.000	.000		.000	.059	.000	.493	.594	.397	.877	.059	.331	.435	.158	.435	.408	.397	.000	.000	.000	.000	.005	.000	.000	.195

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	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
MFTPS	Pearson Correlation	-.051	-.012	.126	-.003	.750**	-.037	-.235**	-.128	-.037	-.336**	1	-.164*	.187*	.081	-.029	-.067	.063	.046	-.097	-.141	-.046	.141	.061	-.016	-.276**	-.082	.022	-.072	-.132	-.303**	.558**	-.054
	Sig. (2-tailed)	.482	.867	.086	.969	.000	.610	.001	.079	.616	.000		.025	.010	.270	.697	.359	.389	.531	.183	.053	.531	.053	.406	.828	.000	.263	.762	.323	.071	.000	.000	.467
	N	189	189	188	188	189	189	189	189	188	189	189	187	188	189	189	189	189	189	189	189	189	189	189	189	187	188	189	188	189	189	187	187
FFTPS	Pearson Correlation	-.058	.065	-.067	-.031	-.209**	.036	.775**	-.352**	-.398**	-.138	-.164*	1	.339**	-.047	-.024	.032	.099	-.196**	.010	.093	.142	-.093	.007	-.203**	-.015	-.155*	-.319**	-.257**	-.272**	-.144*	.066	.558**
	Sig. (2-tailed)	.430	.374	.361	.678	.004	.626	.000	.000	.000	.059	.025		.000	.520	.745	.662	.178	.007	.887	.205	.052	.205	.922	.005	.843	.034	.000	.000	.000	.049	.369	.000
	N	188	188	187	187	188	188	188	188	187	188	187	188	187	188	188	188	188	188	188	188	188	188	188	188	186	187	188	187	188	188	186	186
PP	Pearson Correlation	-.034	-.031	.019	-.016	-.011	-.314**	.321**	-.399**	-.283**	-.354**	.187*	.339**	1	.006	-.032	-.024	.030	.033	-.053	-.213**	.118	.213**	-.082	-.055	-.314**	-.268**	-.279**	-.205**	-.242**	-.400**	.227**	.327**
	Sig. (2-tailed)	.638	.672	.791	.826	.877	.000	.000	.000	.000	.000	.010	.000		.933	.661	.746	.680	.654	.467	.003	.105	.003	.263	.451	.000	.000	.000	.005	.001	.000	.002	.000
	N	190	190	189	189	190	190	190	190	189	190	188	187	190	190	190	190	190	190	190	190	190	190	190	190	188	189	190	189	190	190	188	188
Asian	Pearson Correlation	.207**	-.404**	.033	.240**	.111	-.026	-.043	.006	.018	.050	.081	-.047	.006	1	-.696**	-.216**	.286**	-.110	-.248**	-.086	.037	.086	-.027	-.015	-.111	-.103	-.169*	-.096	.043	.154*	.001	-.017
	Sig. (2-tailed)	.004	.000	.647	.001	.125	.717	.551	.938	.808	.493	.270	.520	.933		.000	.003	.000	.130	.001	.235	.616	.235	.715	.833	.129	.158	.019	.189	.557	.033	.984	.814
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Caucasian	Pearson Correlation	-.204**	.403**	-.070	-.120	-.025	.013	-.051	-.014	-.053	-.039	-.029	-.024	-.032	-.696**	1	-.255**	-.299**	.156*	.234**	.091	-.016	-.091	.038	-.027	.096	.129	.165*	.031	-.033	-.151*	-.012	-.010
	Sig. (2-tailed)	.005	.000	.339	.100	.735	.862	.488	.844	.470	.594	.697	.745	.661	.000		.000	.000	.031	.001	.210	.823	.210	.597	.707	.187	.075	.023	.674	.649	.037	.864	.897

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	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Hispanic	Pearson Correlation	.107	-.129	-.024	-.086	-.021	.181*	.113	.089	.044	-.062	-.067	.032	-.024	-.216**	-.255**	1	-.015	.010	.011	.060	-.039	-.060	.010	.040	-.022	-.068	.087	.046	.066	.055	.072	.062
	Sig. (2-tailed)	.142	.074	.745	.237	.768	.012	.120	.222	.548	.397	.359	.662	.746	.003	.000		.833	.891	.882	.406	.595	.406	.891	.586	.769	.351	.231	.525	.366	.451	.322	.398
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Heterosexual	Pearson Correlation	.030	-.190**	.020	.125	.071	.140	.224**	.024	-.133	.011	.063	.099	.030	.286**	-.299**	-.015	1	-.435**	-.837**	.033	-.098	-.033	.101	.004	.007	-.143*	-.218**	-.122	-.008	.114	.053	.221**
	Sig. (2-tailed)	.685	.009	.787	.085	.330	.054	.002	.741	.067	.877	.389	.178	.680	.000	.000	.833		.000	.000	.649	.176	.649	.165	.959	.924	.049	.003	.093	.908	.118	.470	.002
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Gay.Lesbian	Pearson Correlation	-.007	-.016	-.036	-.093	.043	-.058	-.157*	.084	.083	-.137	.046	-.196**	.033	-.110	.156*	.010	-.435**	1	-.129	-.243**	.088	.243**	-.049	-.055	-.123	.026	.186*	.075	.026	-.127	-.044	-.130
	Sig. (2-tailed)	.924	.827	.625	.201	.554	.422	.031	.248	.253	.059	.531	.007	.654	.130	.031	.891	.000		.075	.001	.228	.001	.498	.446	.091	.719	.010	.305	.723	.081	.550	.075
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
Bisexual	Pearson Correlation	-.028	.218**	.000	-.081	-.104	-.119	.151*	-.078	.096	.071	-.097	.010	-.053	-.248**	.234**	.011	-.837**	-.129	1	.111	.055	-.111	-.081	.030	.068	.141	.127	.089	-.006	-.048	-.032	-.165*
	Sig. (2-tailed)	.698	.002	1.000	.265	.151	.103	.037	.286	.188	.331	.183	.887	.467	.001	.001	.882	.000	.075		.126	.449	.126	.264	.684	.352	.052	.081	.222	.930	.508	.666	.023
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
female	Pearson Correlation	.095	.142*	-.005	-.010	-.009	.174*	.042	.041	.028	.057	-.141	.093	-.213**	-.086	.091	.060	.033	-.243**	.111	1	.042	-1.000**	.010	-.069	.032	-.096	.028	.068	.005	.037	.129	.088
	Sig. (2-tailed)	.191	.050	.941	.895	.901	.016	.560	.573	.703	.435	.053	.205	.003	.235	.210	.406	.649	.001	.126		.568	.000	.891	.342	.661	.189	.699	.354	.946	.614	.076	.227

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Table 9

	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
one	Pearson Correlation	-.092	-.079	.189**	.009	-.028	.006	.174*	-.062	-.230**	-.103	-.046	.142	.118	.037	-.016	-.039	-.098	.088	.055	.042	1	-.042	-.534**	-.335**	-.045	-.024	-.144*	-.084	-.148*	-.163*	.127	.192**
	Sig. (2-tailed)	.205	.280	.009	.897	.696	.933	.016	.395	.001	.158	.531	.052	.105	.616	.823	.595	.176	.228	.449	.568		.568	.000	.000	.540	.737	.046	.247	.040	.024	.083	.008
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	228	191	228	228	189	190	191	190	191	191	189	189
male	Pearson Correlation	-.095	-.142*	.005	.010	.009	-.174*	-.042	-.041	-.028	-.057	.141	-.093	.213**	.086	-.091	-.060	-.033	.243**	-.111	-1.000**	-.042	1	-.010	.069	-.032	.096	-.028	-.068	-.005	-.037	-.129	-.088
	Sig. (2-tailed)	.191	.050	.941	.895	.901	.016	.560	.573	.703	.435	.053	.205	.003	.235	.210	.406	.649	.001	.126	.000	.568		.891	.342	.661	.189	.699	.354	.946	.614	.076	.227
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
two	Pearson Correlation	.075	.024	.021	.020	.020	.040	-.092	.008	.108	.060	.061	.007	-.082	-.027	.038	.010	.101	-.049	-.081	.010	-.534**	-.010	1	-.251**	.011	-.058	.059	-.054	.063	.072	-.050	-.141
	Sig. (2-tailed)	.302	.744	.775	.784	.784	.585	.204	.914	.136	.408	.406	.922	.263	.715	.597	.891	.165	.498	.264	.891	.000	.891		.000	.886	.425	.414	.457	.390	.321	.495	.053
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	228	191	228	228	189	190	191	190	191	191	189	189
three	Pearson Correlation	.029	.076	-.286**	-.038	.013	-.059	-.118	.074	.175*	.062	-.016	-.203**	-.055	-.015	-.027	.040	.004	-.055	.030	-.069	-.335**	.069	-.251**	1	.047	.109	.119	.184*	.121	.128	-.108	-.080
	Sig. (2-tailed)	.695	.296	.000	.599	.859	.415	.104	.310	.016	.397	.828	.005	.451	.833	.707	.586	.959	.446	.684	.342	.000	.342	.000		.520	.133	.100	.011	.096	.077	.138	.275
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	228	191	228	228	189	190	191	190	191	191	189	189
MADC	Pearson Correlation	.008	.050	-.128	.082	-.282**	.281**	.008	.324**	.280**	.601**	-.276**	-.015	-.314**	-.111	.096	-.022	.007	-.123	.068	.032	-.045	-.032	.011	.047	1	.484**	.250**	.440**	.293**	.563**	-.350**	-.023
	Sig. (2-tailed)	.917	.491	.081	.263	.000	.000	.917	.000	.000	.000	.000	.843	.000	.129	.187	.769	.924	.091	.352	.661	.540	.661	.886	.520		.000	.001	.000	.000	.000	.000	.755

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Table 9

	N	189	189	188	188	189	189	189	189	188	189	187	186	188	189	189	189	189	189	189	189	189	189	189	188	189	189	189	189	187	187
MADA	Pearson Correlation	.002	.159*	-.078	-.038	-.019	.171*	-.142	.072	.336**	.593**	-.082	-.155*	-.268**	-.103	.129	-.068	-.143*	.026	.141	-.096	-.024	.096	-.058	.109	.484**	1	.480**	.161*	.053	.235**	-.249**	-.123
	Sig. (2-tailed)	.980	.029	.283	.605	.796	.018	.051	.323	.000	.000	.263	.034	.000	.158	.075	.351	.049	.719	.052	.189	.737	.189	.425	.133	.000		.000	.027	.470	.001	.001	.093
	N	190	190	190	189	190	190	190	190	189	190	188	187	189	190	190	190	190	190	190	190	190	190	190	190	188	190	190	189	190	190	188	188
PADA	Pearson Correlation	.019	.124	-.163*	.024	.102	.185*	-.306**	.256**	.682**	.298**	.022	.319**	-.279**	-.169*	.165*	.087	-.218**	.186*	.127	.028	-.144*	-.028	.059	.119	.250**	.480**	1	.418**	.279**	.183*	-.100	-.288**
	Sig. (2-tailed)	.797	.088	.025	.742	.158	.011	.000	.000	.000	.000	.762	.000	.000	.019	.023	.231	.003	.010	.081	.699	.046	.699	.414	.100	.001	.000		.000	.000	.011	.169	.000
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
PADC	Pearson Correlation	-.057	-.013	-.128	.084	-.013	.116	-.276**	.438**	.528**	.250**	-.072	-.257**	-.205**	-.096	.031	.046	-.122	.075	.089	.068	-.084	-.068	-.054	.184*	.440**	.161*	.418**	1	.522**	.326**	-.152*	-.269**
	Sig. (2-tailed)	.431	.857	.078	.248	.854	.112	.000	.000	.000	.000	.323	.000	.005	.189	.674	.525	.093	.305	.222	.354	.247	.354	.457	.011	.000	.027	.000		.000	.000	.037	.000
	N	190	190	189	189	190	190	190	190	189	190	188	187	189	190	190	190	190	190	190	190	190	190	190	190	189	189	190	190	190	190	188	188
PLCTS	Pearson Correlation	-.028	-.143*	-.081	.026	-.084	.170*	-.265**	.582**	.406**	.203**	-.132	-.272**	-.242**	.043	-.033	.066	-.008	.026	-.006	.005	-.148*	-.005	.063	.121	.293**	.053	.279**	.522**	1	.571**	-.136	-.284**
	Sig. (2-tailed)	.698	.049	.267	.725	.246	.018	.000	.000	.000	.005	.071	.000	.001	.557	.649	.366	.908	.723	.930	.946	.040	.946	.390	.096	.000	.470	.000	.000		.000	.063	.000
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
MLCTS	Pearson Correlation	.057	-.119	-.116	.061	-.239**	.315**	-.121	.421**	.310**	.477**	-.303**	-.144*	-.400**	.154*	-.151*	.055	.114	-.127	-.048	.037	-.163*	-.037	.072	.128	.563**	.235**	.183*	.326**	.571**	1	-.325**	-.086

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	Table 9																															
	Sig. (2-tailed)	.431	.100	.112	.400	.001	.000	.094	.000	.000	.000	.000	.049	.000	.033	.037	.451	.118	.081	.508	.614	.024	.614	.321	.077	.000	.001	.011	.000	.000		.000	.240
	N	191	191	190	190	191	191	191	191	190	191	189	188	190	191	191	191	191	191	191	191	191	191	191	191	189	190	191	190	191	191	189	189
MLATS	Pearson Correlation	-.012	.005	.111	-.003	.562**	-.023	-.008	-.245**	-.154*	-.439**	.558**	.066	.227**	.001	-.012	.072	.053	-.044	-.032	.129	.127	-.129	-.050	-.108	-.350**	-.249**	-.100	-.152*	-.136	-.325**	1	.346**
	Sig. (2-tailed)	.871	.941	.129	.970	.000	.749	.911	.001	.035	.000	.000	.369	.002	.984	.864	.322	.470	.550	.666	.076	.083	.076	.495	.138	.000	.001	.169	.037	.063	.000		.000
	N	189	189	188	188	189	189	189	189	188	189	187	186	188	189	189	189	189	189	189	189	189	189	189	189	187	188	189	188	189	189	189	189
PLATS	Pearson Correlation	-.071	.056	.079	-.048	-.089	.123	.641**	-.338**	-.338**	-.095	-.054	.558**	.327**	-.017	-.010	.062	.221**	-.130	-.165*	.088	.192**	-.088	-.141	-.080	-.023	-.123	-.288**	-.269**	-.284**	-.086	.346**	1
	Sig. (2-tailed)	.329	.444	.283	.515	.222	.093	.000	.000	.000	.195	.467	.000	.000	.814	.897	.398	.002	.075	.023	.227	.008	.227	.053	.275	.755	.093	.000	.000	.000	.240	.000	
	N	189	189	188	188	189	189	189	189	188	189	187	186	188	189	189	189	189	189	189	189	189	189	189	189	187	188	189	188	189	189	189	189

Note. Var (variable); MDDC (Maternal Directional Differential Control); MDDA (Maternal Directional Differential Affection); MLCTS (Maternal Level of Control towards the Participant); MLATS (Maternal Level of Affection towards the Participant); MADA (Maternal Absolute Difference in Affection); PADC (Paternal Absolute Difference in Control); PDDC (Paternal Directional Differential Control); PDDA (Paternal Directional Differential Affection); PLCTS (Paternal Level of Control Towards the Participant); PLATS (Paternal Level of Affection Towards the Participant); PADA (Paternal Absolute Difference in Affection); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MFTPS (Mother Favoritism Towards Participant vs. Sibling); FFTPS (Father Favoritism Towards Participant vs. Sibling). Three (three or more siblings); Bio (biological parents); M/P (sibling mental/physical illness).

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

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Assumptions of Normality

Residual analyses were used to evaluate underlying linear regression, including assumptions of linearity, homoscedasticity, and normality. The assumptions of normality for each regression analysis were examined using a probability plot, scatter plot, and histogram (see Figures 1, 2 and 3). When looking at the residual analysis for the criterion variable, total self-esteem, the histogram chart (Figure 1) shows that errors are normally distributed and fit within the "normal curve." The probability plot (Figure 2) shows that there are no deviations from the line, which suggests that errors are normally distributed. Moreover, the scatterplot (Figure 3) appears random visually, which suggests homoscedasticity, meaning that errors are similar across all values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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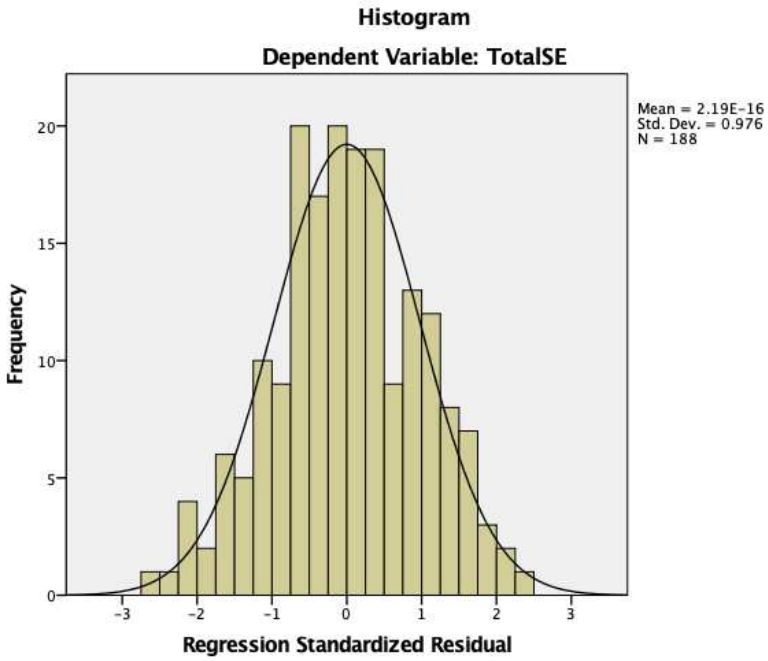

Figure 1. Histogram of total Self-Esteem. This chart shows the normal distribution of errors when testing for normality

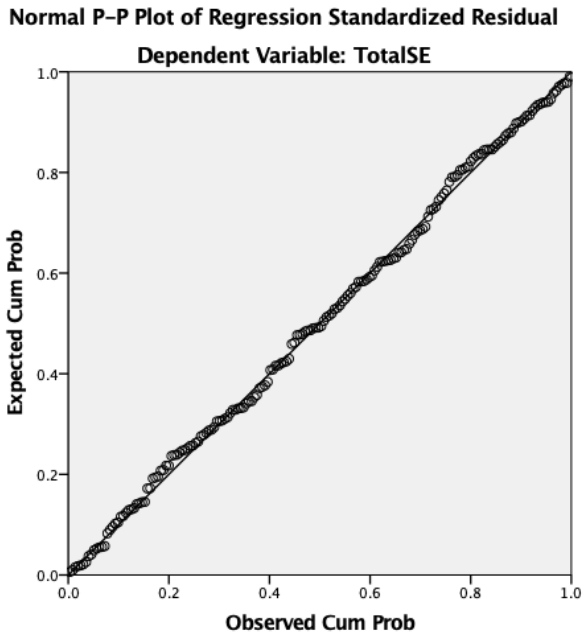

Figure 2. This probability plot shows a reasonably straight line, illustrating normally distributed errors.

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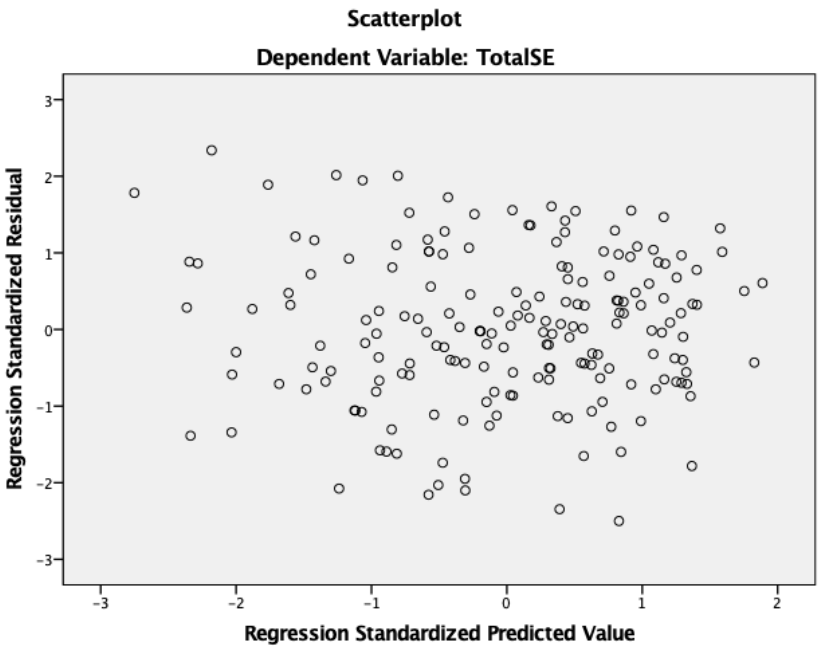

Figure 3. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar across all every predicted value of self-esteem.

Two sets of residual analyses were examined for Sibling Conflict – one set that included the directional difference variables and another set that included the absolute difference variables.

Residual analyses for Sibling Conflict (directional differences) showed that errors are mostly normally distributed within the "normal curve" (see Figure 4 for histogram). The probability plot (Figure 5) shows some deviation from the line; however, it still shows a linear pattern, which suggests that errors are normally distributed. The scatterplot below (Figure 6) shows a random spread, which suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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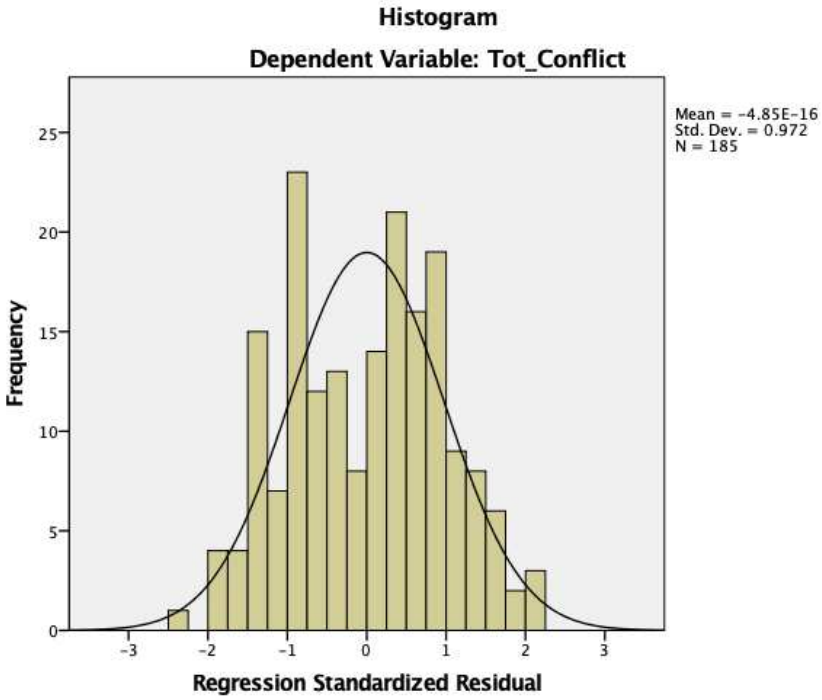

Figure 4. Histogram of total Sibling Conflict (directional difference variables). This chart shows the normal distribution of errors when testing for normality.

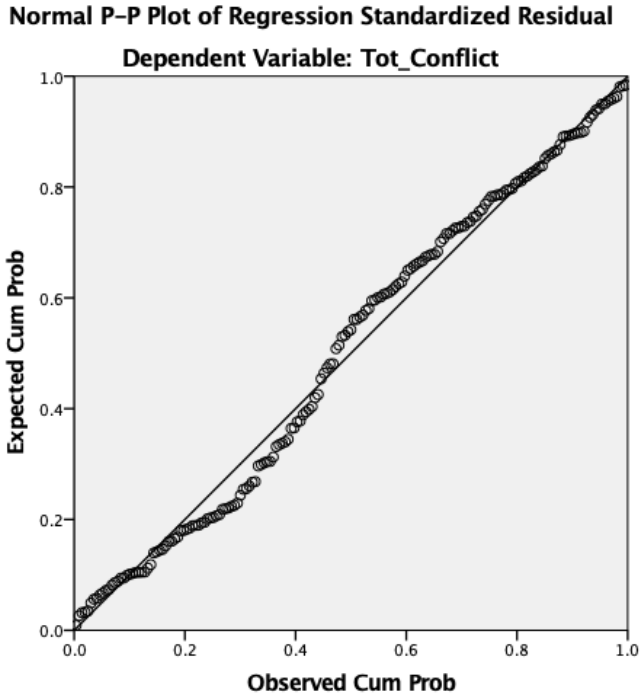

Figure 5. Directional difference variables (directional difference). This probability plot shows a reasonably straight line where variables are deviating not very far from the line, illustrating normally distributed errors.

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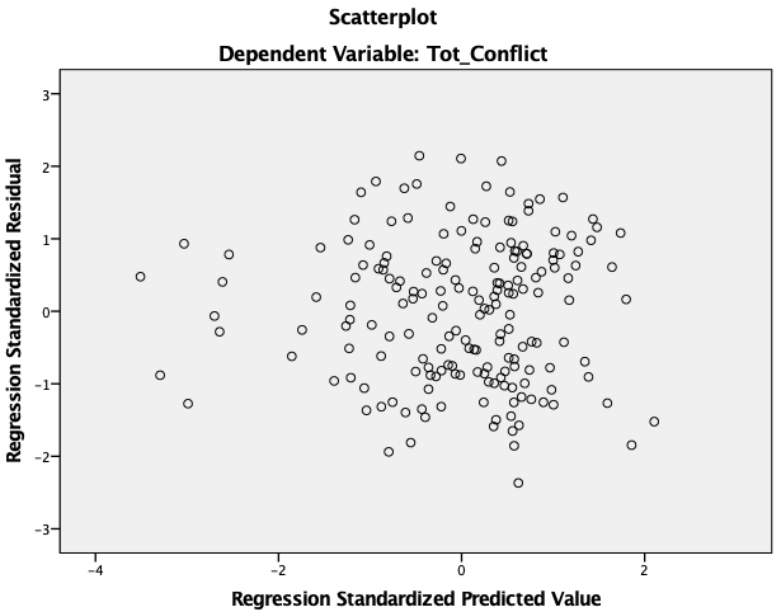

Figure 6. Directional difference variables. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling conflict.

Residual analyses for Sibling Conflict (absolute differences) showed that errors are mostly normally distributed within the "normal curve" (see Figure 7 for histogram). The probability plot (Figure 8) shows some deviation from the line; however, it still shows a linear pattern, which suggests that errors are normally distributed. The scatterplot below (Figure 9) shows a random spread, which suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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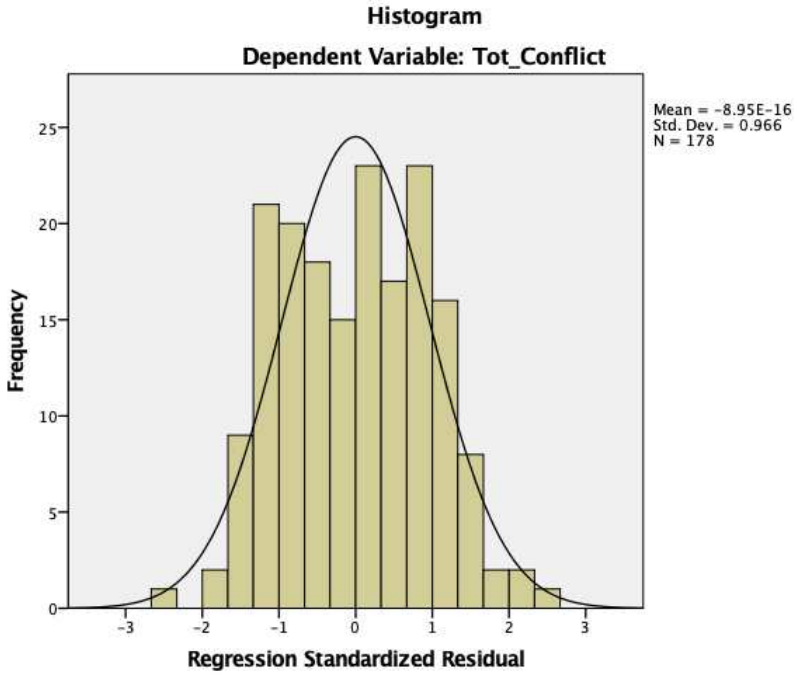

Figure 7. Histogram of total Sibling Conflict (absolute difference). This chart shows the normal distribution of errors when testing for normality.

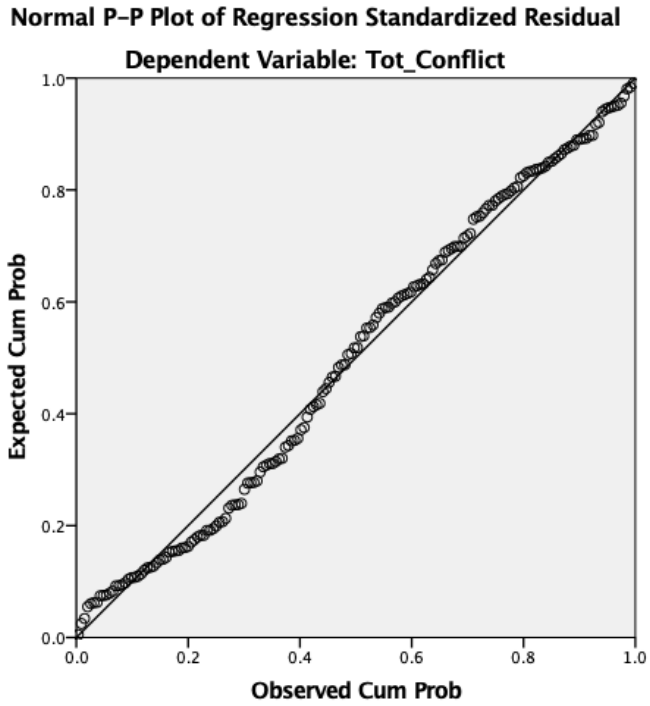

Figure 8. Absolute difference variables. This probability plot shows a reasonably straight line where variables are deviating not very far from the line, illustrating normally distributed errors

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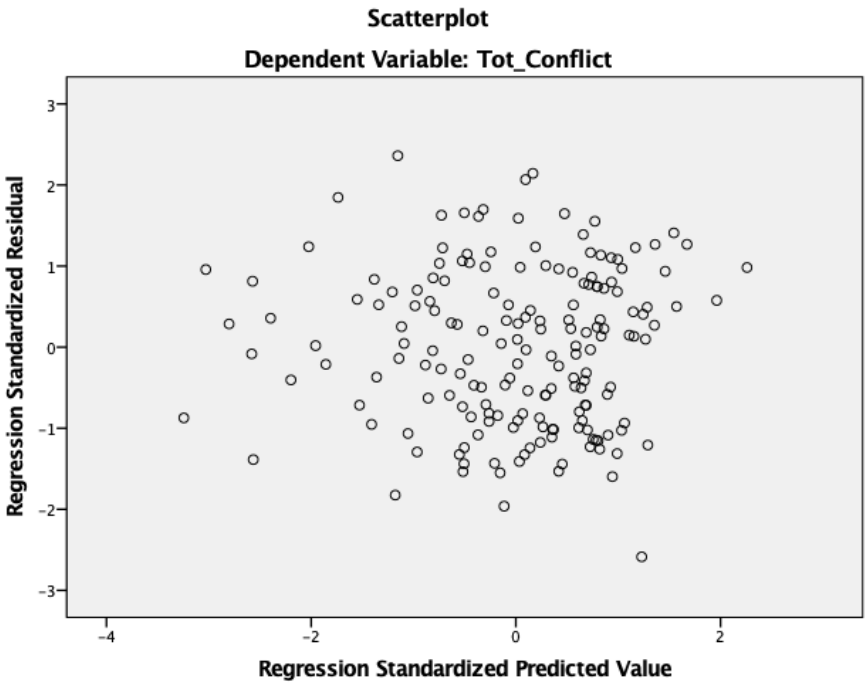

Figure 9. Absolute difference variables. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling conflict.

Two sets of residual analyses were examined for Sibling Warmth – one set that included the directional difference variables and another set that included the absolute difference variables.

Residual analyses for Sibling Warmth (directional differences) showed that errors are mostly normally distributed within the "normal curve" (see Figure 10 for histogram). The probability plot (Figure 11) shows some deviation from the line; however, it still shows a linear pattern, which suggests that errors are normally distributed. The scatterplot below (Figure 12) shows a random spread, which suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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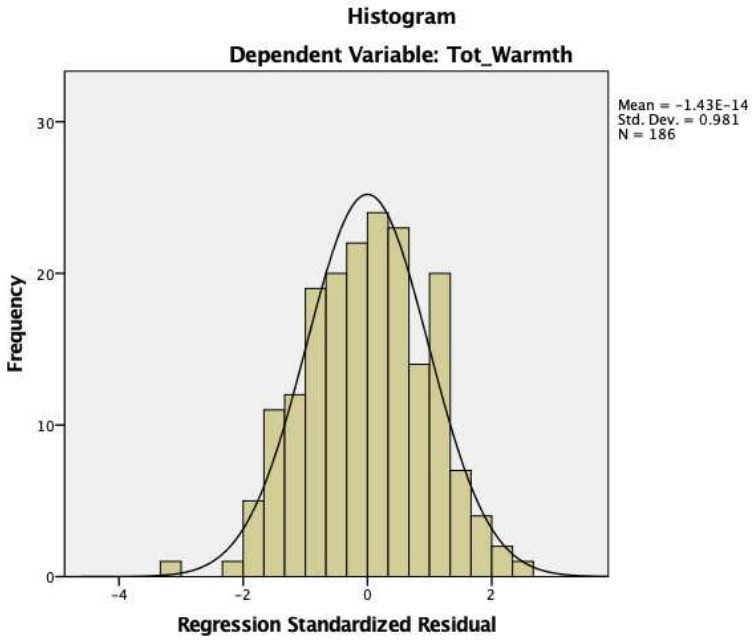

Figure 10. Histogram of total Sibling Warmth (directional differences). This chart shows the normal distribution of errors when testing for normality.

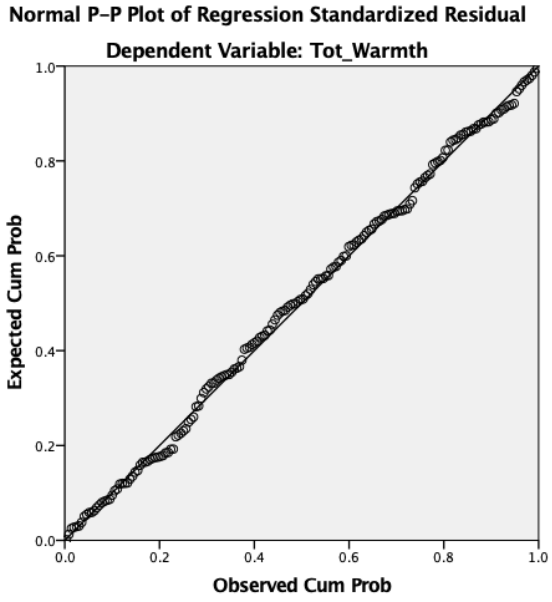

Figure 11. Directional differences. This probability plot shows a reasonably straight line, illustrating normally distributed errors.

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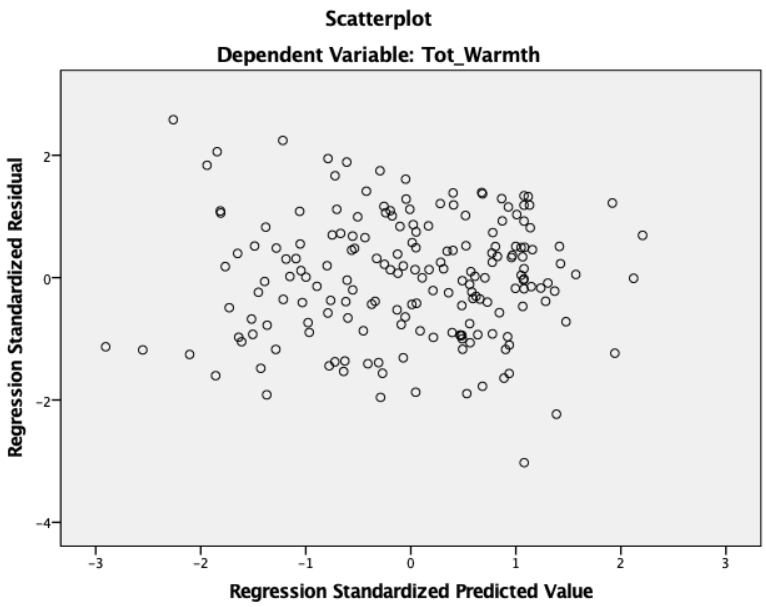

Figure 12. Directional differences. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling warmth.

Residual analyses for Sibling Warmth (absolute differences) showed that errors are mostly normally distributed within the "normal curve" (see Figure 13 for histogram). The probability plot (Figure 14) shows some deviation from the line; however, it still shows a linear pattern, which suggests that errors are normally distributed. The scatterplot below (Figure 15) shows a random spread, which suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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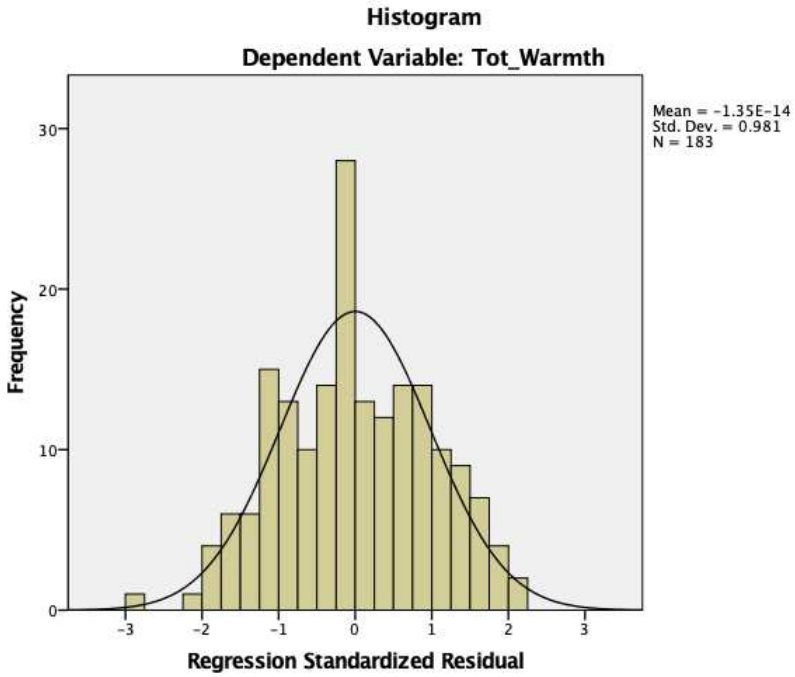

Figure 13. Histogram of total Sibling Warmth (absolute differences). This chart shows the normal distribution of errors when testing for normality.

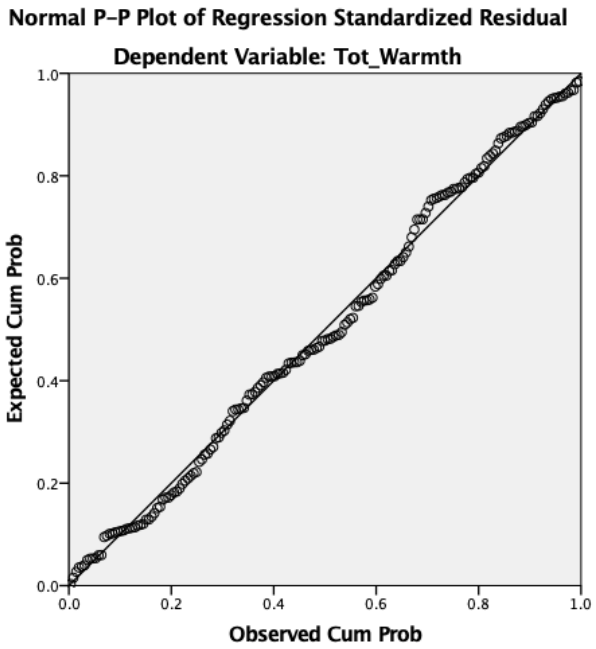

Figure 14. Absolute differences. This probability plot shows a reasonably straight line, illustrating normally distributed errors.

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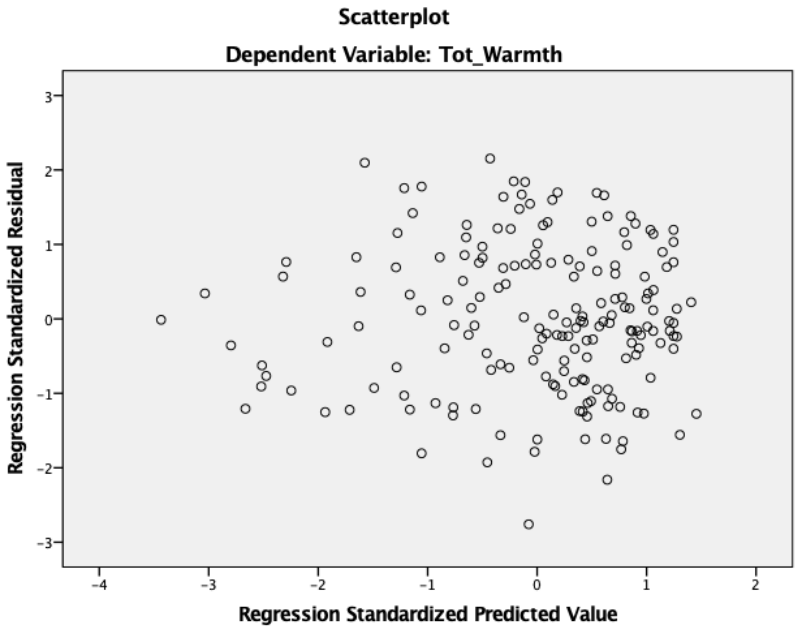

Figure 15. Absolute differences. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling warmth.

Lastly, two sets of residual analyses were also examined for Sibling Rivalry – one set that included the directional difference variables and another set that included the absolute difference variables.

Residual analyses for Sibling Rivalry (directional differences) showed that errors are normally distributed (see Figure 16 for histogram). The probability plot (figure 17) shows a linear pattern, which suggests that errors are normally distributed. Furthermore, the scatterplot (Figure 18) appears random visually, and suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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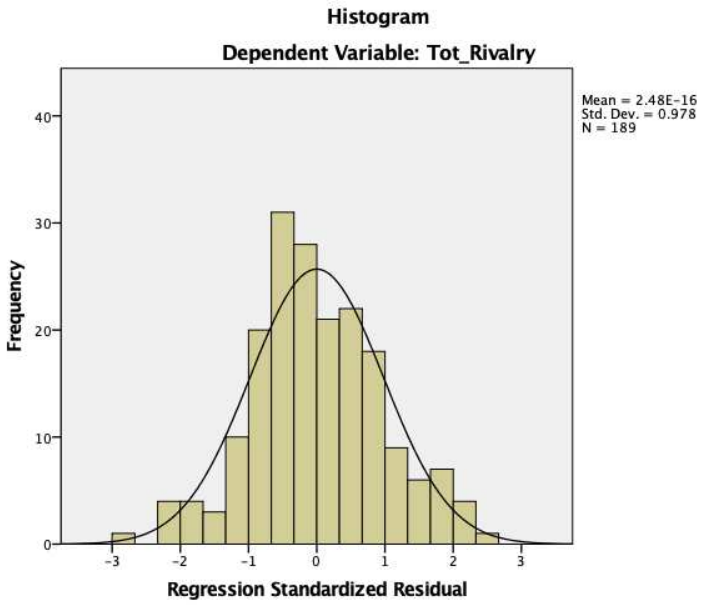

Figure 16. Histogram of total Sibling Rivalry (directional differences). This chart shows the normal distribution of errors when testing for normality

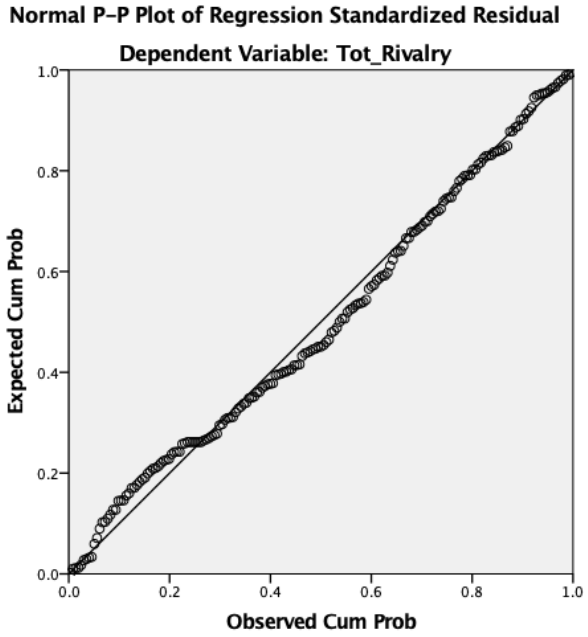

Figure 17. Directional differences. This probability plot shows a reasonably straight line where variables are deviating not very far from the line, illustrating normally distributed errors.

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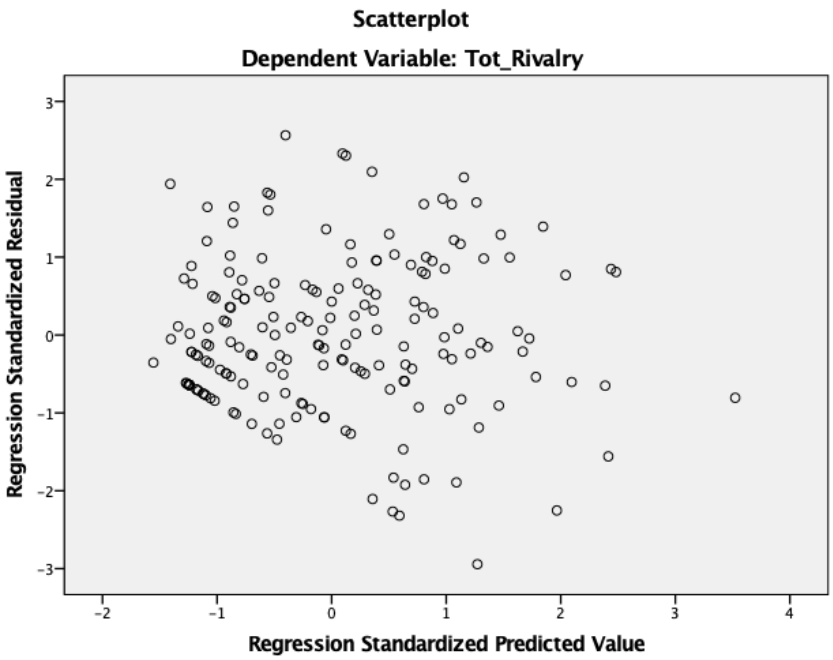

Figure 18. Directional differences. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling rivalry.

Residual analyses for Sibling Rivalry (absolute differences) showed that errors are mostly normally distributed within the "normal curve" (see Figure 19 for histogram). The probability plot (Figure 20) shows some deviation from the line; however, it still shows a linear pattern, which suggests that errors are normally distributed. The scatterplot below (Figure 21) shows a random spread, which suggests that errors are similar across values of the predictor variables. Multicollinearity was also examined by looking at tolerance and variance inflation factors (VIF) values within the residual analysis – tolerance values were not less than .3, and VIF values did not exceed 10, which suggested no issues with multicollinearity. These data analyses showed that it was unlikely that predictor variables were correlated highly with each other.

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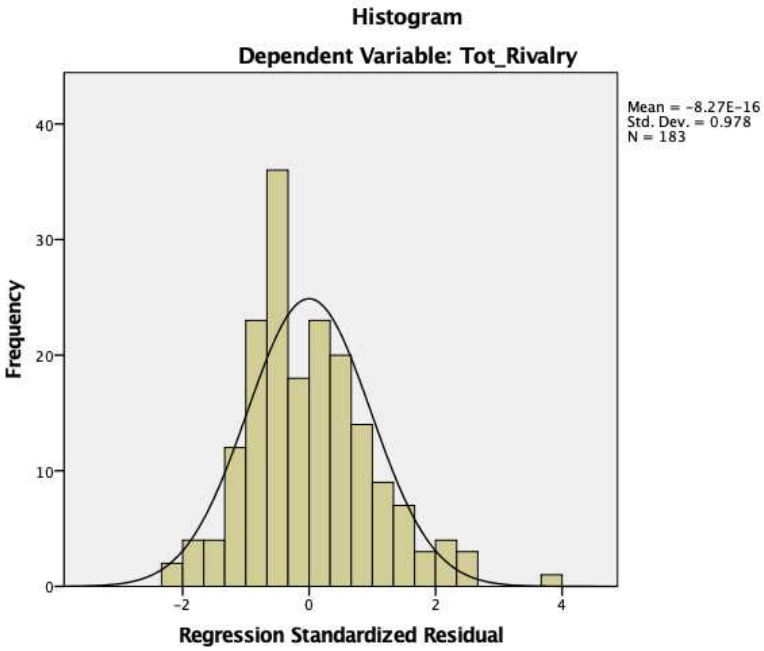

Figure 19. Histogram of total Sibling Rivalry (absolute differences). This chart shows the normal distribution of errors when testing for normality

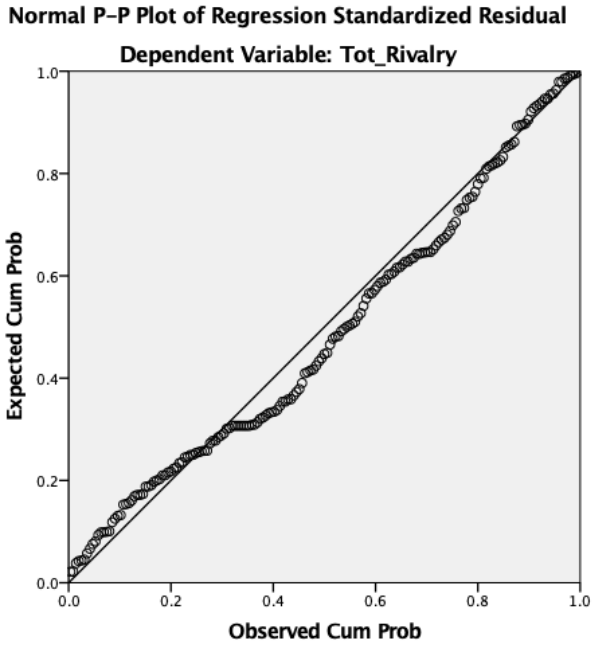

Figure 20. Absolute differences. This probability plot shows a reasonably straight line where variables are deviating not very far from the line, illustrating normally distributed errors.

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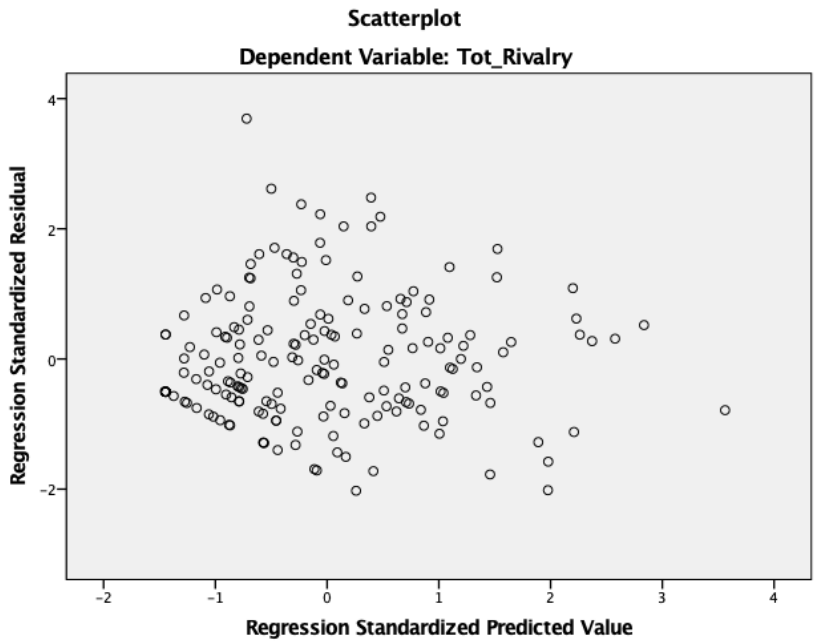

Figure 21. Absolute differences. Scatterplot of standardized predicted values vs. standardized residuals. This scatter plots looks random, which suggests homoscedasticity, meaning that errors are similar at every predicted value of sibling rivalry.

Regression Analyses Findings

Data analyses and statistics from SPSS, a statistical software, showed significant associations between various PDT and Favoritism predictor variables and the criterion variables of self-esteem and quality of sibling relationships (i.e., conflict, warmth, and rivalry). These results are discussed below. See table 9 for a summary of the significant variables in each model of the regression analyses.

As described earlier, correlations were first conducted to determine if any of the demographic or participant characteristic variables were significantly associated with the criterion variables, self-esteem, sibling conflict, sibling warmth, and sibling rivalry (see table 8). Demographic and participant characteristic variables that were found to be significantly associated with the criterion variables were controlled for, and were included as covariates in the first step of the hierarchical regression analysis, separate from PDT and favoritism variables.

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PDT variables and favoritism variables were separated in blocks two and three for the purpose of looking at the impact of favoritism beyond differential control and affection. Seven hierarchical regression analyses were created to test whether the predictor variables (i.e., the PDT and Favoritism variables) significantly predicted participants' self-esteem and quality of sibling relationships (sibling warmth, sibling conflict and sibling rivalry). Two separate regression analyses were created to separate directional differential treatment and absolute differences in treatment. Results regarding the hypotheses will be presented in different sub-sections below. First, findings involving the relationship between predictor variables and Self-Esteem will be presented. The second section will present findings found between predictor variables and Sibling Conflict. Third, results will be presented in relation to the findings between predictor variables and Sibling Warmth. Lastly, results will be presented in relation to the findings between the predictor variables and Sibling Rivalry.

It was predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling would be positively associated with self-esteem. It was predicted that Maternal Directional Differential Control and Paternal Directional Differential Control would be negatively associated with self-esteem.

The covariate, Age and Heterosexual were controlled for and entered in step 1. By adding Age and Heterosexual as covariates in step 1, the researcher was able to determine the impact that these variables had individually and separately from the SIDE and favoritism variables. Step 1 indicated that these demographic and characteristic variables statistically significantly in predicting self-esteem, $R^2 = .051$, $F(2, 185) = 5.003$, $p = .008$, and accounted for 5.1% of the variance in overall self-esteem. When considering the impact of age and identifying

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as heterosexual on self-esteem, age was a significant predictor in all three models, suggesting that age continued to be a unique predictor to self-esteem in addition to directional differences in affection and control, parental privileges, and general favoritism. Heterosexual was not significant in predicting self-esteem.

After controlling for the covariates, the following SIDE variables were included in step 2: Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control. Step 2 indicated that the linear combination of Age, Heterosexual, and the SIDE variables was found to be statistically significant in predicting self-esteem, $R^2 = .070$, F (6, 181) = 2.263, $p = .039$, and indicated that these predictor variables accounted for 7% of the variance in self-esteem. Adding the SIDE variables was not found to be statistically significant, $\Delta R^2 = .018$, $p = .467$, meaning that adding SIDE variables of maternal and paternal directional differences in affection and control did not increase the variance in self-esteem that was explained.

In step 3, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling were added to all of the predictors in steps 1 and 2 (i.e., Age, Heterosexual, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control). Step 3 indicated that the linear combination of Age, Heterosexual, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling was statistically significantly in predicting self-esteem, $R^2 = .115$, $F(9, 178) = 2.568$, $p = .008$, and accounted for 11.5% of the variance in overall self-esteem.

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The Favoritism variables were statistically significant, $\Delta R^2 = .045$, $p = .031$, indicating that 4.5% additional variance in self-esteem was uniquely associated with favoritism over and above Age, Heterosexual, and SIDE variables. Maternal Directional Differential Control had the strongest association with self-esteem. Age ($\beta = .185$, $p = .011$) and Maternal Directional Differential Control ($\beta = .218$, $p = .029$) were significantly positively associated with self-esteem. This indicated that participants who scored higher on Maternal Directional Differential Affection reported higher levels of self-esteem.

The current findings partially supported the above hypothesis. Of the six predicted variables, Maternal Directional Differential Affection was the only predictor variable that was found to be in the predicted direction, and was positively associated with self-esteem. Paternal Directional Differential Affection, Paternal Directional Differential Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling were not found to be significant in predicting self-esteem. Maternal Directional Differential Control was found to be significant in step 3; however, it was not in the predicted direction ($\beta = .218$, $p = .029$).

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Table 10

Summary of Hierarchical Regression for Self-Esteem

	R^2	ΔR^2	β	95% Bootstrap CI LL	95% Bootstrap CI UL	p	Tolerance
Step 1	.051**	.051**					
Age			.172	.042	1.010	.018	.985
Heterosexual			.127	-.334	4.040	.079	.985
Step 2	.070*	.018*					
Age			.177	.074	.985	.016	.975
Heterosexual			.117	-.592	4.027	.123	.903
MDDA			-.047	-2.654	1.591	.577	.735
MDDC			.119	-.933	4.078	.201	.594
PDDA			-.001	-2.254	2.129	.991	.571
PDDC			-.138	-3.192	.827	.157	.549
Step 3	.115**	.045**					
Age			.185	.112	1.022	.011	.966
Heterosexual			.117	-.482	4.081	.122	.885
MDDA			-.111	-3.454	.785	.213	.663
MDDC			.218	.050	6.024	.029	.509
PDDA			-.115	-3.700	1.199	.264	.471
PDDC			-.122	-3.092	1.119	.208	.536
FGF			-.092	-.366	.115	.305	.629
MGF			-.136	-.450	.037	.132	.611
PP			.104	-.293	1.066	.228	.677

Note. MDDA (Maternal Directional Differential Affection); MDDC Maternal Directional Differential Control); PDDA (Paternal Directional Differential Affection); PDDC (Paternal Directional Differential Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism).
*p <.05, **p <.01, ***p <.001.

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It was predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling would be positively related to sibling conflict.

Directional differences and absolute differences in affection and control could not be examined simultaneously due to multicollinearity. Therefore, two sets of regression analyses were created and examined for Sibling Conflict – one for directional differences and one for absolute differences.

Directional Differences and Sibling Conflict. Sexual orientation and ethnicity were controlled for, and added into step 1 of the hierarchical regression. Of the sexual orientation and ethnicity variables, Heterosexual, Gay/Lesbian, and Caucasian, were significantly associated with Sibling Conflict; therefore, they were added as covariates in step 1. By doing so, the researcher was able to determine the impact that these demographic and participant characteristic variables had individually and separately from the SIDE and favoritism variables. Step 1 indicated that these characteristic and demographic variables were found to be statistically significant in predicting sibling conflict, $R^2 = .064$, $F(3, 181) = 4.132$, $p = .007$. Heterosexual, Gay/Lesbian, and Caucasian accounted for 6.4% of the variance in overall sibling conflict.

After controlling for the covariates, the following SIDE variables were included in step 2: Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control. Step 2 indicated that the linear combination of Heterosexual, Gay/Lesbian, Caucasian, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control was found to be

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statistically significant in predicting sibling conflict, $R^2 = .081$, $F(7, 177) = 2.234$, $p = .034$. Adding the SIDE variables was not statistically significant, $\Delta R^2 = .017$, $p = .512$, meaning that adding SIDE variables did not increase the variance in sibling conflict that was explained.

In step 3, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling were added to all of the predictors in steps 1 and 2 (i.e., Heterosexual, Gay/Lesbian, and Caucasian, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control). Step 3 indicated that the linear combination of Heterosexual, Gay/Lesbian, Caucasian, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling was not found to be statistically significant in predicting sibling conflict, $R^2 = .089$, $F(10, 174) = 1.690$, $p = .086$. Adding the Favoritism variables was not statistically significant, $\Delta R^2 = .007$, $p = .706$, meaning that adding Favoritism variables (i.e., Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling) did not increase the variance in sibling conflict that was explained.

The current findings do not support the hypothesis for sibling conflict. None of the predicted variables, Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling, were found to be uniquely associated with sibling conflict. Although Caucasian was not

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found to be statistically significant in step 2 by looking at the p-value (p = .094), 95% CI [-6.735, -.192] indicated that Caucasian was a significant predictor in sibling conflict.

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Table 11

Summary of Hierarchical Regression for Sibling Conflict (Directional Differences)

	R^2	ΔR^2	β	95% Bootstrap CI		p	Tolerance
				LL	UL		
Step 1	.064**	.064**					
Heterosexual			.092	.-2.078	6.973	.263	.762
Gay/Lesbian			-.134	-7.294	.248	.095	.812
Caucasian			-.124	-6.941	.286	.101	.917
Step 2	.081*	.017					
Heterosexual			.088	-2.524	.7.313	.304	.706
Gay/Lesbian			-.114	-6.602	.489	.161	.790
Caucasian			-.127	-6.735	-.192	.094	.912
MDDA			-.058	-5.703	3.368	.498	.723
MDDC			.022	-4.899	6.532	.820	.583
PDDA			.064	-3.037	5.060	.501	.570
PDDC			-.084	-5.761	2.574	.395	.533
Step 3	.089	.007					
Heterosexual			.093	-2.346	7.308	.285	.698
Gay/Lesbian			-.114	-6.725	.648	.168	.765
Caucasian			-.118	-6.577	.058	.123	.896
MDDA			-.052	-6.156	3.574	.567	.629
MDDC			.029	-4.689	6.374	.780	.502
PDDA			.059	-3.755	6.334	.578	.468
PDDC			-.080	-5.770	2.634	.425	.522
FGF			.043	-.341	.635	.636	.629
MGF			.044	-.450	.709	.638	.601
PP			.080	-.681	1.793	.367	.678

Note. MDDA (Maternal Directional Differential Affection); MDDC Maternal Directional Differential Control); PDDA (Paternal Directional Differential Affection); PDDC (Paternal Directional Differential Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism).
*p <.05, **p <.01, ***p <.001.

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Absolute Differences and Sibling Conflict. The same demographic and participant characteristic variables entered in the directional difference regression analyses for Sibling Conflict were also entered in this regression analysis that included the absolute differences in affection and control (i.e., Caucasian, Heterosexual, and Gay/Lesbian). These variables were entered in step 1 of the regression as covariates. Step 1 indicated that the linear combination of Caucasian, Heterosexual, and Gay/Lesbian, was found to be statistically significant in predicting sibling conflict, $R^2 = .077$, $F(3, 175) = 4.896$, $p = .003$. Caucasian, Heterosexual, and Gay/Lesbian accounted for 7.7% of the variance in overall sibling conflict.

Step 2 differs from the previous regression analysis for Sibling Conflict. Directional differences and absolute differences in affection and control could not be examined simultaneously. Therefore, these variables were separated and examined in two different regression analyses. In step 2, Maternal Absolute Difference in Affection, Maternal Absolute Difference in Control, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control were added to all of the predictors in step 1 (i.e., Caucasian, Heterosexual, and Gay/Lesbian). Step 2 indicated that the linear combination of Caucasian, Heterosexual, Gay/Lesbian, Maternal Absolute Difference in Affection, Maternal Absolute Difference in Control, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control was found to be statistically significant in predicting sibling conflict, $R^2 = .083$, $F(7, 171) = 2.219$, $p = .035$. Adding the SIDE variables was not statistically significant, $\Delta R^2 = .006$, $p = .896$, meaning that adding SIDE variables did not increase the variance in sibling conflict that was explained.

In step 3, Parental Differential Privileges Towards Participant Towards Subject, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs.

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Sibling were added to all of the predictors entered in steps 1 and 2 (i.e., Caucasian, Heterosexual, Gay/Lesbian, Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control). An additional difference in this regression analysis is that Mother General Favoritism and Father General Favoritism were removed due to multicollinearity while Mother Favoritism Towards the Subject vs. Sibling and Father Favoritism Towards the Subject vs. Sibling remained in this step. This step indicated that the linear combination of Caucasian, Heterosexual, Gay/Lesbian, Maternal Absolute Difference in Affection, Maternal Absolute Difference in Control, Paternal Absolute Difference in Affection, Paternal Absolute Difference in Control, Parental Differential Privileges Towards Participant Towards Subject, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling was not found to be statistically significant in predicting sibling conflict, $R^2 = .095$, $F(10, 168) = 1.773$, $p = .069$. Adding the Favoritism variables was not statistically significant, $\Delta R^2 = .012$, $p = .521$, meaning that the Favoritism variables (i.e., Parental Differential Privileges Towards Participant Towards Subject, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling) did not increase the variance in sibling conflict that was explained.

To conclude, Caucasian was not found to be statistically significant in steps 1, 2, and 3 by looking at the p-values ($p = .060$, $p = .057$, $p = .053$). However, 95% bootstrap CI's were examined [-7.083, -.480; -7.057, -.823; -7.157, -.940] in addition to the p-values, and indicated that Caucasian was a significant predictor in sibling conflict. There were no predictions made for absolute differences in affection and control, and sibling conflict. Nonetheless, the current

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findings contributed to the exploratory question of whether absolute differences predict sibling conflict differently than differential differences in treatment.

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Table 12

Summary of Hierarchical Regression for Sibling Conflict (Absolute Differences)

	R^2	ΔR^2	β	95% Bootstrap CI LL	95% Bootstrap CI UL	P	Tolerance
Step 1	.077**	.077**					
Caucasian			-.144	-7.083	-.480	.060	.914
Heterosexual			.108	-2.430	8.093	.196	.759
Gay/Lesbian			-.132	-7.467	.807	.103	.808
Step 2	.083*	.006					
Caucasian			-.149	-7.057	-.823	.057	.893
Heterosexual			.109	-2.553	8.268	.202	.737
Gay/Lesbian			-.119	-7.027	1.089	.154	.775
MADC			.035	-1.100	1.622	.710	.605
MADA			.060	-1.325	2.010	.533	.588
PADA			-.035	-1.298	.908	.709	.607
PADC			-.034	-1.521	1.126	.705	.656
Step 3	.095	.012					
Caucasian			-.151	-7.157	-.940	.053	.891
Heterosexual			-.107	-2.690	8.115	.216	.729
Gay/Lesbian			-.132	-7.372	.781	.119	.754
MADC			.065	-.985	1.756	.514	.539
MADA			.062	-1.310	2.131	.521	.583
PADA			-.020	-1.222	1.092	.834	.579
PADC			-.043	-1.694	1.197	.640	.631
PP			.128	-.297	2.031	.136	.741
MFTPS			-.021	-.806	.650	.794	.849
FFTPS			-.056	-.958	.572	.516	.722

Note. MADA (Maternal Absolute Difference in Affection); MADC (Maternal Directional Difference in Control); PADA (Paternal Absolute Difference in Affection); PDDC (Paternal Absolute Difference in Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism); MFTPS (Mother Favoritism Towards Participant vs. Sibling); FFTPS (Father Favoritism Towards Participant vs. Sibling).
*p <.05, **p <.01, ***p <.001.

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It was predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Differential Control, Mother General Favoritism, and Father General Favoritism would be negatively related to sibling warmth.

Directional differences and absolute differences in affection and control could not be examined simultaneously due to multicollinearity. Therefore, two sets of regression analyses were created and examined for Sibling Warmth – one for directional differences and one for absolute differences.

Directional Differences and Sibling Warmth. There were no demographic or participant characteristic variables that were correlated with Sibling Warmth. Therefore, covariates were not included and only two models exist in this regression analysis. For the regression analysis involving Sibling Warmth, these will be referred to step 1 and step 2. Step 1 contained the SIDE variables, including differential control and affection variables. Step 2 contained the same SIDE variables in addition to three of favoritism variables, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling.

Step 1 indicated that the SIDE variables do not statistically significantly predict sibling warmth, $R^2 = .008$, $F(4, 181) = .357$, $p = .839$. In step 2, Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling was added to all of the predictor variables in step 1 (i.e., Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control). This step indicated that the linear combination of the SIDE and Favoritism variables was statistically significant, $R^2 = .099$, $F(7, 178) = 2.808$, $p = .008$, and accounted for 9.9% of the variance in overall sibling warmth. Adding the Favoritism variables

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was statistically significant in predicting sibling warmth, $\Delta R^2 = .092$, $p = .001$, indicating that 9.2% additional variance in sibling warmth was uniquely accounted for by Father General Favoritism, Mother General Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling over and above Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control. Mother General Favoritism was significantly negatively associated with sibling warmth ($\beta = -.249$, $p = .007$).

The current findings partially supported this hypothesis. Of the six predicted variables, Mother General Favoritism was the only predictor found to be uniquely negatively associated with sibling warmth, meaning that participants who scored higher on Mother General Favoritism perceived their sibling relationship to be lower in warmth. Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Differential Control, and Father General Favoritism were not found to be significantly associated with sibling warmth.

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Table 13

Summary of Hierarchical Regression for Sibling Warmth (Directional Difference)

	R^2	ΔR^2	β	95% Bootstrap CI LL	95% Bootstrap CI UL	*P*	Tolerance
Step 1	.008	.008					
MDDA			.053	-3.657	5.684	.539	.749
MDDC			.061	-3.654	7.005	.530	.593
PDDA			-.027	-4.875	3.284	.780	.609
PDDC			-.044	-5.344	2.840	.654	.559
Step 2	.099**	.092**					
MDDA			-.033	-5.263	3.666	.713	.647
MDDC			.147	-1.734	9.320	.145	.498
PDDA			-.124	-6.378	1.165	.228	.482
PDDC			-.046	-4.733	2.460	.631	.547
FGF			-.146	-.870	.176	.105	.626
MGF			-.249	-1.181	-.069	.007	.609
PP			-.078	-1.964	.774	.366	.676

Note. MDDA (Maternal Directional Differential Affection); MDDC Maternal Directional Differential Control); PDDA (Paternal Directional Differential Affection); PDDC (Paternal Directional Differential Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism).
*p <.05, **p <.01, ***p <.001.

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Absolute Differences and Sibling Warmth. There were no demographic or participant characteristic variables that were correlated with Sibling Warmth. Therefore, covariates were not included and only two models exist in this regression analysis. For the regression analysis involving Sibling Warmth, these will be referred to step 1 and step 2. Step 1 contained the SIDE variables, including absolute difference in control and affection. Step 2 contained the same SIDE variables in addition to three of favoritism variables, Parental Differential Privileges Towards Participant vs. Sibling, Mother General Favoritism, and Father General Favoritism.

Step 1 indicated that the SIDE variables statistically significantly predicted sibling warmth, $R^2 = .168$, $F(4, 178) = 8.961$, $p = .000$, and indicated that 16.8% of the variance accounted for overall sibling warmth is explained by Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Control, and Paternal Absolute Difference in Affection. Maternal Absolute Difference in Affection ($\beta = -.394$, $p = .000$) and Paternal Absolute Difference in Control ($\beta = -.238$, $p = .000$) were found to be negatively associated with sibling warmth, meaning that participants who scored higher on these variables perceived their sibling relationship to be lower in warmth.

In Step 2, Parental Differential Privileges Towards Participant vs. Sibling, Mother General Favoritism, and Father General Favoritism were added to all of the predictors in step 1 (i.e., Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Control, and Paternal Absolute Difference in Affection). The linear combination of Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Control, and Paternal Absolute Difference in Affection, Parental Differential Privileges Towards Participant vs. Sibling, Mother General Favoritism, and Father General Favoritism was found to be statistically significant, $R^2 = .189$,

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F(7, 175) = 5.832, p = .000, and accounted for 18.9% of the variance in overall sibling warmth. Adding the Favoritism variables was not significant, $\Delta R^2 = .022$, p = .203, meaning that adding Favoritism variables (i.e., Parental Differential Privileges Towards Participant vs. Sibling, Mother General Favoritism, and Father General Favoritism) did not increase the variance in sibling warmth that was explained. Maternal Absolute Difference in Affection ($\beta = -.379$, $p = .000$), Paternal Absolute Difference in Control ($\beta = -.236$, $p = .009$), and Parental Differential Privileges Towards Participant vs. Sibling ($\beta = -.158$, $p = .035$) were found to be negatively associated with sibling warmth.

There were no predictions made for absolute differences in control and affection, and sibling warmth. Nonetheless, the current findings contributed to the exploratory question of whether absolute differences predict sibling warmth differently than differential differences in parental treatment. The current findings found Maternal Absolute Difference in Affection, and Paternal Absolute Difference in Control to be negatively associated with sibling warmth in steps 1 and 2. This indicates that participants who scored higher on these variables perceived their sibling relationship to be lower in warmth. Parental Differential Privileges Towards Participant vs. Sibling was also found to be negatively associated with sibling warmth. The finding regarding parental privileges did not directly support the hypothesis, as it was not one of the predicted variables.

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Table 14

Summary of Hierarchical Regression for Sibling Warmth (Absolute Differences).

	R^2	ΔR^2	β	95% Bootstrap CI		P	Tolerance
				LL	UL		
Step 1	.168***	.168***					
MADC			.059	-1.017	1.999	.497	.624
MADA			-.394	-4.113	-1.530	.000	.586
PADC			-.238	-3.075	-.648	.005	.670
PADA			.095	-.507	1.637	.273	.630
Step 2	.189***	.022					
MADC			.051	-1.160	2.114	.602	.483
MADA			-.379	-4.264	-1.217	.000	.489
PADC			-.236	-3.214	-.498	.009	.578
PADA			.073	-.892	1.834	.494	.412
PP			-.158	-2.399	-.042	.035	.836
MGF			-.065	-.817	.483	.552	.388
FGF			-.011	-.672	.615	.921	.358

Note. MADA (Maternal Absolute Difference Affection); MADC (Maternal Absolute Difference Control); PADA (Paternal Absolute Difference in Affection); PADC (Paternal Absolute Difference in Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism).
*p <.05, **p <.01, ***p <.001.

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It was predicted that Maternal Directional Differential Affection, Paternal Directional Differential Affection, Paternal Directional Differential Control, Maternal Directional Control, Mother Favoritism Towards Participant vs. Sibling, and Father Favoritism Towards Participant vs. Sibling would be positively related to sibling rivalry.

Directional differences and absolute differences in affection and control could not be examined simultaneously due to multicollinearity. Therefore, two sets of regression analyses were created and examined for Sibling Rivalry – one for directional differences and one for absolute differences.

Directional Differences and Sibling Rivalry. The number of siblings (three or more siblings) was controlled for and was included in step 1 of the hierarchical regression. By adding this participant characteristic variable as a covariate in step 1, the researcher was able to determine the impact that number of siblings (three or more) had individually and separately from the SIDE and favoritism variables. This step indicated that having three or more siblings was found to be statistically significant, $R^2 = .043$, $F(1, 187) = 8.356$, $p = .004$, and indicated that 4.3% of the variance accounted for in sibling rivalry is explained by having three or more siblings. Having three or more siblings was found to be positively associated with sibling rivalry ($\beta = .207$, $p = .004$), meaning that participants who had three or more siblings reported their sibling relationship to be higher in rivalry.

In step 2, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control were added to the predictor in step 1 (i.e., having three or more siblings). The linear combination of Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control,

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and having three or more siblings was found to be statistically significant, $R^2 = .115$, $F(5, 183) = 4.745$, $p = .000$, and accounted for 11.5% of the variance in overall sibling rivalry. Adding the SIDE variables was significant, $\Delta R^2 = .072$, $p = .006$, indicating that 7.2% additional variance in sibling rivalry was uniquely accounted for by Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control over and above having three or more siblings. Maternal Directional Differential Control was found to have the strongest association with sibling rivalry ($\beta = .232$, $p = .011$). Having three or more siblings was also found to be significantly positively associated with sibling rivalry ($\beta = .215$, $p = .003$), meaning that participants who scored higher on this predictor variable perceived their sibling relationship to be higher in rivalry.

In step 3, Parental Differential Privileges Towards Participant vs. Sibling, Father General Favoritism, and Mother General Favoritism were added to all of the predictors that were in steps 1 and 2 (i.e., having three of more siblings, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control). The linear combination of having three of more siblings, Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, and Paternal Directional Differential Control, Parental Differential Privileges Towards Participant vs. Sibling, Father General Favoritism, and Mother General Favoritism was found to be statistically significant, $R^2 = .467$, $F(8, 180) = 19.687$, $p = .000$. This linear combination of all of these predictor variables accounted for 46.7% of the variance in overall sibling rivalry. Adding the Favoritism variables was significant, $\Delta R^2 = .352$, $p = .000$, indicating that 35.2% additional variance in sibling rivalry is uniquely accounted for by Parental Differential Privileges Towards Participant vs. Sibling, Mother General Favoritism, and

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Father General Favoritism over and above Maternal Directional Differential Affection, Maternal Directional Differential Control, Paternal Directional Differential Affection, Paternal Directional Differential Control, and having three or more siblings. Having three or more siblings (β = .143, p = .011), Paternal Directional Differential Affection (β = .177, p = .024), Father General Favoritism (β = .380, p = .000) and Mother General Favoritism (β = .382, p = .000) were found to be significantly positively associated with sibling rivalry. These findings indicate that participants who scored higher on these predictor variables perceived their sibling relationship to be higher in rivalry. Although Maternal Directional Differential Control was found to be a significant unique predictor in step 2, this variable became non-significant in step 3.

The current findings partially support this hypothesis. Of the six predictor variables, Maternal Directional Differential Control and Paternal Directional Difference in Affection were found to be associated with sibling rivalry and were both in the predicted direction. Maternal Directional Differential Control was found to be positively associated with sibling rivalry in step 2, and was in the predicted direction. However, Maternal Directional Differential Control became a non-significant predictor to sibling rivalry in step 3 after the favoritism variables were added. It is interesting to note that Paternal Directional Difference in Affection became a significant unique predictor to sibling rivalry in step 3. This was in the predicted direction. Lastly, findings regarding mother and father general favoritism do not directly support this hypothesis, since these two variables were not among the variables for which predictions were made. However, they were found to be significant and positive unique predictors to sibling rivalry.

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Table 15

Summary of Hierarchical Regression for Sibling Rivalry (Directional Differences)

	R^2	ΔR^2	*B*	95% Bootstrap CI LL	95% Bootstrap CI UL	*P*	Tolerance
Step 1	.043**	.043*					
Three			.207	.158	2.110	.004	1.000
Step 2	.115***	.072**				.000	
Three			.215	.250	2.031	.003	.976
MDDA			-.051	-2.214	1.100	.524	.752
MDDC			.232	5.43	4.597	.011	.593
PDDA			-.081	-2.466	1.479	.366	.609
PDDC			.071	-1.050	2.490	.446	.557
Step 3	.467***	.352***					
Three			.143	.191	1.434	.011	.953
MDDA			.095	-.453	2.410	.159	.653
MDDC			.019	-1.453	1.842	.804	.507
PDDA			.177	.106	3.247	.024	.495
PDDC			.040	-.916	1.782	.586	.546
PP			-.044	-.561	.277	.510	.678
FGF			.380	.296	.647	.000	.627
MGF			.382	.283	.639	.000	.617

Note. MDDA (Maternal Directional Differential Affection); MDDC Maternal Directional Differential Control); PDDA (Paternal Directional Differential Affection); PDDC (Paternal Directional Differential Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FGF (Father General Favoritism); MGF (Mother General Favoritism).
*p <.05, **p <.01, ***p <.001.

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Absolute Differences and Sibling Rivalry. The number of siblings (three or more siblings) was controlled for and was included in step 1 of the hierarchical regression. By adding this participant characteristic variable as a covariate in step 1, the researcher was able to determine the impact that number of siblings (three or more) had individually and separately from the SIDE and favoritism variables. Step 1 was found to be significant, $R^2 = .060$, $F(1, 181) = 11.454$, $p = .001$, which indicates that 6% of the variance accounted for in sibling rivalry is explained by having three or more siblings within a family. Having three or more siblings was found to be positively associated with sibling rivalry ($\beta = .244$, $p = .000$), meaning that participants who had three or more siblings reported their sibling relationship to be higher in rivalry.

In Step 2, Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control were added to the predictor variable in step 1 (i.e., having three or more siblings). The linear combination of having three or more siblings, Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control was significant, $R^2 = .446$, $F(5, 177) = 28.457$, $p = .000$. This indicates that 44.6% of the variance accounted for in sibling rivalry is explained by the SIDE variables and having three or more siblings. Adding the SIDE variables was significant, $\Delta R^2 = .386$, $p = .000$, indicating that 38.6% additional variance in sibling rivalry is uniquely accounted for by Maternal Directional Differential Control, Paternal Directional Differential Control, Maternal Directional Differential Affection, and Paternal Directional Differential Affection over and above having three or more siblings. Maternal Absolute Difference in Control ($\beta = .148$, $p = .038$), Maternal Absolute Difference in Affection ($\beta = .177$, $p = .017$),

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Paternal Absolute Difference in Control (β = .184, p = .009), Paternal Absolute Difference in Affection (β = .343, p = .000) were found to be significantly positively associated with sibling rivalry. These findings suggest that participants who scored higher on these variables perceived their sibling relationship to be higher in rivalry.

Step 3 differs from the directional difference regression analysis above and contained Father Favoritism Towards Participant vs. Sibling and Mother Favoritism Towards Participant vs. Sibling instead of the general favoritism variables (i.e., Mother General Favoritism and Father General Favoritism) because of multicollinearity. In step 3, Father Favoritism Towards Participant vs. Sibling, Mother Favoritism Towards Participant vs. Sibling, and Parental Differential Privileges Towards Participant vs. Sibling were added to all of the predictor variables in steps 1 and 2 (i.e., having three or more siblings, Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control). The linear combination of having three or more siblings, Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control, Father Favoritism Towards Participant vs. Sibling Mother Favoritism Towards Participant vs. Sibling, and Parental Differential Privileges Towards Participant vs. Sibling was statistically significant, R^2 = .454, $F(8, 174) = 18.105$, p = 000. This indicates that 45.4% of the variance accounted for sibling rivalry is explained by the Favoritism and SIDE variables, and having three or more siblings. Adding the Favoritism variables was not significant, ΔR^2 = .009, p = .434, meaning that adding Favoritism variables (i.e., Mother Favoritism Towards Participant vs. Sibling, Father Favoritism Towards Participant vs. Sibling, and Parental Differential Privileges Towards Participant vs. Sibling,) did not increase the variance in sibling rivalry that was explained.

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Paternal Absolute Difference in Affection (β = .357, p = .000) was found to have the strongest association and was significantly positively associated with sibling rivalry. Maternal Absolute Difference in Affection (β = .182, p = .014) and Paternal Absolute Difference in Control (β = .195, p = .007) were also found to be significantly positively associated with sibling rivalry. These findings indicate that participants who scored higher on these variables perceived their sibling relationship to be higher in rivalry. Although Maternal Absolute Difference in Control was significantly positively associated with sibling rivalry in step 2, this variable became a non-significant unique predictors to sibling rivalry in step 3.

There were no predictions made for absolute differences in parental affection and control, and sibling rivalry. Nonetheless, the current findings contributed to the exploratory question of whether absolute differences predict sibling rivalry differently than differential differences in parental treatment. The current findings found that Paternal Absolute Difference in Affection, Maternal Absolute Difference in Affection, and Paternal Absolute Difference in Control were significantly positively associated with sibling rivalry in step 2. Maternal Absolute Difference in Control was significant in step 2; however, this variable became a non-significant unique predictor to sibling rivalry in step 3.

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Table 16

Summary of Hierarchical Regression for Sibling Rivalry (Absolute Differences)

	R^2	ΔR^2	β	95% Bootstrap CI LL	95% Bootstrap CI UL	p	Tolerance
Step 1	.060**	.060**					
Three			.244	.363	2.260	.001	1.000
Step 2	.446***	.386***					
Three			.125	.000	1.438	.032	.944
MADC			.148	-.006	.962	.038	.627
MADA			.177	.059	.994	.017	.585
PADA			.343	.541	1.318	.000	.622
PADC			.184	.206	1.081	.009	.641
Step 3	.454***	.009					
Three			.130	.045	1.420	.027	.921
MADC			.110	-.138	.805	.144	.556
MADA			.182	.073	1.065	.014	.581
PADA			.357	.532	1.365	.000	.592
PADC			.195	.205	1.204	.007	.621
FFTPS			.046	-.181	.399	.483	.724
MFTPS			-.079	-.385	.110	.191	.856
PP			-.015	-.466	.319	.818	.747

Note. MADC (Maternal Absolute Difference in Affection); MADC (Maternal Absolute Difference in Control); PADA (Paternal Absolute Difference in Affection); PADC (Paternal Absolute Difference in Control); PP (Parental Differential Privileges Towards Participant vs. Sibling); FFTPS (Father Favoritism Towards Participant vs. Sibling); MTPS (Mother Favoritism Towards Participant vs. Sibling).
*p <.05, **p <.01, ***p <.001.

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CHAPTER V

Discussion

In the current study, the researcher explored the impact of parental differential treatment (PDT) on self-esteem and quality of sibling relationships, defined by conflict, warmth, and rivalry in young adulthood. In previous studies, PDT has been operationalized in two ways, differential treatment and favoritism. This study included measures reflecting both conceptualizations of PDT, and sought to shed light on which conceptualization of PDT is more salient to young adults' self-esteem and to the quality of their sibling relationships. The researcher also attempted to separate the impact of a participant's perception of directional differences in the level of a parent's caregiving from the participant's perception of an absolute difference in the caregiving behavior, and also to separate the impact of a directional difference in favoritism directed toward the participant vs. the sibling, versus the impact of showing favoritism at all, regardless of which sibling received this. Participants were asked to rate their experience of differences in parental affection and control and favoritism in addition to responding to questions about general favoritism within the family and directional differences. This was done by including a series of absolute difference scales to the PDT measure and by including both directional difference and general favoritism scales in the newly developed Favoritism measure. The researcher also attempted to separate the impact of the directional difference and absolute difference PDT variables from any impact of the actual level of parental treatment that the participant reported having received.

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Relationship of the Current Findings to Previous Findings on Favoritism, Differential Affection, and Differential Control

Jensen, et al. (2013) conducted a study that examined the impact of PDT, operationalized as favoritism and differential treatment, in young adulthood. Favoritism was derived from siblings' reports of paternal and maternal support, and was calculated into difference scores (positive values reflected that the individual received favored treatment). Differential treatment scores were derived by taking the absolute value of the calculated difference scores used in creating the favoritism variables and ranged from 0 to 7 (scores closer to 0 reflected equal treatment and higher values reflected greater differential treatment). Jensen et. al. (2013) found that less maternal favorable treatment compared to a sibling (i.e., less support) was associated with lower sibling intimacy. Jensen also found that greater differences in the level of maternal treatment (i.e., support) was associated with less sibling intimacy, whereas, findings for paternal differential favoritism and treatment was more nuanced. In regards to favoritism, findings from the current research are similar to Jensen et. al.'s (2013) findings. In the current study Father General Favoritism and Mother General Favoritism were related to increases in sibling rivalry. Current findings that Maternal Directional Differential Control and Paternal Directional Differential Affection are also consistent with Jensen et. al.'s overall findings that parental differential treatment is associated with less close sibling relationships. Participants who scored higher on these variables perceived their sibling relationship to be higher in rivalry.

In another study by Rauer & Volling (2007), the effects of PDT and romantic relationship distress through its effects on sibling jealousy and self-esteem was examined. Rauer & Volling (2007) utilized the SIDE to measure differences in parenting and found that receiving less maternal and paternal affection in comparison to one's sibling was related to sibling jealousy,

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which was associated with lower self-esteem. There were no findings from the current study of an association between maternal and paternal differential affection and self-esteem. Interestingly, there was a significantly positive correlation found between maternal directional differential control and self-esteem. Prior to this finding there has not been clear research findings linking PDT on the dimension of control to self-esteem (Silk et. al., 2003). This finding could suggest a suppression effect in which the introduction of favoritism variables increased the predictive validity of Maternal Directional Differential Control, meaning that the relationship between maternal directional differential control and self-esteem became larger after adding favoritism to the regression.

Furthermore, Noller (2005) stated that parent-child relationships are linked with the quality of sibling relationships, and reported that differential treatment of siblings may lead to poorer adjustment (e.g., low self-esteem) for the disfavored child. Research has found that disparities in parents' treatment toward offspring impacts the quality of the sibling relationship, and can create feelings of resentment and jealousy toward the favored sibling (Finzi-Dottan & Cohen, 2010). Scholte et al., (2007), Rauer, & Volling, (2007), and Jensen & Whiteman, (2014) found that differences in perceived amount of affection can produce more negativity, jealousy, and tension within the sibling relationship, which in turn may indirectly impact both siblings' self-esteem and behavioral adjustment.

Overall, findings from regression analyses (Sibling Conflict, Sibling Warmth, and Sibling Rivalry) are consistent with previous research, which has found that disparities in parents' treatment toward offspring affects the quality of the sibling relationship, and can create feelings of resentment and jealousy toward the favored sibling (Finzi-Dottan & Cohen, 2010). In the current study, none of the predictor variables were found to be associated with sibling conflict.

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However, findings showed that Mother General Favoritism, Father General Favoritism, Maternal Directional Differential Control, and Paternal Directional Differential Affection were all associated with lower sibling warmth and higher sibling rivalry.

Previous research has not examined the impact of absolute differences in parenting behaviors. The current research examined absolute differences in affection and control by using the absolute scoring instructed by Daniel & Plomins' study (1992). Findings from this study found that absolute differences in affection and control were more salient to sibling rivalry and warmth compared to directional differential affection and control.

Do the Favoritism Variables and the SIDE Differential Affection and Differential Control Variables Predict Differently?

Favoritism is a general attitude or evaluation of favoring one sibling over another. A parent can display or express favoritism either verbally or nonverbally. On the other hand, differential treatment, as measured by the SIDE, focuses more on parenting behaviors (e.g., control and affection) with one child compared to another child, and takes into account the magnitude of differences in treatment. It might be asked, which type of PDT variable is more impactful on an offspring's psychological development and on his/her relationship with siblings? General favoritism is somewhat similar to the SIDE absolute difference scores, and measured whether there was favoritism within an individual's family.

When one includes both directional and absolute differences from the SIDE, the SIDE predicts sibling relationships better than the Favoritism scale. When both SIDE directional and absolute differences are taken into account, the SIDE was found to be a stronger predictor of the sibling relationship variables than was the Favoritism scale. Of the eight SIDE variables, six were found to be significant (i.e., Maternal Directional Differential Control, Paternal Directional

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Differential Affection, Absolute Paternal Difference in Affection, Absolute Paternal Difference in Control, Absolute Maternal Difference in Affection, and Absolute Maternal Difference in Control). Of the five favoritism variables, three were found to be significant (i.e., Mother General Favoritism, Father General Favoritism, and Parental Differential Privileges).

Father Differential Privileges Towards Participant vs. Sibling and Mother Favoritism Towards Participant vs. Sibling were removed from several regression analyses because these variables contributed to multicollinearity. Father General Favoritism and Mother General Favoritism were only removed in the Sibling Conflict (directional differences) Sibling Rivalry (absolute differences) regressions due to multicollinearity. Parental Differential Privileges Towards Participant vs. Sibling was found to be related to Sibling Warmth in the regression analysis that included absolute differences. Mother General Favoritism and Father General Favoritism were found to be significantly related to sibling rivalry when PDT was measured as directional differences. Maternal General Favoritism was the only predictor variable to be significantly associated with sibling warmth when PDT was measured as directional differences. These favoritism variables were found to have more of an impact on sibling rivalry than the directional differential variables from the SIDE.

It is interesting to note that, while mother and father general favoritism accounted for about 35% of the variance in sibling rivalry, which is large, mother and father general favoritism did not predict sibling rivalry over and above absolute differences in mother and father control and affection as measured by the SIDE. This may imply overlap between the SIDE absolute control and affection variables and the Favoritisms scale's general favoritism variables. One could speculate that when a child experiences parents showing general favoritism this may trigger their engagement in widespread use of social comparison with their sibling. On the other

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hand, if one's experience of differential treatment is around specific parenting behaviors, then such widespread social comparison may not be triggered. It is suggested that the amount of social comparison is what determines the impact of PDT on social relationships.

Overall, it appears that PDT, measured as absolute differences and directional differences, is more salient in predicting the quality of sibling relationships. Favoritism was not as significant in predicting the quality of sibling relationships when absolute scores were included in the regression analyses. Of the three favoritism variables included in the sibling warmth regression, Parental Differential Privileges Towards Participant vs. Sibling was found to be significant in predicting sibling warmth. Mother General Favoritism was the only favoritism variable significant in predicting sibling warmth when directional differences were included. Neither general or directional favoritism, nor directional or absolute differences in control and affection were found to significantly predict sibling conflict.

Relative Importance of PDT in the Area of Affection vs. PDT in the Area of Control

The current study examined two domains of PDT, affection and control. Findings showed that differential affection and differential control were equal in predicting the criterion variables. In regards to sibling warmth and rivalry, PDT in the area of control and affection were similar. There were a total of seven significant predictions for directional and absolute differences in affection compared to six significant predictions for directional and absolute differences in control. The only area where there was a difference in control and affection was in relation to self-esteem. Mothers' differential treatment in control was found to be significantly associated with self-esteem. There were no findings in regards to fathers' differential treatment and self-esteem.

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Mother PDT versus Father PDT

The study found that measures of mothers' and fathers' PDT (favoritism, directional, and absolute differences) to be very similar. There were a total of nine significant predictions for mother PDT and a total of eight significant predictions for father PDT. One could speculate that mothers' and fathers' differential treatment are almost equally important in the quality of sibling relationships. However, as stated earlier, it appears that mother's differential treatment in control was the only PDT variable found to be associated with self-esteem. In this case, one could speculate that mothers' parenting is important in one's adjustment and development of self-esteem (Dunn et. al., 1990), and that mothers' differential treatment may be more salient compared to fathers' differential treatment in certain areas of parenting behavior.

Directional Difference Findings Compared to the Absolute Difference Findings

The current study examined both the absolute differences and directional differences of affection and control. Because of multicollinearity, it was not possible to attribute the predicted variance to each variable separately. Therefore, separate sets of hierarchical regression analyses were conducted for the directional difference variables and the absolute difference variables.

Findings show that absolute differences variables were more often significant predictors of the outcome variables than the directional difference variables. This difference was most notable for sibling rivalry and sibling warmth. When comparing absolute differences to directional differences, absolute findings had more unique predictors to sibling rivalry and to sibling warmth. In the Sibling Rivalry regression analysis that included absolute differences, all of the absolute difference predictor variables were found to be significant in steps 2 and 3 (i.e., Maternal Absolute Difference in Control, Maternal Absolute Difference in Affection, Paternal Absolute Difference in Affection, and Paternal Absolute Difference in Control) compared to the

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regression analysis that included directional differences. In the directional difference regression analysis for Sibling Rivalry, Maternal Directional Differential Control was the only significant predictor in step 2, and Paternal Directional Differential Affection was the only significant predictor in step 3. In the Sibling Warmth regression analysis that included absolute differences, Maternal Absolute Difference in Affection and Paternal Absolute Difference in Control were found to be significant in steps 2 and 3 compared to the regression analysis that included directional differences. In the directional difference regression analysis for Sibling Warmth, there were no directional differences found to be significant in predicting sibling warmth.

Overall, directional differential treatment was less likely to be a unique predictor of the criterion variables. In fact, only two directional differential treatment variables (Paternal Directional Differential Affection and Maternal Directional Differential Control) were found to be significantly associated with Self-Esteem and Sibling Rivalry. Findings regarding directional vs. absolute differences may indicate that regardless of which sibling is given more affection or control, greater inequality between how siblings are treated is associated with lower sibling intimacy and higher sibling rivalry and conflict. The amount of differences in parental treatment appears to be more salient to the quality of sibling relationships.

These findings indicate that it is important to examine PDT in terms of absolute differences. Measuring directional differences may be curvilinear and is something that is encouraged of future research. Specifically, future research could examine a nonlinear regression analysis on the data to determine whether a curvilinear relationship exists between absolute and directional differences in treatment.

High scores and low scores indicated that the parent is displaying differential treatment. However, a higher score on differential treatment (i.e., control or affection) indicated that the

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participant received more affection or control than his or her sibling, whereas a lower score indicated that the participant's sibling received more affection or control. Given this, the directional scores would not show whether differential treatment is related to adjustment, such as low self-esteem. Thus, it is important to include absolute scores to help capture these differences and how they may impact one's adjustment.

Findings for Ethnicity

Ethnicity was examined as a participant characteristic variable in relation to PDT. According to Solmeyer et al., (2011) and Chen-Buock & Patterson (2015), PDT may be influenced by cultural values and attitudes. Therefore, parents may show favoritism or differential treatment toward children who subscribe to their culturally-based expectations. The current study found differences in participants who identified as Asian, Caucasian, and Hispanic. Of these three ethnic groups, the least number of significant Favoritism scale or SIDE variables that were found significant were for Hispanic participants. In the current study, being Hispanic was only found to be significantly positively associated with one SIDE variable: Maternal Directional Differential Control. Identifying as Caucasian was found to be significantly negatively correlated with Maternal Level of Control Towards Participant and was significantly positively associated with Paternal Absolute Difference in Affection. Identifying as Asian was found to be significantly negatively correlated with Paternal Absolute Difference in Affection and positively correlated with Maternal Level of Differential Control. The slightly fewer number of significant findings for Hispanic participants than Caucasian and Asian participants could be consistent with Solmeyer's (2011) study that found that parents with stronger Mexican orientation were more likely to engage in equal treatment.

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Support for a Social Comparison Theory of PDT

Social Comparison Theory (Gibbons & Bunk, 1999) supports this indication and suggests that social comparison is a normal behavioral tendency within families. It is suggested that the directional difference in parental treatment (i.e., receiving less affection or control compared to a sibling) has a greater impact than just the level of parenting behavior alone. When a child engages in social comparisons and compares his or her experience with that of a sibling, they may feel inferior or weak, which may result in issues with relational and emotional development (Jensen et al., 2013; Jensen et al., 2015; Noller, 2005). Also, social comparisons between a participant and sibling closest in age may have a greater impact on one's emotional development, as siblings closest in age present with more similarities and with a more significant target for comparison.

Several studies have also found that when siblings compare themselves to their siblings more, they are at higher risk for developing sibling rivalry (Rauer, & Volling, 2007; Scholte et al., 2007; Finzi-Dottan & Cohen, 2010; Jensen et al., 2013; Jensen & Whiteman, 2014; and Jensen, Pond, & Walker, 2015). One could speculate that a sibling who perceives their parents as providing very low affection, and showing much less affection towards them compared to a sibling closest in age, would result in low self-esteem, and low sibling relationship quality. Affection is important in one's social and emotional development and impacts the level of self-esteem. The level of affection fosters self-confidence and a feeling of self-worth. One could also consider that perceiving one's mother as being very affectionate and being even more affectionate to oneself compared to a closest age sibling, results in higher self-esteem and potentially the ability to create and maintain stable relationships.

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Results from the current study support this theoretical explanation in that this study found that participants who scored higher on Paternal Directional Differential Affection, Maternal Directional Differential Affection, Absolute Maternal Difference in Affection, and Absolute Paternal Difference in Affection perceived their sibling relationship to be higher in rivalry and lower in warmth. In terms of differential control, Absolute Maternal Difference in Control was found to be significantly positively associated with sibling warmth, and Absolute Paternal Difference in Control was found to be significantly negatively associated with sibling warmth. Maternal and Paternal Absolute Difference in Control was also found to be positively associated with rivalry. This indicates that differences in the amount of affection, and potentially other parenting behaviors, are salient to a child's social development.

Does Receiving More Affection than One's Sibling Increase or Decrease Self-Esteem?

In regards to the impact of differential treatment and favoritism on self-esteem and quality of sibling relationships, research has found that lower levels of affection or warmth, and higher levels of control impacts one's level of self-esteem (Bean et al., 2003; Finzi-Dottan & Cohen, 2010). In a study of African American children by Bean et al., (2003) maternal support was found to be significantly related to a child's self-esteem and achievement levels. Although this finding is specific to African American families, one can speculate parental support to be important in self-esteem development across diverse cultural backgrounds. One can also speculate that providing higher levels of affection creates a loving environment for a child, which would foster healthy self-esteem development. On the other hand, one could consider the negative impact of receiving higher affection compared to one's sibling, and how receiving higher affection may potentially lead to feelings of guilt, which may result in low self-esteem.

The current study did not find any associations between directional differences and

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absolute differences in affection with self-esteem. It is possible that this lack of significant findings could be due to the two factors, i.e., the support and the guilt, cancelling each other out. This would seem consistent with social comparison theory.

Limitations

Limited diversity of the participants was one limitation of the current study. Although the study was aimed at gathering a more ethnically diverse sample than had been done in previous research, the current sample ended up consisting of a majority of Asian and Caucasian individuals. The limitation of the current study excluded single-parent households. Including dual parent and single parent households, as well as other family constellations would have benefited clinicians and scholars.

The current study was also limited in that it only obtained data from one sibling. It would also be interesting to examine parents' perceptions of differential treatment and to see whether parents are aware of their parenting behaviors towards their offspring. A field study would also add to future research and could provide direct observations of PDT to augment self-reports. A field study could also examine actual behavior of siblings together to assess the quality of their relationship.

A limitation in comparing the results of the current study to other studies that assessed the sibling relationship with the ASRQ-S was that a slightly different model of the ASRQ-S (Wallace, 2004) was used in the current study. At the time of discovering this version, it was unknown to this researcher that the Likert scales differed from the original ASRQ-S (Lanthier, Stocker & Furman, 2000). The researcher reached out to Ms. Wallace to discuss reasons for differences in her Likert scales. Wallace reported that she had not identified these differences at first, and stated that she would not have changed the original questions if she were more familiar

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with the items. Adjustments were made to Wallace's (2004) version to obtain the same scoring used in the original ASRQ-S. It is encouraged that future research regarding quality of sibling relationships utilize the original ASRQ-S (Lanthier, Stocker & Furman, 2000) to prevent discrepancies.

Future Directions

Further Research on Favoritism and Further Development of the Favoritism Questionnaire. Overall, the findings of this study suggest a number of directions for future research. These include further examining favoritism among families, as more previous studies have used PDT measures that focused on differential affection and control than on favoritism. The current study was the first to utilize a favoritism questionnaire that was developed by the researcher, which examined general favoritism and favoritism towards the participant vs. sibling. A factor analysis was done on the items of this instrument and five factors emerged from this analysis. Four of these: Mother's General Favoritism, Father's General Favoritism, Mother's Favoritism toward Participant, and Father's Favoritism Toward Participant, were consistent with the measure's originally designed subscales, while a fifth factor, Parental Differential Privileges Towards Participant vs. Sibling, suggested that differential granting of privileges may occur somewhat independently of other forms of favoritism. Future research to further validate the Favoritism Questionnaire is called for.

Somewhat surprisingly, the Favoritism Questionnaire had few unique predictors to self-esteem and the quality of sibling relationships, defined by warmth, rivalry, and conflict. Only three findings of a relationship between a favoritism variable and outcome variable were obtained; Father General Favoritism, Mother Favoritism, and Parental Differential Privileges Towards Participant vs. Sibling were the only significant unique predictor of sibling rivalry.

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Although the inclusion of the favoritism variables did not result in many unique predictors to the criterion variables, it contributed to increasing the significance of findings for some of the differential affection and control variables. For example, Paternal Differential Affection and Maternal Directional Differential Control became significant unique predictors to self-esteem and sibling conflict with the presence of favoritism.

In other situations, the inclusion of favoritism variables appears to decrease the impact of other PDT variables. For example, the presence of favoritism contributed to changes with Maternal Absolute Difference in Affection, as this variable became a non-significant predictor to Sibling Rivalry in step 3, when it had been significant in model 2.

Further Assessment of the Combined Impact of Level of Parent Affection and Control and Differential Parent Affection and Control.

In the current study, information regarding both directional difference and absolute differences variables, and variables assessing the actual level of parent behavior separate from comparison with one's sibling were collected. However, the level of parental affection and control towards the participant was not examined in the regression analyses due to problems with multicollinearity. Future research may want to combine both measures of the actual level of affection and control with measures of participant-sibling differences in affection and control in order to gain a more complex understanding of how parent caregiving along multiple dimensions impacts child development and adjustment. It is believed that both types of variables need to be examined in order to better understand the complexities of how parental affection and control variables impact children and adolescents.

Young adulthood is an important developmental period, as individuals begin to expand their identities and explore new values. Individuals live more independently, seeking work, a

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career, and romantic relationships, and developing increased emotional and psychological maturity (Arnett, 2007). Social comparison theory implies that individuals have the inherent drive to evaluate their own ability by comparing themselves to other people (Gibbons & Bunk, 1999), which tends to have an impact on one's emotional and relational development (Butzer & Kuiper, 2006). The process of comparison involves a sibling's contrast of parental treatment within the family environment (Jensen et al., 2013). Based on this idea, it is reasonable to believe that PDT could also impact many areas of one's emotional and relational development in young adulthood. The current study focused only on the outcome variables of self-esteem and the quality of the sibling relationship. In the future, the impact PDT and Favoritism on other dimensions of childhood, adolescent, and young adult adjustment and development should be investigated.

It would also be important for future clinicians and researchers to examine the role that psychoeducation may have on parents engaging in differential treatment and favoritism. Bringing awareness to parents about their tendency to engage in differential treatment, and in some cases, normalizing differences in parental treatment of siblings when these differences are actually called for, may serve as a protective factor to low self-esteem, may promote sibling warmth, and may prevent sibling rivalry and conflict in later years. It is impossible for offspring to be treated equally, given differences in individuals' gender (Lytton & Romney, 1991), temperament (Brody et al., 1992), culture (McHale et. al., 2005; Atzaba-Poria & Pike, 2008), etc.

Conclusion

It is hoped that this study contributes toward a fuller understanding of how family dynamics may impact a person's individual development and adjustment, family relationships, and social relationships.

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APPENDIX 1

Demographic Questionnaire

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1. When is your birthday?

2. What is your gender?
    a. Male
    b. Female
    c. Other

3. Please list your zip code: _____

4. Please list your major: _____

5. What is your ethnicity
    a. White/Caucasian
    b. Asian
    c. Hispanic/Latino
    d. Black/African American
    e. Pacific Islander
    f. Other, please specify below:
        i. _____

6. What is your total household income before taxes in the last 12 months?
    a. Less than $25, 000
    b. $25, 000 - $34,499
    c. $35, 000 - $49, 999
    d. $50, 000 - $74, 999
    e. $75, 000 - $99, 999
    f. $100, 000 - $149, 999
    g. $150, 000 or more

7. How many siblings do you have?
    a. 1

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b. 2
c. 3
d. 4 or more

8. Besides your parent(s) and sibling(s), was there anybody else living in your home?
    a. If Yes, please list below
        i. _____
    b. No

9. Do any of your siblings have a mental of physical illness (e.g., Depression, Cancer)
    a. If Yes, please list below:
        i. _____
    b. No

10. Are both of your parents your biological parents? If "no", please specify.
    a. Yes
    b. No

11. Were your parents married until you reached age 18?
    a. Yes
    b. If No, please indicate when they separated below:
        i. _____

12. Which of these do you consider yourself to be:
    a. Heterosexual or straight
    b. Gay or lesbian; or
    c. Bisexual?
13. How would you rate your self-esteem?
    a. Low
    b. Moderate
    c. High

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14. How old are you?
    a. 18
    b. 19
    c. 20
    d. 21
    e. 22
    f. 23
    g. 24
    h. 25

15. As you answer questions for this study, you will be asked to select a "targeted sibling". A targeted sibling is a sibling who will be used as a target for comparison during this study. How old is your targeted sibling?
    a. _____

16. What is your email (This will be used to inform you about the winners of the lottery drawing)?
    a. _____

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APPENDIX 2

SIDE Inventory

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Instructions

Select the numbers separately for your mother and father. If your parents were divorced or if one died, answer the questions for the mother and father with whom you lived for the longest period of time. Remember to think about your experiences over the years when you were growing up and living at home.

1 = In general, this parent has been much more this way toward my sibling than me.
2 = In general, this parent has been a bit more this way toward my sibling than me.
3 = In general, this parent has been the same toward my sibling and me.
4 = In general, this parent has been a bit more this way toward me than my sibling.
5 = In general, this parent has been much more this way toward me than my sibling.

For example: The first question asks if your parent has been stricter with you or your sibling. If your parent has been more strict with your sibling than you, you should select "1." If your parent has been much more strict with you, select "5." Select "3" if your parent has been equally strict with both of you. If you don't know or can't remember, or if the question just doesn't apply to you, leave the question blank.

	Mother					Father				
	Toward sibling				toward me					
	much more		same		much more					
25) Has been strict with us.	1	2	3	4	5	1	2	3	4	5
26) Has been proud of the things we have done.	1	2	3	4	5	1	2	3	4	5

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27) Has enjoyed doing things with us.	1	2	3	4	5	1	2	3	4	5
28) Has been sensitive to what we think and feel.	1	2	3	4	5	1	2	3	4	5
29) Has punished us for our misbehavior.	1	2	3	4	5	1	2	3	4	5
30) Has shown interest in the things we like to do.	1	2	3	4	5	1	2	3	4	5
31) Has blamed us for what another family member did.	1	2	3	4	5	1	2	3	4	5
32) Has tended to favor one of us.	1	2	3	4	5	1	2	3	4	5
33) Has disciplined us.	1	2	3	4	5	1	2	3	4	5

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***Now, think about the questions below from your own personal experiences – "To what extent have your parents acted this way towards you?"**

1 = very little
2 = a little
3 = a moderate amount
4 = a lot
5 = very much

	Mother					Father				
25) Has been strict with [me].	1	2	3	4	5	1	2	3	4	5
26) Has been proud of the things [I] have done.	1	2	3	4	5	1	2	3	4	5
27) Has enjoyed doing things with [me].	1	2	3	4	5	1	2	3	4	5
28) Has been sensitive to what [I] think and feel.	1	2	3	4	5	1	2	3	4	5
29) Has punished [me] for [my] misbehavior.	1	2	3	4	5	1	2	3	4	5
30) Has shown interest in the things [I] like to do.	1	2	3	4	5	1	2	3	4	5
31) Has blamed [me] for what										

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another family member did.

1 2 3 4 5 1 2 3 4 5

32) Has tended to favor [me].

1 2 3 4 5 1 2 3 4 5

33) Has disciplined [me].

1 2 3 4 5 1 2 3 4 5

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APPENDIX 3

New Favoritism Questionnaire

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ONE SET OF QUESTIONS ABOUT FAVORITISM IN THE FAMILY AS A WHOLE

Instructions: Please answer the following questions by using the rating scale below.

Questions about mother

1. When I was growing up my mother showed favoritism in the way she treated the children in our family.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

2. When I was growing up there was a number one child in my mother's eyes.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

3. When I was growing up my mother liked one child more than another.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

4. When I was growing up my mother treated one child better than another child.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

5. In our family my mother gave one child more privileges than another.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

Questions about father

6. When I was growing up my father showed favoritism in the way he treated the children in our family.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

7. When I was growing up there was a number one child in my father's eyes.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

8. When I was growing up my father liked one child more than another.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

9. When I was growing up my father treated one child better than another child.

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1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

10. When I was growing up my father gave one child more privileges than another.

1	2	3	4	5
Not at all	Very Little	Somewhat	A lot	Very Much

QUESTIONS ABOUT FAVORITISM TOWARDS THE PARTICIPANT COMPARED TO THE CLOSEST AGE SIBLING

Instructions: For this section, please think of you and your sibling closest in age and use the rating scale below to answer the following questions. For example, when answering the question, "when I was growing up, my mother treated who better?" – use the rating scale to complete this (e.g., when I was growing up, my mother treated *my closest sibling a lot more better than me*).

Questions about mother

11. When I was growing up my mother favored…

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

12. When I was growing up, my mother preferred…

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

13. When I was growing up, my mother liked...

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

14. When I was growing up my mother treated whom better?

1	2	3	4	5	6	7

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MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

15. When I was growing up my mother gave whom more privileges?

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

Questions about father

16. When I was growing up my father favored…

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

17. When I was growing up, my father preferred...

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

18. When I was growing up my father liked...

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

19. When I was growing up my father treated whom better?

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1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

20. When I was growing up my father gave whom more privileges?

1	2	3	4	5	6	7
MY CLOSEST SIBLING very much more than me	**MY CLOSEST SIBLING** much more than me	**MY CLOSEST SIBLING** somewhat more than me	**MY CLOSEST SIBLING AND ME** equally	**ME** somewhat more than my closest sibling	**ME** much more than my closest sibling	**ME** very much more than my closest sibling

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APPENDIX 4

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

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Instructions

Below is a list of statements dealing with your general feelings about yourself. On the answer sheet, if you strongly agree, select SA. If you agree with the statement, select A. If you disagree, select D. If you strongly disagree, select SD.

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

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APPENDIX 5

Adult Sibling Relationship Questionnaire

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Instructions and Basic Information

This questionnaire is concerned with your relationship with one of your siblings. Each question asks you to rate how much different behaviors and feelings occur in your relationship. Try and answer each question as quickly and accurately as you can. Try and answer the questions as your relationship is now, not how it was in the past, nor how you think it might be in the future. In the remainder of the questionnaire, whenever you see THIS SIBLING or YOUR SIBLING we are talking about the specific sibling you are completing the study about. We begin by asking you some general questions about your sibling and yourself. Please circle, check, or fill in the correct response.

What is your mother's maiden name?

(If your sibling is a half-sibling, please indicate BOTH your and your sibling's mothers' maiden names. Please note that this information is for administrative purposes only)

Mother's maiden name _____

Age

(Please enter age in numbers, e.g. 27)

1a) Your age: ____ 1b) This sibling's age:____

Gender

(Please circle the correct response)

2a) Your gender: Male Female 2b) This sibling's gender: Male Female

Birth order

(Please choose the correct response)

	First born	Second born	Third born	Fourth born	Later born
Your birth order	____	____	____	____	____

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This sibling's birth order ____ ____ ____ ____ ____

How far does this sibling live from you?
(Please circle the correct response)

1) same city
2) different city, less than 100 miles
3) between 100 & 200 miles
4) between 200 and 500 miles
5) between 500 and 1000 miles
6) more than 1,000 miles

Amount of Contact between siblings
(Please choose the correct response)

	At least once a week	At least once a month	At least once every 6 months	At least once a year	Less than once a year
How often do you and this sibling see each other?	____	____	____	____	____
How often does this sibling phone you?	____	____	____	____	____
How often do you phone this sibling?	____	____	____	____	____
How often do you and this sibling see each other for family gatherings and events?	____	____	____	____	____

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What is your relationship to this sibling?

(Please choose the correct response. If choosing Other, please explain why)

Biological sibling□ __

Twin□ __

Step sibling□ __

Half sibling□ __

Other _____

Do you have children?□

Yes __

No __

Does this sibling have children?□

(Please choose the correct response)

Yes __

No __

What is the highest level of education you have completed?

Primary __

Secondary __

Third level __

Now we would like some information about your other siblings

(Please do not include this sibling here)

	Age	**Gender**	**Relationship (bio, step, twin)**		**Age**	**Gender**	**Relationship (bio, step, twin)**
Sib #1:	____	M F	_____	Sib #2:	____	M F	_____
Sib #3:	____	M F	_____	Sib #4:	____	M F	_____
Sib #5:	____	M F	_____	Sib #6:	____	M F	_____
Sib #7:	____	M F	_____				

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Questions 1 – 5

(Please choose the correct response)

	Never	**Rarely**	**Occasionally**	**Regularly**
1. How much do you talk to this sibling about things that are important to you?	____	____	____	____
2. How much does this sibling talk to you about things that are important to him or her?	____	____	____	____
3. How much do you and this sibling argue with each other?	____	____	____	____
4. How much do you irritate this sibling?	____	____	____	____
5. How much does this sibling irritate you?	____	____	____	____

6) Do you think your mother favours / favoured you or this sibling more?

I am usually favoured __

I am sometimes favoured __

Neither of us is favoured __

This sibling is sometimes

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favoured __

This sibling is usually favoured __

7) Does this sibling think your mother favours him/her or you more?

I am usually favoured __

I am sometimes favoured □ __

Neither of us is favoured □ __

This sibling is sometimes favoured __

This sibling is usually favoured __

Questions 8 – 11 □

(Please choose the correct response)

	Never	**Rarely**	**Occasionally**	**Regularly**
8. How much does this sibling try to cheer you up when you are feeling down?	____	____	____	____
9. How much do you try to cheer this sibling up when he or she is feeling down?	____	____	____	____
10. How much do you dominate this sibling?	____	____	____	____

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11. How much does this sibling dominate you? ____ ____ ____ ____

12. Do you think your father favours/favored you or this sibling more?

I am / was usually favoured __
I am / was sometimes favoured __
Neither of us is / was favoured __
This sibling is / was sometimes favoured __
This sibling is / was usually favoured __

13. Does this sibling think your father favours / favoured him/her or you more?

(Please choose the correct response)

I am / was usually favoured __
I am / was sometimes favoured __
Neither of us is / was favoured __
This sibling is / was sometimes favoured __
This sibling is / was usually favoured. __

Questions 14 – 15

(Please choose the correct response)

	Hardly Anything	**Very Little**	**A Lot**
14. How much does this sibling know about you?	____	____	____

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15. How much do you know about this sibling? ____ ____ ____

Questions 16 – 21

(Please choose the correct response)

	Never	**Rarely**	**Occasionally**	**Regularly**
16. How much do you discuss your feelings or personal issues with this sibling?	____	____	____	____
17. How much does this sibling discuss his/her feelings o personal issues with you?	____	____	____	____
18. How often does this sibling criticise you?	____	____	____	____
19. How often do you criticize this sibling?	____	____	____	____
20. How often does this sibling do things to make you angry?	____	____	____	____
21. How often do you do things to make this sibling angry?	____	____	____	____

22. Does this sibling think your mother supports/supported him/her or you more?

I usually get/got more support __

I sometimes get/got more support __

We are/were supported equally __

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This sibling sometimes gets/got more support __

This sibling usually gets/got more support __

Neither of us is/was supported __

23. Do you think your mother supports/supported you or this sibling more?

I usually get/got more support __

I sometimes get/got more support __

We are/were supported equally __

This sibling sometimes gets/got more support __

This sibling usually gets/got more support __

Neither of us is/was supported __

Questions 24 – 25

	Hardly at all	**A little**	**Quite a lot**	**A lot**
24. How much can you count on this sibling to be supportive when you are feeling stressed?	____	____	____	____
25. How much can this sibling count on you to be supportive when he/she is feeling stressed?	____	____	____	____

26. When you are stressed is this sibling more likely to provide emotional or practical support?

(Please choose the correct response, e.g. emotional support might be listening/advising; practical

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support might be helping in a practical way)

Emotional support __
Practical support __
Both □ __
Neither __

27. When this sibling is stressed are you more likely to provide emotional or practical support?

(Please choose the correct response, e.g. emotional support might be listening/advising; practical support might be helping in a practical way)

Emotional support __
Practical support __
Both __
□Neither __

Questions 28 – 29

(Please choose the correct response)

	Never	**Rarely**	**Occasional**	**Regularly**
28. How much is this sibling bossy with you?	____	____	____	____
29.How much are you bossy with this sibling?	____	____	____	____

30. Does this sibling think your father supports/supported him/her or you more?

I usually get/got more support □ __
I sometimes get/got more support □ __
We are/were supported equally □ __
This sibling sometimes gets/got more support __
This sibling usually gets/got more support __

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Neither of us is/was supported __

31. Do you think your father supports/supported you or this sibling more?

I usually get/got more support □ __
I sometimes get/got more support □ __
We are/were supported equally □ __
This sibling sometimes gets/got more support __
This sibling usually gets/got more support __
Neither of us is/was supported __

Questions 32 – 33 □
(Please choose the correct response)

32. How much do you know about this sibling's relationships?

33. How much does this sibling know about your relationships?

Questions 34 – 35 □(Please choose the correct response)

34. How much do you really understand this sibling?

35.How much does this sibling really understand you?

Questions 36 – 39 □(Please choose the correct response)

36. How much does this sibling disagree with you about things? □

37. How much do you disagree with this sibling about things? □

38. How much does this sibling put you down? □

39. How much do you put this sibling down? □

40. Does this sibling think your mother is / was closer to him/her or you?

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(Please choose the correct response)

Our mother is / was usually closer to me□
Our mother is / was sometimes closer to me□
Our mother is / was equally close to both of us□
Our mother is / was sometimes closer to this sibling
Our mother is / was usually closer to this sibling

41. Do you think your mother is / was closer to you or this sibling?

(Please choose the correct response)

Our mother is / was usually closer to me□
Our mother is / was sometimes closer to me
Our mother is / was equally close to both of us□
Our mother is / was sometimes closer to this sibling
Our mother is / was usually closer to this sibling

Questions 42 – 45□

(Please choose the correct response)

42. How often do you discuss important decisions with this sibling?
43. How often does this sibling discuss important decisions with you?
44. How often does this sibling act in superior ways to you?
45. How often do you act in superior ways to this sibling?

46. Does this sibling think your father is / was closer to him/her or you?

(Please choose the correct response)

Our father is / was usually closer to me□
Our father is / was sometimes closer to me□
Our father is / was equally close to both of us□
Our father is / was sometimes closer to this sibling
Our father is / was usually closer to this sibling

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47. Do you think your father is / was closer to you or this sibling?

(Please choose the correct response)

Our father is / was usually closer to me

□Our father is / was sometimes closer to me□

Our father is / was equally close to both of us

□Our father is / was sometimes closer to this sibling

Our father is / was usually closer to this sibling

Questions 48 – 49□

(Please choose the correct response)

48.How much do you know about this sibling's ideas?

49.How much does this sibling know about your ideas?

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APPENDIX 6

Correlation Matrix of all Predictor Variables

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Correlations

		Total_M DiffAff	Total_M _DiffCon	Total_P DiffAff	Total_P _DiffCon	Total_M _DiffAffs	Total_M _DiffCons	Total_P _DiffAffs	Total_P _DiffCons	Total_M _AbsCon	Total_M AbsAff	Total_P AbsAff	Total_P _AbsCon	TotalM_ AbsAffs	TotalM_ AbsCons	Total_P _AbsAffs	Total_P _AbsCons	P_Fav_general	M_Fav_general	M_Fav_ sub_vs_ sib	F_Fav_s ub_vs_s ib	Parental priv
Total_M_DiffAff	Pearson Correlation	1	.157*	-.227**	-.133	.574**	-.239**	-.104	-.084	-.282**	-.027	.106	-.029	.121	-.089	.016	.037	.084	-.235**	.750**	-.209**	-.011
	Sig. (2-tailed)		.030	.002	.067	.000	.001	.152	.246	.000	.713	.145	.686	.096	.219	.828	.608	.247	.001	.000	.004	.877
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_M_DiffCon	Pearson Correlation	.157*	1	.232**	.416**	-.027	.315**	.121	.170*	.272**	.215**	.183*	.102	.015	.254**	.033	.247**	.121	.220**	-.037	.036	-.314**
	Sig. (2-tailed)	.030		.001	.000	.707	.000	.096	.018	.000	.003	.011	.160	.833	.000	.654	.001	.095	.002	.610	.626	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_DiffAff	Pearson Correlation	-.227**	.232**	1	-.299**	-.011	-.121	.654**	-.265**	.013	-.114	-.311**	-.268**	-.043	.108	-.054	-.065	-.365**	-.102	-.235**	.775**	.321**
	Sig. (2-tailed)	.002	.001		.000	.881	.094	.000	.000	.862	.116	.000	.000	.557	.137	.456	.373	.000	.159	.001	.000	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_DiffCon	Pearson Correlation	-.133	.416**	-.299**	1	-.246**	.421**	-.296**	.582**	.320**	.087	.250**	.424**	-.093	.125	.055	.250**	.292**	.252**	-.128	-.352**	-.399**
	Sig. (2-tailed)	.067	.000	.000		.001	.000	.000	.000	.000	.231	.000	.000	.200	.085	.450	.000	.000	.000	.079	.000	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_M_DiffAff_s	Pearson Correlation	.574**	-.027	-.011	-.246**	1	-.326**	.344**	-.146*	-.358**	-.253**	-.098	-.135	.379**	-.082	.253**	.087	-.144*	-.433**	.566**	.065	.219**
	Sig. (2-tailed)	.000	.707	.881	.001		.000	.000	.044	.000	.000	.175	.062	.000	.260	.000	.229	.048	.000	.000	.373	.002
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_M_DiffCon_s	Pearson Correlation	-.239**	.315**	-.121	.421**	-.326**	1	-.118	.571**	.548**	.267**	.192**	.305**	-.050	.092	-.048	.040	.310**	.477**	-.303**	-.144*	-.400**
	Sig. (2-tailed)	.001	.000	.094	.000	.000		.105	.000	.000	.000	.008	.000	.489	.208	.507	.579	.000	.000	.000	.049	.000

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	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_DiffAff_s	Pearson Correlation	-.104	.121	.654**	-.296**	.344**	-.118	1	-.268**	-.036	-.148*	-.305**	-.269**	.154*	.096	.189**	-.028	-.355**	-.130	-.076	.576**	.325**
	Sig. (2-tailed)	.152	.096	.000	.000	.000	.105		.000	.623	.042	.000	.000	.033	.188	.009	.705	.000	.073	.300	.000	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_DiffCon_s	Pearson Correlation	-.084	.170*	-.265**	.582**	-.146*	.571**	-.268**	1	.283**	.076	.262**	.511**	-.098	-.052	.021	-.020	.406**	.203**	-.132	-.272**	-.242**
	Sig. (2-tailed)	.246	.018	.000	.000	.044	.000	.000		.000	.296	.000	.000	.177	.478	.772	.783	.000	.005	.071	.000	.001
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_M_AbsCon	Pearson Correlation	-.282**	.272**	.013	.320**	-.358**	.548**	-.036	.283**	1	.524**	.251**	.468**	-.012	.356**	-.037	.202**	.278**	.591**	-.290**	.003	-.302**
	Sig. (2-tailed)	.000	.000	.862	.000	.000	.000	.623	.000		.000	.000	.000	.872	.000	.607	.005	.000	.000	.000	.968	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_M_AbsAff	Pearson Correlation	-.027	.215**	-.114	.087	-.253**	.267**	-.148*	.076	.524**	1	.481**	.173*	.056	.177*	.006	.100	.364**	.653**	-.108	-.141	-.286**
	Sig. (2-tailed)	.713	.003	.116	.231	.000	.000	.042	.296	.000		.000	.017	.440	.014	.936	.169	.000	.000	.138	.054	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_AbsAff	Pearson Correlation	.106	.183*	-.311**	.250**	-.098	.192**	-.305**	.262**	.251**	.481**	1	.452**	.056	.130	.210**	.294**	.675**	.303**	.031	-.321**	-.269**
	Sig. (2-tailed)	.145	.011	.000	.000	.175	.008	.000	.000	.000	.000		.000	.439	.073	.004	.000	.000	.000	.676	.000	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_AbsCon	Pearson Correlation	-.029	.102	-.268**	.424**	-.135	.305**	-.269**	.511**	.468**	.173*	.452**	1	-.074	.237**	.160*	.350**	.532**	.255**	-.075	-.255**	-.191**
	Sig. (2-tailed)	.686	.160	.000	.000	.062	.000	.000	.000	.000	.017	.000		.308	.001	.027	.000	.000	.000	.304	.000	.008
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190

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TotalM_AbsAff_s	Pearson Correlation	.121	.015	-.043	-.093	.379**	-.050	.154*	-.098	-.012	.056	.056	-.074	1	.347**	.557**	.284**	-.051	-.099	.014	-.035	-.100
	Sig. (2-tailed)	.096	.833	.557	.200	.000	.489	.033	.177	.872	.440	.439	.308		.000	.000	.000	.485	.175	.849	.632	.170
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
TotalM_AbsConn_s	Pearson Correlation	-.089	.254**	.108	.125	-.082	.092	.096	-.052	.356**	.177*	.130	.237**	.347**	1	.285**	.574**	.039	.177*	-.239**	.103	-.075
	Sig. (2-tailed)	.219	.000	.137	.085	.260	.208	.188	.478	.000	.014	.073	.001	.000		.000	.000	.595	.014	.001	.158	.305
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_AbsAff_s	Pearson Correlation	.016	.033	-.054	.055	.253**	-.048	.189**	.021	-.037	.006	.210**	.160*	.557**	.285**	1	.319**	.077	-.108	-.028	-.051	-.001
	Sig. (2-tailed)	.828	.654	.456	.450	.000	.507	.009	.772	.607	.936	.004	.027	.000	.000		.000	.288	.138	.704	.490	.988
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
Total_P_AbsConn_s	Pearson Correlation	.037	.247**	-.065	.250**	.087	.040	-.028	-.020	.202**	.100	.294**	.350**	.284**	.574**	.319**	1	.232**	.077	-.136	-.057	-.166*
	Sig. (2-tailed)	.608	.001	.373	.000	.229	.579	.705	.783	.005	.169	.000	.000	.000	.000	.000		.001	.289	.063	.434	.022
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
P_Fav_general	Pearson Correlation	.084	.121	-.365**	.292**	-.144*	.310**	-.355**	.406**	.278**	.364**	.675**	.532**	-.051	.039	.077	.232**	1	.482**	-.037	-.398**	-.283**
	Sig. (2-tailed)	.247	.095	.000	.000	.048	.000	.000	.000	.000	.000	.000	.000	.485	.595	.288	.001		.000	.616	.000	.000
	N	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	188	187	189
M_Fav_general	Pearson Correlation	-.235**	.220**	-.102	.252**	-.433**	.477**	-.130	.203**	.591**	.653**	.303**	.255**	-.099	.177*	-.108	.077	.482**	1	-.336**	-.138	-.354**
	Sig. (2-tailed)	.001	.002	.159	.000	.000	.000	.073	.005	.000	.000	.000	.000	.175	.014	.138	.289	.000		.000	.059	.000
	N	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	190	191	189	188	190
M_Fav_sub_vs_sib	Pearson Correlation	.750**	-.037	-.235**	-.128	.566**	-.303**	-.076	-.132	-.290**	-.108	.031	-.075	.014	-.239**	-.028	-.136	-.037	-.336**	1	-.164*	.187*

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	Sig. (2-tailed)	.000	.610	.001	.079	.000	.000	.300	.071	.000	.138	.676	.304	.849	.001	.704	.063	.616	.000		.025	.010
	N	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	188	189	189	187	188
F_Fav_sub_vs._sib	Pearson Correlation	-.209**	.036	.775**	-.352**	.065	-.144*	.576**	-.272**	.003	-.141	-.321**	-.255**	-.035	.103	-.051	-.057	-.398**	-.138	-.164*	1	.339**
	Sig. (2-tailed)	.004	.626	.000	.000	.373	.049	.000	.000	.968	.054	.000	.000	.632	.158	.490	.434	.000	.059	.025		.000
	N	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	187	188	187	188	187
Parental_priv	Pearson Correlation	-.011	-.314**	.321**	-.399**	.219**	-.400**	.325**	-.242**	-.302**	-.286**	-.269**	-.191**	-.100	-.075	-.001	-.166*	-.283**	-.354**	.187*	.339**	1
	Sig. (2-tailed)	.877	.000	.000	.000	.002	.000	.000	.001	.000	.000	.000	.008	.170	.305	.988	.022	.000	.000	.010	.000	
	N	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	189	190	188	187	190

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

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