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THE IMPLICATIONS OF PARENTAL DIFFERENTIAL TREATMENT: A FAMILY SYSTEMS APPROACH

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of

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Alexander C. Jensen

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To our two little ladies Charly and Olivia…you are both the favorite

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ABSTRACT

Jensen, Alexander C. Ph.D., Purdue University, August 2013. The Implications of Parental Differential Treatment: A Family Systems Approach. Major Professor: Shawn D. Whiteman

Over the past several decades scholars have highlighted links between parental differential treatment (PDT) and offspring adjustment. Despite years of research, however, several critical gaps in the literature have yet to be fully examined. First, researchers have largely assumed two divergent approaches to measuring PDT (difference scores and perceptions) to be analogous but have not considered their possible distinctions and linkages. Second, little work has tested the intersection of maternal and paternal differential treatment or addressed whether being less favored by both parents is linked with poorer outcomes than if less favored by one parent only. Lastly, most studies have focused on differential treatment between two siblings with little attention to the study of differential treatment among siblings in families with three or more offspring. To date no research that I am aware of has tested whether the context of family size moderates links between PDT and youth adjustment. The current dissertation addresses these three gaps in the literature by conducting three studies using three separate data sets.

Findings indicate that difference scores and perceptions are likely distinct yet conceptually linked constructs. Specifically, actual differences in treatment (difference scores) may be indirectly linked to offspring well-being through the perception of PDT. Results did not indicate a maternal differential treatment X paternal differential treatment interaction, suggesting that being less favored by two parents may not be worse than being less favored by one parent only. Lastly, results suggested that in some instances links between PDT and youth adjustment do vary by family size as well as the average level of parental support. Contrary to expectations, however, in larger families with high average levels of support and in small families with low average levels of support, more favored treatment was linked to poorer emotion regulation. Discussion focuses on each individual gap in the literature as well as cross-cutting themes across the three studies.

CHAPTER 1. INTRODUCTION

1.1 Introduction

Mothers and fathers typically parent their children differently according to age, developmental needs, and even personality (Kowal & Kramer, 1997; McHale & Pawletko, 1992), making differential treatment a normative experience for individuals with one or more siblings (Boyle et al., 2004). As evidenced by a substantial body of literature, discrepant parental treatment has implications for offspring's development (e.g., Lam, Solmeyer, & McHale, 2012; McGuire, Dunn, & Plomin, 1995; Richmond, Stocker, & Rienks, 2005). The goal of this dissertation is to build upon theoretical and empirical frameworks developed over the past three decades to explain the implications and correlates of parental differential treatment (PDT). First, I discuss the definition, theoretical foundations, and empirically identified correlates of PDT. Then, I discuss three gaps in the literature. Each of these gaps was addressed by individual studies that comprise the bulk of this dissertation.

1.2 Definition of Differential Treatment

Parents' differential treatment reflects a relatively simple notion: mothers or fathers treating their multiple offspring differently. Despite this simplicity, extant work has generally defined differential treatment in one of two ways. The first approach

attempts to index differential treatment by comparing siblings' treatment via differences scores (e.g., Boll, Ferring, & Filipp, 2003; Brody, Stoneman, & McCoy, 1992b; Shanahan, McHale, Crouter, & Osgood, 2008). Because difference scores typically use independent responses from multiple reporters, differential treatment is measured implicitly as opposed to explicitly. For example, Lam and colleagues (2012) had adolescent siblings individually rate their conflict with their mother and father. The reports of the older sibling were then subtracted from those of the younger sibling, and vice versa, to create a difference score with positive values reflecting favored treatment (i.e., less conflict with the parent relative to the sibling).

Instead of measuring implicit differences in treatment, the second approach focuses on offspring's perceptions of how they are treated in comparison to a sibling (e.g., Brody, Copeland, Sutton, Richardson, & Guyer, 1998; McHale, Crouter, McGuire, & Updegraff, 1995; Scholte, Engels, de Kemp, Harakeh, & Overbeek, 2007). Work by Richmond and colleagues (2005) exemplify this approach by having youth rate the extent to which they perceived that either they or their sibling received more favorable treatment from their parents. To date, the literature on PDT has generally levied these two approaches as the same construct. Although likely related, each approach places emphasis on somewhat different aspects of differential treatment. On one hand, the difference score approach focuses on differences in treatment and implies social comparison based on the treatment. On the other hand, the individual perception approach defines PDT as a largely social psychological construct that implies some degree of actual differences in treatment, but does not focus on actual measures of parenting.

1.3 Theoretical Foundations of Differential Treatment

The bulk of literature examining PDT has been rooted in social comparison principles and theory (Festinger, 1954; Suls, Martin, & Wheeler, 2002). In brief, Social Comparison Theory (SCT) suggests that individuals have innate desires to compare themselves to others in a variety of domains such as abilities, material possessions, and treatment from others (e.g., parents). Importantly, these comparisons carry implications for individual well-being, but the consequences depend on the direction and valence of the comparison. Downward comparisons, or those evaluations made with those who are perceived as less well off (e.g., a sibling who receives poorer parental treatment) have been linked with a better self concept, higher well-being, and improved adjustment. In contrast, upward comparisons, or evaluations made with those who are perceived as better off (e.g., a sibling who receives better parental treatment) have been associated with a diminished self concept, poorer well-being and adjustment (e.g., Mendes, Blascovich, Major, & Seery, 2011; Wheeler & Miyake, 1992). The hypothesized role of downward and upward evaluations, however, are only evident when the domain of comparison is deemed important to the individual. For example, if a sibling is uninterested in sports, self comparison of athletic ability to a brother or sister who is a star athlete may have fewer consequences, even if the differences in athletic ability are also linked with differences in parental praise. Yet, if athletic ability is an important domain to the individual, differences in parental praise (also likely an important dimension), would likely have greater implications for offspring outcomes.

There are several components of SCT that make it a useful framework for understanding the implications of differential treatment. Comparisons occur not only

consciously and intentionally, but also subconsciously and unintentionally (Stapel & Suls, 2004; Suls et al., 2002). Whether intentional, unintentional, conscious or subconscious, comparisons also need not be accurate; inaccurate comparisons can affect self concept just as readily (Festinger, 1954; Wood, 1989). Stemming from these theoretical principles, and the fact that siblings spend copious amounts of time together (McHale & Crouter, 1996; Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005), siblings provide ubiquitous frames of reference in many domains, including parental treatment. Furthermore, even if comparisons between siblings occur subconsciously they likely still have implications for individual and relational development.

Beyond social comparison, other work has cited Adler's theory of Individual Psychology (Ansbacher & Ansbacher, 1956) as an explanation for links between differential treatment and offspring outcomes. Adler's theory placed the family, including siblings, as central agents in personality development. According to this perspective, brothers and sisters influence one another as they compete for family and parental resources. This focus makes differential treatment between siblings fundamental in children's development. In contrast to notions of social comparison, the individual psychology perspective suggests that it is not whether a particular sibling is favored or less favored, but rather the degree of inequality that is displayed by the parent. This perspective suggests that greater discrepancies in parental treatment foster contention, rivalry, and conflict between siblings. The use of this theory has largely focused on relational outcomes, with some studies suggesting that the greater the amount of differential treatment the poorer the relational quality between siblings (e.g., Boll et al., 2003; Kowal & Kramer, 1997; Jensen, Whiteman, Fingerman, & Birditt, 2013).

Although scant, other studies have also suggested that greater discrepancies in treatment are also likely to impact individual developmental outcomes (e.g., Tamrouti-Makkink, Dubas, Gerris, & van Aken, 2004).

1.4 Correlates of Differential Treatment

Empirical evidence regarding differential treatment generally suggests that favored treatment is associated with better individual adjustment and less favored treatment with poorer adjustment. This pattern has been found across a host of outcomes including: mental health (e.g., Brody et al., 1998; Shanahan et al., 2008), self-esteem (e.g., Kowal, Kramer, Krull, & Crick, 2002; McHale, Updegraff, Jackson-Newsom, Tucker, & Crouter, 2000), externalizing behaviors (e.g., Richmond et al., 2005; Scholte et al., 2007), emotional affect (e.g., Brody et al., 1992b; Davey, Tucker, Fingerman, & Savla, 2009), physical health (Browne & Jenkins, 2012), and college attendance (Bissell-Havran, Loken, & McHale, 2012). Differential treatment has also been linked with sibling relationship qualities such as intimacy and conflict, with data typically suggesting that both favored and less favored offspring report less intimacy and more conflict when the difference in treatment is greater (e.g., Kowal & Kramer, 1997; Boll, Ferring, & Filipp, 2005).

In addition to main effects, researchers have also identified several factors that may moderate the implications of parents' differential treatment. These factors include gender, gender composition of the sibling dyad, and age difference. In general, social psychological research suggests that females may be more inclined to social comparison than males (Roberts, 1991; VanderZee, Bunk, & Sanderman, 1995). Along those lines,

several studies have suggested that the consequences of differential treatment may be greater for daughters than for sons (McHale et al., 2000; Scholte et al., 2007; Shanahan et al., 2008). These findings, however, are not consistent across the entire body of differential treatment literature (Feinberg, Neiderhiser, Simmens, Reiss, & Hetherington, 2000; Shebloski et al., 2005), perhaps because mothers and fathers tend to favor same gender offspring (Crouter, Manke, & McHale, 1995; Harris & Morgan, 1991; Tucker, McHale, & Crouter, 2003).

Social comparison research also suggests that evaluations will be more salient when the individuals are more objectively similar because there will be fewer reasons to account for any observed or perceived differences (Tesser, Millar, & Moore, 1988; Wills, 1991; Wood, 1989). Based on this notion, multiple studies have highlighted that differential treatment processes are more prominent and sometimes only evident for those in same-gender sibling dyads (e.g., Coldwell et al., 2008; McHale et al., 2000; Scholte et al., 2007). Objective sibling similarity may also be linked with siblings' ages. Siblings who are closer in age are more similar developmentally than are siblings farther apart in age and thus the role of differential treatment may be exacerbated when siblings are closer in age (Meunier, Bisceglia, & Jenkins, 2012).

1.5 Direction of Effects

In general, most research on differential treatment (e.g., Boll et al., 2003; Coldwell et al., 2008; McHale et al., 2000) as well as the theoretical perspectives typically cited to explain empirical findings (i.e., Social Comparison Theory; Festinger, 1954; Suls et al., 2002), are based on the notion that differences in parental treatment

lead to offspring outcomes. It is critical, however, to consider that variation in siblings' characteristics and behaviors may give rise to differences in parental treatment (e.g., Jensen et al., 2013; Lam et al., 2012; Richmond et al., 2005). Indeed, a body of work on child driven effects highlights this notion (e.g., Bell, 1968; Crouter & Booth, 2003; Kuczynski, 2003). For example, depressive symptoms of offspring may lead to fathers' willingness to engage with their children (Hawkins, Amato, & King, 2007). Although the direction of effects is difficult to decompose in correlational and cross-sectional data, researchers can more precisely isolate relationships between PDT and youths' outcomes by controlling for similarities and differences in siblings' personal characteristics that may account for why they are treated differently by their parents.

1.6 Gaps in the Literature

Despite several decades of literature examining the links between differential treatment and offspring outcomes, many gaps in the literature still exist. The most prominent of these openings is the lack of attention to differential treatment as a family process, which necessitates examination of more than two people (typically a mother and child). As such, the work on PDT would benefit from the incorporation of a family systems theory approach. In short, Family Systems Theory (FST) posits that the family is comprised of individuals and subsystems (Cox & Paley, 1997; Cox & Paley, 2003). The whole system is greater than the sum of the parts because a family is more than just a group of individuals co-residing, but is a dynamic unit shaped by daily mutually influencing interactions. Built upon this principle, it follows that in order to develop a comprehensive understanding of differential treatment as a family process, all members

of the family need to be examined. In many families this will include mothers and fathers. In many families this will also include three or more siblings (Kreider & Ellis, 2011).

As mentioned, FST highlights that individuals and subsystems are inherently interconnected and what occurs with one subsystem influences the behaviors and processes of other subsystems. Consistent with this postulation, research on parenting styles underscores that parents recognize the behavior of one another and may even compensate for their counterpart's treatment of their children. For example, in some families one parent may display poor parenting practices (e.g., harsh or neglectful) and the other parent may compensate for this with better more nurturing behaviors. In these cases research suggests that although lower quality parenting is typically associated with adolescent maladjustment, in the context of one parent compensating for their counterpart's poor parenting there is no association with adolescent delinquency (Hoeve, Dubas, Gerris, van de Laan, & Smeenk, 2011; Simons & Conger, 2007). This pattern, however, may be more evident when mothers are compensating for poor paternal parenting than for fathers compensating for poor maternal parenting (Simons & Conger, 2007). In regards to differential treatment, these examples and family systems principles suggest that the amount of differential treatment from one parent may influence the other parent's treatment of children, which in turn, may have implications for offspring's health and well-being. It is also possible that parent gender as well as offspring characteristics such as gender and age will further moderate the implications of differential treatment processes.

Two of the three studies comprising this dissertation will examine gaps in the literature by integrating family systems principles, the first study, however, will investigate the distinction and linkages between implicit and explicit measures of PDT. The second study will examine the unique and interactive nature of both maternal and paternal treatment. The last study will focus on differential treatment among all the siblings (as opposed to a single dyad) within a family.

1.6.1 The Implications of Distinct Indices of Differential Treatment

As mentioned earlier, empirical research has assessed discrepant treatment primarily through two methods: difference scores (e.g., Feinberg & Hetherington, 2001; McHale et al., 2000; Shanahan et al., 2008) and individual perceptions (e.g., Kowal & Kramer, 1997; Richmond et al., 2005; Tucker et al., 2003). The difference score approach to measurement typically uses multiple reporters (e.g., two siblings) and compares their reports of treatment. The individual perceptions approach instead assesses how one sibling feels they are treated relative to the other sibling. Although each approach has been considered analogous to the other, they may address two different components of differential treatment. To date, only three studies have included measures of both approaches (Dunn, Stocker, & Plomin, 1990; Coldwell et al., 2008; Quittner & Opipari, 1994). None of these studies, however, explicitly focused on the conceptual and empirical differences and linkages of the two approaches. Rather, each study included each measure as an aspect of differential treatment and highlighted their unique associations with offspring outcomes. Dunn and colleagues (1990) suggested that individual perceptions may be more robustly linked to offspring outcomes. Conversely,

Coldwell et al. (2008) found that differences scores were more robustly linked to offspring development.

Although potentially useful, simple examination of the unique associations of each measure may be missing potential conceptual links between the two approaches to measuring PDT. The use of difference scores may be a closer approximation of actual differences in treatment. Individual perceptions of differential treatment likely are formed in part because of actual differences in treatment. Given that both approaches have been linked to offspring outcomes (e.g., Feinberg & Hetherington, 2001; Richmond et al., 2005; Scholte et al., 2007) it is possible that the perception of differential treatment mediates the relationship between differential treatment measured via difference scores and offspring outcomes. This question has not been examined in the literature and was the focus of the first study in this dissertation.

1.6.2 Differential Treatment from Mothers and Fathers

Family Systems Theory (Cox & Paley, 1997; Cox & Paley, 2003) posits that in order to comprehend the complexities of family life one must understand the interconnectedness and relations among all members of the family. Thus, in order to understand differential treatment in families with two parents, it is imperative to assess treatment from both mothers and fathers. Yet, with some notable exceptions (e.g., Brody, Stoneman, & McCoy, 1992a; McHale et al., 1995; Tucker et al., 2003), differential treatment research has historically focused on maternal treatment. More recent work is moving towards the examination of both maternal and paternal treatment concurrently

(e.g., Jensen et al., 2013; Lam et al., 2012; Shanahan et al., 2008), but the literature is still deficient in a thorough discussion of differential treatment from both mothers and fathers.

Although concurrent examination of the implications of maternal and paternal differential treatment provides an advance over previous work, a family systems perspective also indicates that these two subsystems are linked. As such, it is likely that the implications of differential treatment from one parent depend on the differential treatment of the other. For example, taking a family systems approach and examining the implications differential treatment from mothers and fathers, Meunier, Bisceglia, and colleagues (2012) found that combined less favored treatment from both mothers and fathers was linked to the greatest amounts of problem behavior in offspring. Yet, there was no association between either maternal or paternal favoritism and offspring behavioral problems when the offspring was favored by the other parent. This pattern suggests that parents may compensate for one another's differential treatment and possibly negate the associations typically observed when examining the treatment of one parent alone (e.g., less favored offspring faring poorly). This pattern, however, may further depend on the gender of the offspring. Because parents tend to favor their same gender offspring (e.g., Crouter et al., 1995; Harris & Morgan, 1991; Tucker et al., 2003) it is possible that the protective nature of parents' compensation may not hold if the focal child is the same gender of the parent from whom they are less favored. To date, no studies have examined the intersection of differential treatment from both parents within the context of offspring gender. The second study of the dissertation examined these notions.

1.6.3 More Than Two Siblings

With few exceptions (Browne, Meunier, O'Connor, & Jenkins, 2012; Meunier, Bisceglia, et al., 2012; Meunier, Wade, & Jenkins, 2012) the differential treatment literature has focused on treatment between two siblings only. Yet, over 40% of U. S. families have three or more children (Kreider & Ellis, 2011). Based on systems theory principles (Cox & Paley, 1997; Cox & Paley, 2003) a full understanding of the process in these larger families will only come by examination of all members of a family. Furthermore, differential treatment processes may have varying implications in larger families than in two child families. For example, in larger families there are more potential comparison targets regarding parental treatment, possibly compounding the impact of multiple upward or downward comparisons. Additionally, because parental resources are divided amongst more siblings in larger families (e.g., Downey, 1995; Steelman, Powell, Werum, & Carter, 2002) comparison regarding the unequal distribution of parental resources may be more salient in larger families.

Although family size may be linked to fewer resources given to each individual sibling, families of any size can vary in the amount of resources typically given to their offspring. Thus, it is also important to consider the average level of parenting in addition to family size. For example the implications of differential treatment in a larger family may be elevated in a family that on average provides lower levels of support to their children as opposed to a family that on average provides higher levels of support. To date, no studies have examined differential treatment among all the siblings in the family while focusing on family size as a moderating context. The third study of this

dissertation examined this topic while also including the average level of parenting as a moderator.

CHAPTER 2. IN THE EYE OF THE BEHOLDER: THE ROLE OF PERCEPTION-BASED AND DIFFERENCE SCORE INDICES OF PARENTAL DIFFERENTIAL TREATMENT AND ADOLESCENTS' SUBSTANCE USE

2.1 Introduction

Social Comparison Theory (SCT; Festinger, 1954; Suls et al., 2002) suggests that individuals have innate desires to evaluate themselves by means of comparison. Comparisons can be made across a variety of domains, such as abilities, material possessions, and treatment from others (e.g., parents). Downward comparisons, or evaluations made with those who are perceived as less well off (e.g., a sibling who receives poorer parental treatment), have been linked with a higher self concept, better well-being, and improved adjustment. In contrast, upward comparisons, or evaluations made with those who are perceived as better off (e.g., a sibling who receives better parental treatment), have been associated with lower self concept, diminished well-being, and poorer adjustment (e.g., Mendes et al,. 2011; Wheeler & Miyake, 1992).

Social Comparison Theory further suggests that comparisons are ubiquitous in everyday life and are particularly salient when made with those who are similar in personal characteristics and with whom interactions are frequent (Tesser et al., 1988; Wills, 1991; Wood, 1989). When based on a domain considered important to the individual (Tesser et al., 1988) comparisons can be intentional or unintentional, conscious or sub conscious (Stapel & Suls, 2004; Suls et al., 2002), accurate or inaccurate (Wills,

1991; Wood, 1989) and still influence one's self-concept. Individuals, however, intrinsically strive to make comparisons as accurate as possible (Wills, 1991; Wood, 1989) and thus it is possible that an individual's perception of discrepancies between themselves and a social comparison target are at least somewhat based on accurate differences. These social comparison principles (whether intentional/unintentional, conscious/subconscious or accurate/inaccurate) lend siblings to being frequent and common targets of comparison because they are typically similar in at least some respects and spend large amounts of time with and around one another in childhood and adolescence (McHale & Crouter, 1996; Updegraff et al., 2005).

Citing social comparison processes, a body of literature has developed over the last several decades linking parental differential treatment to offspring's development and adjustment. The general hypothesis of this work is that offspring compare the ways in which they are treated by parents, and upward comparisons (i.e., perception that they are disfavored or sibling receives better treatment) are related to poorer individual well-being. This pattern has been found across many studies examining domains such as self-esteem (e.g., McHale et al., 2000), maladjustment (e.g., Feinberg & Hetherington, 2001), externalizing behaviors (e.g., Richmond et al., 2005), and delinquency (e.g., Scholte et al., 2007). There is also some support for downward comparisons (i.e., favored treatment relative to a sibling) being linked to better adjustment (e.g., Shanahan et al., 2008; Tamrouti-Makkink et al., 2004); however, there is debate as to whether the favored or those receiving equal treatment actually fare better (e.g., Boll et al., 2003; Kowal, Krull, & Kramer, 2004; Meunier, Bisceglia, et al., 2012).

Although studies of PDT often cite social comparison as an explanation for observed findings, researchers have been inconsistent in using social comparison principles in the conceptualizing and measuring of PDT. Given the explicit focus on personal perspective in social comparison theory, several studies have focused on individuals' perceptions of how they are treated relative to their sibling (hereafter referred to as perceptions; e.g., Kowal & Kramer, 1997; Scholte et al., 2007; Tucker et al., 2003). Other studies, however, have tried to measure differential treatment more implicitly—comparing reports of parenting specific to each sibling by subtracting one sibling's treatment from that of the other (hereafter referred to as difference scores; e.g., Boll et al., 2005; McHale et al., 2000; Shebloski et al., 2005). In the following pages, I will discuss the distinctions as well as explore the theoretical and possible empirical linkages between these two measurement approaches.

2.1.1 Distinctions and Links between Difference Scores and Perceptions

Although the use of both difference scores and perceptions has been based on SCT, each approach inherently emphasizes different aspects of the framework. Importantly, these varying emphases have diverging conceptual implications. The use of perceptions is based on the idea that individuals are aware of discrepant treatment, highlighting the role of conscious comparisons, with less possibility for subconscious comparisons. Regardless of level of consciousness, comparisons can vary in accuracy. Because individual perspectives may or may not be accurate, the perceptions approach highlights that both accurate and inaccurate comparisons can impact well-being and adjustment (Festinger, 1954; Wood, 1989).

The difference score approach varies in focus on level of consciousness and accuracy. Difference scores are typically calculated from multiple reporters (e.g., at least two siblings) or from a reporter other than the siblings of interest (e.g., a parent or researcher). Although reporter and measurement bias likely alters the effectiveness of this approach, difference scores may more closely reflect actual differences in treatment than do perceptions. Social comparison is then implied as the mechanism linking the differences in treatment to offspring outcomes. Because difference scores do not explicitly focus individual perceptions, emphasis is placed on accurate comparisons. Regardless of accuracy, differences scores also allow for both conscious and subconscious comparisons, without directly assessing either.

Distinctions based on level of consciousness and accuracy implies that these two approaches are conceptually different, although related. To date, three studies have included both difference scores and perceptions (Coldwell et al., 2008; Dunn et al., 1990; Quittner & Opipari, 1994). Unfortunately, none of these studies explicitly explored the theoretical distinctions between these two approaches. Their data, however, suggest that these measures are indeed distinct. For example, Dunn and colleagues (1990) found that a greater number of younger siblings reported receiving favored treatment than was indicated by differences scores. Furthermore, the bivariate correlations among perceptions of differential treatment and PDT measured via difference scores as reported by Coldwell et al. (2008) and Quittner and Opipari (1994) were generally small (ranged in absolute values from .03 to .40).

Varying theoretical emphases and weak associations between the two constructs (Coldwell et al., 2008; Dunn et al., 1990; Quittner & Opipari, 1994) suggest that

difference scores and perceptions of differential treatment are distinct measures. It should be noted, however, that several of the correlations reported by Coldwell et al. (2008) and Quittner and Opipari (1994) were statistically significant (and positive); thus, linkages between the two approaches may exist. Conceptually, a connection may exist between the two measures beyond a simple bivariate association. Social comparison principles assert that comparisons do not need to be accurate to impact well-being and adjustment (Festinger, 1954; Wood, 1989), but individuals inherently strive to make their social comparisons as accurate as possible (Wills, 1991; Wood, 1989) and it is likely the same with comparisons based on parental treatment. Building upon these principles, it is possible that perceptions of treatment likely arise, at least in part, from actual differences in treatment. If both actual differences in treatment (difference scores) and the perception thereof are uniquely associated with offspring outcomes, but actual differences in treatment in part lead to the perception of treatment, then differences scores may be indirectly linked to offspring outcomes through perceptions.

2.1.2 Correlates of Differential Treatment in Adolescence

Differential treatment has consistently been linked to offspring outcomes in studies employing both difference scores (e.g., Boll et al., 2003; Shanahan et al., 2008; Shebloski et al., 2005) and perceptions (e.g., Pillemer et al., 2010; Richmond et al., 2005; Tucker et al., 2003). Despite consistent associations, the literature is less clear as to whether favored offspring or those who receive equal treatment report better well-being and adjustment (Meunier, Bisceglia, et al., 2012). The discrepancies in the literature cannot be accounted for by varying use of difference scores and perceptions. What is

clear, however, is that less favored offspring are at risk for internalizing behaviors (e.g., Boll et al., 2003; Shanahan et al., 2008), lower self-esteem (e.g., McHale et al., 2000; Shebloski et al., 2005), poorer physical health (Browne & Jenkins, 2012), and increased delinquent behavior (e.g., Richmond et al., 2005; Scholte et al., 2007; Tamrouti-Makkink et al., 2004).

Exploring the links between PDT measured via both difference scores and perceptions and delinquent behaviors, including substance use, may be particularly important among adolescent siblings. Alcohol and other substance use typically onsets and increases throughout adolescence (Johnston, O'Malley, Bachman, & Schulenberg, 2010) and early use may have negative emotional, physical, cognitive, and behavioral consequences (e.g., Mason & Spoth, 2012; Spoth, Greenberg, & Turissi, 2009). Given past research linking PDT to delinquent behavior, it is possible that adolescents who both perceive that they are treated less favorably and are treated less favorably than their sibling (assessed by difference score) will be more likely to have used alcohol and other substances and display delinquent behaviors.

Beyond the outcomes typically associated with differential treatment, Social Comparison Theory principles suggest several factors that may moderate links between PDT and offspring outcomes. Specifically, the implications of social comparison are typically salient when individuals are objectively similar (e.g., Festinger, 1954; Tesser et al., 1988; Wood, 1989). Along those lines, empirical evidence has indicated that differential treatment is more salient for those in same-gender dyads (e.g., McHale et al., 2000; Scholte et al., 2007) and those who are closer in age (Meunier, Bisceglia, et al., 2012). Other factors have also been linked to differential treatment and will be controlled

for in this study, specifically gender (e.g., Shanahan et al., 2008), age (e.g., Shebloski et al., 2005), and birth order (e.g., McHale et al., 1995).

2.2 Present Study

This study examined the implications of and conceptual links between PDT indexed via difference scores and individual perceptions. Given that PDT, in particular less favored treatment, has been consistently linked to delinquent and externalizing behaviors (e.g., Scholte et al., 2007; Tamrouti-Makkink et al., 2004), adolescent substance use (i.e., cigarettes, alcohol, and marijuana) and delinquency were examined as dependent variables. Based on theory and past research the following were proposed: Hypothesis 1, difference scores and perceptions would both be directly and positively associated with offspring outcomes such that the degree to which one is less favored would be associated with the greater likelihood of substance use and positively with delinquency; Hypothesis 2, difference scores would be indirectly and positively associated with substance use and delinquency through perceptions of PDT; Hypothesis 3, the indirect effect of differences scores through perception would be moderated by gender composition and age spacing, such that the indirect effect would be larger for those in same gender sibling dyads and siblings closer in age.

2.3 Method

2.3.1 Participants

Data were drawn from the Purdue, Parent, Adolescent, and Sibling Study (PPASS). Participants included one parent and two adolescent-aged siblings from 326 families. Although only one parent was interviewed, in cases where youth lived with both parents or had contact with a non-residential parent, participating youth reported on treatment from both parents. This resulted in a sample of 285 families for this study. On average, parents (87% mothers; 98% were the biological parent of both siblings; 77% of households included two married parents) were 44.95 years old (SD = 5.54), older siblings were 17.17 years old (*SD* = .94), and younger siblings were 14.52 years old (*SD* = 1.27). The sample included 167 same-sex pairs (51%) and 159 mixed-sex pairs (49%). Seventy-one percent identified themselves as White (not Hispanic), 23% as African American, 4% as Latino, 1% as multi-ethnicity, and 1% as Asian.

2.3.2 Procedure

Families with adolescent offspring were identified from a purchased marketing list and mailed information regarding the study. Seven counties in a Midwestern U.S. state were targeted. Interested families replied via mail and were then contacted to establish criteria for participation. A total of 6,854 families were originally mailed letters of which 3,002 contained incorrect contact information. An additional 2,556 families never responded and were not contacted by the research team. In total 785 families were

identified as eligible, of which 326 participated (a 42% response rate; 41 families had no information on paternal differential treatment and were excluded from analyses). Upon successful evaluation of selection criteria (two siblings residing in the home between the ages of 12 and 18), informed consent and assent was obtained from each family member. Telephone interviews were then conducted individually and privately with each participating member of the family. Interviewers asked questions and recorded answers reported by participants. Each participant had previously been mailed a scales sheet (one page consisting of the Likert scales to be used during the interview) with which they used to respond to items. Interviews lasted approximately 40 minutes. Following completion of the interviews each participant received an honorarium of $35 ($105 per family).

2.3.3 Measures

2.3.3.1 Demographic Information

Parents reported on background information relating to the family as a whole, themselves, and each sibling. Information included household composition, parental marital status, age, gender, and education level of each member of the household.

2.3.3.2 Parent-Offspring Intimacy

Offspring independently responded to 8 items from Blyth, Hill and Thiel's (1982) Intimacy Questionnaire regarding their own intimacy with their mother and with their father. Items were rated on a 5-point scale, ranging from 1 (*not at all*) tot 5 (*very much*). Example items included, "How much do you go to your mother/father for advice or

support?" And, "How important is she/he to you?" Items were averaged together separately for each parent with higher values reflecting greater intimacy. Responses indicated that older siblings had moderately high intimacy with both mothers ($M = 3.58$, $SD = .72$) and fathers ($M = 3.23$, $SD = .84$), as did younger siblings (maternal $M = 3.61$, $SD = .65$; paternal $M = 3.30$, $SD = .76$). Cronbach's αs ranged from .83 to .89.

2.3.3.3 Parent-Offspring Conflict

Offspring independently reported on their conflict with each parent using 12 items adapted from Smetana (1988). Items were rated on a 6-point scale, ranging from 1 (*not at all*) to 6 (*Several times a day*). Items assessed the frequency of parent-offspring conflict across 12 domains, including chores, homework/grades, activities with friends, saving and spending of money, and getting along with siblings. Items were averaged together for each parent and higher scores reflect more frequent conflict. Responses indicated that older siblings had relatively low levels of conflict with both mothers ($M = 2.21$, $SD = .70$) and fathers ($M = 2.04$, $SD = .75$), as did younger siblings (maternal $M = 2.27$, $SD = .73$; paternal $M = 2.04$, $SD = .72$). Cronbach's αs ranged from .84 to .89.

2.3.3.4 Parents' Differential Treatment Measured by Difference Score

Difference scores were created separately for maternal intimacy, maternal conflict, paternal intimacy, and paternal conflict. For differential intimacy difference scores were calculated for each offspring by subtracting their own value from that of their sibling. Thus, positive values reflected that the target sibling received relatively less

intimacy (i.e., less favored). Difference scores created for older siblings indicated that both mothers (M = -.02, SD = .80) and fathers (M = -.08, SD = .94) had roughly equal conflict with both older and younger siblings. For differential conflict, differences scores were calculated by subtracting their sibling's value from their own so that positive values reflected receiving relatively more parental conflict (i.e., less favored). Difference scores created for older siblings indicated that mothers (M = .06, SD = .95) and fathers (M = .00, SD = .92) also had relatively equal conflict with older and younger siblings.

Because the literature suggests that both those receiving favored treatment and those receiving equal treatment report better outcomes, scores were further recoded so that all negative values were recoded as zero and positive values were left unaltered. Recoding the difference scores in this manner also placed them on a similar metric as the perception variable. Thus, a score of zero reflected either favored or equal treatment and positive values reflected the degree to which the target sibling was less favored.

2.3.3.5 Perceptions of Maternal and Paternal Differential Treatment

Using two items, offspring reported on their perception of maternal and paternal differential treatment (McHale, 2006). Items were rated on a 5-point scale, ranging from 0 (*never*) to 4 (*very often*). Items were worded, "My mother/father treats my sibling like her/his favorite more than she/he treats me that way." And, "My mother/father treats my sibling better than she/he treats me." Items were averaged together with zero reflecting either equal or favored treatment and positive values reflecting less favored treatment. Reports indicated that both older and young siblings reported receiving slightly less

favored treatment from both mothers (older sibling $M = 1.97$, $SD = 1.06$; younger sibling $M = 1.87$, $SD = 1.04$) and fathers (older sibling $M = 1.83$, $SD = .98$; younger sibling $M = 1.78$, $SD = .99$). Cronbach's α ranged from .89 to .93.

2.3.3.6 Substance Use

Substance use was assessed via three items measuring the use of cigarettes (Johnston, O'Malley, Bachman, & Schulenberg, 2006), alcohol (National Institute on Alcohol Abuse and Alcoholism Task Force on Recommended Alcohol Questions, 2003), and marijuana (Johnston et al., 2006). Because responses were not normally distributed, items were recoded to reflect whether the adolescent had used the substance in the last year or not. A sum variable was then calculated reflecting the number of substances used in the past year. The majority of adolescents had not used any substance in the past year (63.3%); fewer adolescents had used only one substance (20.7%), two substances (8.4%) or all three substances (7.5%) in the past year.

2.3.3.7 Delinquency

Offspring responded on 21 items assessing their participation in risky and delinquent behaviors (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Eccles & Barber, 1990). Items were rated on a 4-point scale ranging from 0 (*never*) to 3 (*often*). Items asked how frequently the youth participated in a particular deviant behavior (e.g., skipped a day of school, been in trouble with police, cheated on school tests, done something they knew was dangerous, or used alcohol). Items were averaged together with higher scores

reflecting more deviant behavior. Older (M = .51, SD = .38) and younger (M = .47, SD = .42) siblings reported low levels of delinquent behavior. Cronbach's αs were .84 and .89 for older and younger siblings respectively. Because adolescents' reports of delinquency were positively skewed, the delinquency variable was square-root transformed prior to analysis (M = .61, SD = .28).

2.4 Results

2.4.1 Analytic Strategy

To examine the conceptual links and distinctions between difference scores and perceptions of PDT, analyses were conducted within the structural equations modeling (SEM) framework using Mplus 6 (Muthén & Muthén, 2010). The cluster command in Mplus was used to account for the nested nature of siblings within families. The structural model (see Figure 1) included perception of maternal treatment, perception of paternal treatment, substance use, and delinquency as endogenous variables. Differential treatment from both mothers and fathers as measured by difference scores were included as exogenous variables. The perception variables were estimated as latent variables and all others were observed/manifest. Although substance use could be considered a count variable, doing so would require the estimation of the pathways to the substance use variable to employ Zero-Inflated Poisson regression. The examination of clustered data and the estimation of indirect effects in Mplus prohibits the use of the Zero-Inflated Poisson model, and so the substance use variable was treated as an ordered categorical variable where the corresponding odds ratios refer to the odds of being in the next highest

group. The model controlled for age, age spacing, gender (0 = female; 1 = male), and gender composition of the sibling dyad (0 = same gender; 1 = mixed gender), by estimating direct paths between these four variables and each outcome.

To test Hypothesis 1, direct paths were estimated between maternal and paternal difference scores and each outcome variable, as well as direct paths from each perception variable and each outcome (i.e., substance use and delinquency). Hypothesis 2 was addressed by examining the indirect association of the difference scores through perception on each of the outcomes using the indirect command within Mplus. The indirect command employs the Delta method to estimate the coefficient of the indirect association as well as the corresponding probability value. Finally, to test Hypothesis 3, a series of multi-group analyses were conducted to assess the moderating role of age spacing and gender composition on the indirect association of the difference scores on the outcomes through perceptions. These tests were performed by constraining the indirect pathways to be equal across the groups, and then allowing the pathways to vary. The DIFFTEST option in Mplus was used to assess whether to unconstrained models fit better than the constrained models. The DIFFTEST option uses the χ^2 statistic to assess differences in fit between two models. Age spacing was dichotomized for these tests with comparisons occurring between those above the median age difference and those below the median age difference (*median* age spacing = 2.5 years).

Given associations between youths' reports of mothers' and fathers' treatment (see Table 2.1; also see Meunier, Bisceglia, et al., 2012), the model specified correlations among maternal differential conflict, maternal differential intimacy, paternal differential conflict, and paternal differential intimacy, as well as the correlation between latent

scores for perceived maternal differential treatment and perceived paternal differential treatment. The correlation between substance use and delinquency was also modeled.

2.4.2 Links between Differential Treatment and Adolescent Substance Use and Delinquency

The means and standard deviations of all variables included in the model as well as the bivariate correlations among all the variables are presented in Table 2.1. Because the perception of both maternal and paternal differential treatment was assessed via a latent variable, the values reported in Table 2.1 are based on the mean of the items used in creating that latent score.

Results suggested good model fit for the specified model, $\chi^2 = 84.46$, $df = 49$, $CFI = .97$, $TLI = .95$, $RMSEA = .04$. As shown in Figure 2.1, consistent with Hypothesis 1, the direct path from differential maternal conflict to delinquency was statistically significant ($\beta = .22$, $p < .001$), with less favored treatment being linked to greater delinquency. The direct path from differential maternal intimacy to delinquency was also statistically significant ($\beta = .07$, $p < .05$), with less favored treatment being linked to greater amounts of delinquency. Contrary to Hypothesis 1, differential maternal intimacy and conflict measured by difference scores were not directly associated with substance use.

In addition to the difference score measures of PDT, findings regarding the perception of maternal treatment were consistent with expectations. Specifically, the perception of maternal differential treatment was associated with delinquency ($\beta = .14$, $p < .001$) and substance use ($OR = 1.36$, $p < .01$); specifically, heightened perceptions of

Table 2.1

Differential Treatment and Adolescent Substance Use and Delinquency: Correlations and Descriptive Statistics (n = 285).

Variables	1	2	3	4	5	6	7	8
1. Differential Conflict with Mother	-							
2. Differential Intimacy with Mother	.26**	-						
3. Perception of Maternal Differential Treatment	.29**	.32**	-					
4. Differential Conflict with Father	.67**	.12**	.23**	-				
5. Differential Intimacy with Father	.22**	.35**	.14**	.15**	-			
6. Perception of Paternal Differential Treatment	.15**	.06	.28**	.20**	.35**	-		
7. Substance Use	.05	.04	.14**	.07	.01	.08	-	
8. Delinquency	.32**	.20**	.22*	.26**	.09*	.10*	.51***	-
Variables	1	2	3	4	5	6	7	8
M	.35	.31	.91	.34	.36	.81	.60	.61
SD	.56	.46	1.02	.55	.54	.98	.98	.28

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

less favored treatment were linked to greater amounts of delinquency and higher odds of having used any substance or more substances in the last year. Inconsistent with Hypothesis 1, differential treatment from fathers assessed either via difference score or perception was not linked to delinquency or substance use.

To determine whether mothers' and fathers' differential treatment assessed via difference scores were indirectly linked to adolescent substance use and delinquency via the perceptions of differential treatment, the INDIRECT command in Mplus was employed. For mothers, the direct paths from differential conflict ($\beta = .26$, $p < .001$) and differential intimacy ($\beta = .28$, $p < .001$) to the perception of maternal differential treatment were both positive and significant. Four possible indirect associations regarding treatment from mothers and youths' delinquency and substance use were possible, and consistent with Hypothesis 2, all four indirect paths were statistically significant. First, differential maternal conflict was indirectly (and positively) linked to delinquency ($\beta = .04$, $p < .01$), such that more conflict with mothers relative to a sibling was linked to greater perceptions of less favored treatment, which in turn was linked to more delinquency. Second, maternal differential intimacy was indirectly linked to delinquency in the same manner ($\beta = .04$, $p < .01$). Specifically, youth reporting less intimacy with mothers as compared to their siblings was linked to greater perceptions of less favored treatment, which was in turn associated with higher rates of delinquency. Next, differential maternal conflict was indirectly associated with substance use ($OR = 1.22$, $p < .01$), such that having more conflict with mothers relative to a sibling was linked to greater perceptions of less favored treatment, which was in turn associated with higher likelihood of having used any substances or a greater number of substances if

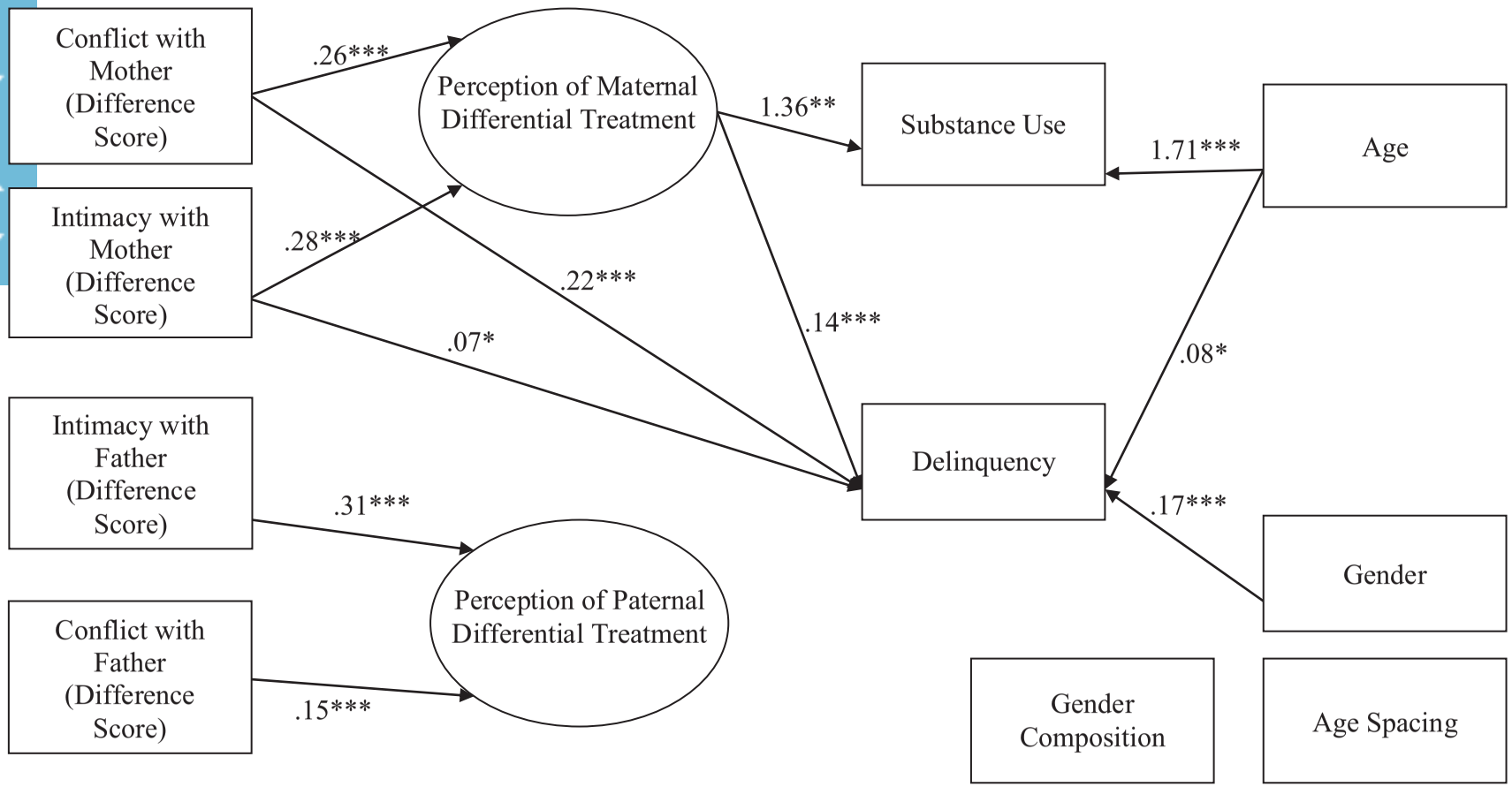
already using. Lastly, this same pattern of the indirect effect was observed for differential intimacy (*OR* = 1.14, $p < .01$), such that having less intimacy with mothers relative to siblings was associated with greater perceptions of less favored treatment, which in turn was linked to greater odds of having used at least one substance or more than one substance for those already using.

Differential treatment from fathers assessed by difference scores regarding conflict ($\beta = .15$, $p < .001$) and intimacy ($\beta = .31$, $p < .001$) were both linked to the perception of paternal differential treatment such that less favored treatment (i.e., less intimacy, more conflict) was linked to youths' perceptions of being disfavored. Despite these direct paths to the perception of paternal treatment, there were no significant indirect paths between paternal differential treatment measured via difference scores and adolescent substance use and delinquency.

A series of multi-group analyses were conducted to test whether the indirect associations from difference scores to the outcomes via perceptions would be more salient or only significant for those in same gender dyads or for those closer in age (Hypothesis 3). Inconsistent with expectations, results indicated that none of the unconstrained models for any of the indirect paths fit significantly better than the constrained models.

2.5 Discussion

Although most research on PDT is rooted in Social Comparison Theory (e.g., Festinger, 1954; Suls et al., 2002), two different measurement strategies (differences scores and perceptions) have been used to assess differential treatment. These two



*$p < .05$, **$p < .01$, ***$p < .001$ $X^2 = 84.46$, $df = 49$, $p < .01$, $CFI = .97$, $TLI = .95$, $RMSEA = .04$.

Figure 2.1 Indirect Associations between Differential Treatment and Adolescent Substance Use and Delinquency through the Perception of Differential Treatment.

Note. Statistically significant paths are presented with standardized betas except for pathways to substance use which are presented in odds ratios. All modeled correlations were significant at the $p < .001$ level but have been removed from the pictured model to maintain parsimony.

approaches may have varying theoretical and conceptual implications. The results of the present study suggest that difference scores and perceptions indices of PDT may indeed be distinct, yet conceptually and empirically related as well. Findings indicate that, at least in some cases, parenting differences (i.e., difference scores) may influence youths' perceptions of favoritism, which in turn are linked to their participation in delinquent activities including substance use.

2.5.1 Direct Links to Substance Use and Delinquency

Based on SCT (e.g., Festinger, 1954; Suls et al., 2002) and previous literature (e.g., Richmond et al., 2005; Scholte et al., 2007; Shanahan et al., 2008), I hypothesized that the extent to which a sibling was less favored, as indexed by both difference scores and perceptions, would be uniquely and positively associated with delinquency and the likelihood of substance use (Hypothesis 1). Consistent with this hypothesis, the perception of maternal differential treatment was linked to both substance use and delinquency above and beyond difference scores such that the greater the extent to which one perceived receiving less favorable treatment was linked to a higher likelihood of substance use and higher rates of delinquency. This same pattern was observed between difference scores for maternal treatment and delinquency. Viewed through a SCT lens, these finding suggest that siblings may indeed compare the ways in which their parents treat them as compared to their siblings, and that less favorable treatment (and by extension upward comparisons) are linked to poorer adjustment (i.e., risky and delinquent behavior). It should be noted, however, that direct links between difference scores for maternal treatment and substance use did not emerge. Considering that even at the

bivariate level, difference scores for maternal treatment were not linked to substance use, it is possible that difference scores are less connected to social comparison principles than are perceptions. Alternatively, it is possible that subconscious and unintentional comparison processes implied by the use of difference scores are more weakly tied to behaviors that become more normative over time (e.g., substance use) than behaviors that do not necessarily increase with age (e.g., delinquency).

The direct association between the perception of maternal differential treatment and substance use also provides insight into the role differential treatment may play in adolescent substance use. Because substance use was analyzed as an ordered categorical variable the odds ratio refers to the likelihood of being in the next highest group. In this case, a one unit increase in the perception of being less favored was associated with being 1.36 times more likely to have used any substances (over not using any), using two substances (over using only one), or using three substances (over using two). This link is important because multiple substance use has greater negative consequences for mental health and later substance abuse than does the use of a single substance (e.g., Booth et al., 2010; Martin, Clark, Lynch, Jupper, & Cilenti, 1999). The implication is that the perception of differential treatment is not only associated with substance use, but also the use of more substances for adolescents who already use one or two substances.

Beyond maternal differential treatment, paternal treatment indexed by either difference scores or perceptions was not associated with substance use or delinquency. Examination of the correlations suggests that similar to maternal treatment, paternal difference scores were not associated with substance use at the bivariate level. Both difference scores and perceptions of paternal treatment were, however, associated with

delinquency at the bivariate level. Because these paths were not significant in the final model, it could be that some other variable(s) in the model accounts for the shared variance between paternal treatment and delinquency. Given that mothers spend significantly more time engaged in parenting than do fathers (e.g., Sayer, Bianchi, & Robinson, 2004), it is possible that maternal differential treatment is a more salient predictor of youths' delinquent behavior than is that from fathers. In fact, this conclusion is consistent with previous work linking delinquency to differential treatment from mothers and not differential treatment from fathers (Scholte et al., 2007).

2.5.2 Indirect Links to Substance Use and Delinquency

In order to integrate these two different measurement strategies into a more comprehensive framework, I hypothesized that difference scores would be indirectly linked to offspring outcomes through the perception of differential treatment. For this indirect association to exist, links between difference scores and perceptions must be significant. Results indicated that difference scores for maternal and paternal differential conflict and differential intimacy were all significantly linked to the perception of PDT for the corresponding parent. Consistent with previous work (Coldwell et al., 2008; Quittner & Opipari, 1994), however, the effect sizes for these paths indicated small amounts of shared variation between difference scores and perceptions. Indeed, difference scores accounted for 2-10% of the variation in perceptions. This suggests that these two approaches to measuring differential treatment are not only conceptually different, but are empirically distinct. If the two approaches were indeed the same

construct, as has been assumed in the literature, then the correlations between these two measures would be much higher.

Although distinct, the significant correlations between difference scores and perceptions measures of PDT also suggest linkages between the two approaches. At least for maternal treatment, results indicated significant indirect associations between differential conflict and differential intimacy assessed via difference scores on substance use and delinquency through youths' perceptions of differential treatment. These findings suggest that implicit differences in treatment may lead to or perhaps exacerbate youths' perceptions of differential treatment, which may then lead to offspring adjustment. Although the cross-sectional nature of the data does not allow for the validation of these claims, the findings are nonetheless compelling. Future work will need to employ longitudinal methods and attempt to replicate these findings.

Based on SCT principles that comparisons are more likely and more salient between those who are objectively similar (e.g., Festinger, 1954; Suls et al., 2002; Wills, 1991), I anticipated that the indirect associations of difference scores on youth outcomes through perceptions would be larger for siblings of the same gender and those closer in age. Analyses revealed that indirect associations did not vary based on gender composition or age spacing. Given that comparisons are not only more likely to occur regarding those with who individuals are objectively similar to (i.e., same gender, close in age) but also with those with whom interactions are frequent (Tesser et al., 1988; Wills, 1991; Wood, 1989) it is possible that the ubiquity of sibling interactions makes comparisons between siblings likely regardless of their similarity in gender or age.

2.5.3 Limitations and Conclusions

The current study was not without limitations. First, as discussed above, the cross-sectional nature of the data prohibit the validation of a causal model that is implied by the analytic technique. For example, given work on child driven effects (e.g., Bell, 1968; Crouter & Booth, 2003; Kuczynski, 2003), it is possible that sibling differences in substance use and delinquency lead to changes in differential treatment which then lead to the perception of differential treatment. Recent longitudinal research, however, suggests that although the direction of effects may be bidirectional, associations of PDT leading to changes in offspring outcomes may be more robust than differences in behavior leading to PDT (Lam et al., 2012). Beyond employing longitudinal data, future models should also strive to account for the possibility of child effects by controlling for siblings' similarities in the outcomes and for parents' reasoning for treating their offspring differently.

Second, the study was also limited by differences in how the difference scores and perceptions of PDT were assessed. Specifically, difference score measures of PDT were specific to individual domains of parenting (i.e., intimacy or conflict). The perception variable, however, was based on treatment in general. Although domain specific treatment undoubtedly plays a role in overall treatment, estimates of the links between difference scores and perceptions may have been reduced because of the mismatch in domain between two approaches. It is possible that the use of difference scores and perceptions based on the same domain of treatment would provide more accurate estimates as well as more conceptual depth concerning the links between these two approaches.

Third, the present study was also limited by the inclusion of only two siblings per family. To date the vast majority of the differential treatment literature has focused on only two siblings at a time (for exceptions see Browne et al., 2012; Jenkins et al., 2003; Meunier, Bisceglia, et al., 2012; Meunier, Wade, et al., 2012). Yet, many families have three or more children (Kreider & Ellis, 2011). It is possible that differential treatment processes and the perception of those processes are different among three or more siblings than they are between only two siblings. Future work should strive to include all the siblings within a family.

Despite these limitations, the present study contributes to the literature in meaningful ways. First, it supports past research linking differential treatment to delinquency (e.g., Richmond et al., 2005; Scholte et al., 2007) and adds to the literature by suggesting a link between PDT and adolescents' substance use. Second, the study aids researchers in considering the conceptual and theoretical implications of how they choose to measure differential treatment. The findings suggest that not only are the difference score and perception approaches distinct, but that actual differences in treatment may be indirectly linked to offspring outcomes through the perception of differential treatment. In the future scholars should approach the study of PDT by overtly identifying which approach they have selected. Clear delineation between the two measurement approaches will allow for more theoretically relevant findings that will aid scholars in developing a comprehensive framework of this complex family process.

CHAPTER 3. MOM LIKES YOU BEST, BUT WHAT ABOUT DAD? THE INTERACTION OF MATERNAL AND PATERNAL DIFFERENTIAL TREATMENT OF ADOLESCENT SIBLINGS

3.1 Introduction

From the earliest ages children are cognizant of the ways in which they are treated differently than their siblings (Kowal & Kramer, 1997). Although some level of differential treatment may be typical (Boyle et al., 2004), a growing body of research suggests that even normative discrepancies in treatment may carry implications for offspring's individual adjustment, development, and sibling relationships (e.g., Feinberg, Howe, Reiss, & Hetherington, 2000; Kowal, Krull, & Kramer, 2006; Scholte et al., 2007). With a few notable exceptions (Brody et al., 1992a; McHale et al., 1995; Tucker et al., 2003), most work, to date, has examined the operation and implications of mothers' differential treatment of offspring. As a result, little is known about the associations of differential treatment from fathers, and even less of the possible interaction of maternal and paternal differential treatment.

Family Systems Theory (Cox & Paley, 1997; Cox & Paley, 2003) posits that in order to comprehend the complexities of family life and family processes one must understand the relations among all members of the family. To understand differential treatment, it is thus imperative to include treatment from both mothers and fathers, as

opposed to either individually because the differential treatment of one parent does not occur in isolation of the differential treatment of the other parent. Family systems principles further highlight the interconnectedness of the varying family subsystems. The principle of interconnectedness implies that the interactions of subsystems are influenced by one another and indeed may compensate or exacerbate one another. For example, some studies (Hoeve et al., 2011; Simons & Conger, 2007) suggest that neglectful parenting is only linked to adolescent delinquent behaviors if both parents display neglect. That is, if either the mother or the father displayed an authoritative parenting style there was no association between the other parents' neglectful parenting and youth delinquency. Similar notions may apply to differential treatment. That is, the implications of maternal differential treatment may vary based on the level and nature of paternal differential treatment, and vice versa.

Based on the notion that mothers' and fathers' patterns of treatment are interdependent, McHale and colleagues (McHale et al., 1995; Tucker et al., 2003) examined the congruence of maternal and paternal differential treatment. Using a pattern-analytic approach, these authors grouped mothers and fathers separately according to whether they reported favoring the younger sibling, the older sibling, or gave equal treatment to both. This grouping was done across several domains of treatment (e.g., affection, discipline, temporal involvement, and chores). Within the same families, mothers and fathers were then compared based on group membership. Results indicated that, depending on domain of treatment, between 32% and 66% of mothers and fathers were congruent in their treatment (either favoring the same child or both providing equal treatment). Many other families (between 31% and 47%) showed

patterns of incongruence, in which one parent favored one of the children (typically the younger sibling) and the other parent displayed equal treatment. Fewer families showed patterns of compensation (between 1% and 23%) in which one parent favored the older sibling and the other parent favored the younger. Taken together these results indicate that in many cases, mothers and fathers vary from one another in their treatment of offspring.

The approach taken by McHale and colleagues (McHale et al., 1995; Tucker et al., 2003) of grouping mothers and fathers based on which child they reported favoring, or by equal treatment is useful for describing patterns of congruence, incongruence, and compensation. More work is needed, however, to link the intersecting patterns of maternal and paternal differential treatment to offspring outcomes. To my knowledge, only one other study has specifically examined this question (Meunier, Bisceglia, et al., 2012). Finding evidence of compensation and congruency, Meunier and colleagues discovered that there was no link between differential treatment and offspring behavioral problems if favored by one parent and not the other, but that when less favored by both parents offspring displayed even greater behavioral problems.

In addition to highlighting the interconnectedness of family relationships, systems theory suggests that individual and dyadic characteristics of family members may alter and shape family processes (Cox & Paley, 1997; Cox & Paley, 2003). For example, multiple studies highlight that differential treatment processes may be more salient for those in same gender sibling dyads (e.g., Coldwell et al., 2008; Jensen et al., 2013; McHale et al., 2000). As such, it is possible that differential treatment will be most salient for those less favored by both parents in comparison to a same gender sibling.

3.1.1 Correlates of Differential Treatment in Adolescence

Differential treatment has been linked to offspring individual and relational outcomes across the life course (e.g., Brody et al., 1992b; Scholte et al., 2007; Pillemer, Suitor, Pardo, & Henderson, 2010). Within adolescence, research has linked PDT with externalizing behaviors (e.g., Burt, McGue, Iacono, & Krueger, 2006; Richmond et al., 2005), internalizing behaviors (e.g., Feinberg, Howe, et al., 2000; Shanahan et al., 2008), self-esteem (e.g., Feinberg, Neiderhiser, et al., 2000; McHale et al., 2000), and sibling relationship qualities such as intimacy and conflict (e.g., Kowal & Kramer, 1997; Richmond et al., 2005). Little attention, however, has been paid to positive development/adjustment and prosocial behaviors (for an exception see Bissell-Havran et al., 2012). It is unclear as to whether differential treatment is simply not associated with positive outcomes, or whether researchers have not examined such questions.

3.2 Present Study

The current study examined the implications of both maternal and paternal differential treatment for adolescents' adjustment (including markers of maladjustment and positive adaptation) and sibling relationship qualities. Specifically, six outcomes were considered: aggression, depression, prosocial behavior towards the family, prosocial behavior towards others, sibling intimacy, and sibling conflict. Several child and parent level factors associated with differential treatment were controlled for, including youth age, age spacing of the sibling dyad, and birth order (e.g., McHale et al., 1995; Scholte et al., 2007). Because family structure may impact the associations of PDT, all analyses were restrained to two-parent families in which both parents were the biological parents

of both offspring or single parent families in which participating siblings reported on differential treatment from a their biological residential and non-residential parents. Family structure was also controlled for statistically.

Based on theory and extant literature, I proposed the following hypotheses: Hypothesis 1, youth who received less favorable treatment as compared to their sibling would report higher levels of aggression, depression, and sibling conflict, and lower levels of prosocial behavior toward their family, prosocial behaviors toward others, and sibling intimacy than youth who received either equal or favored treatment. Youth who received more favorable treatment compared to their sibling would report lower levels of aggression, depression, and sibling conflict and higher levels of prosocial behavior toward their family, prosocial behaviors toward others, and sibling intimacy than would those receiving either equal or less favorable treatment. It was expected that these main effect patterns would be similar for both maternal and paternal treatment. Hypothesis 2, maternal treatment and paternal treatment would interact such that those less favored by both parents would report the highest levels of aggression, depression, and sibling conflict, and the lowest levels of prosocial behaviors toward family, prosocial behaviors to others, and sibling intimacy. Given the protective effects of positive interactions with at least one parent, it was expected that those favored by at least one parent would not differ significantly from those favored by both parents. Hypothesis 3, youth who reported being less favored by both parents in comparison to a same gender sibling would report the highest levels of aggression, depression, and sibling conflict, and the lowest levels of prosocial behaviors to family, prosocial behavior toward others, and sibling intimacy than

those less favored by both parents in comparison to an opposite gender sibling or those who were receiving equal or favored treatment from at least one parent.

3.3 Method

3.3.1 Participants

Participants were drawn from the Flourishing Families Project (FFP; Wave 6). Two parents and one adolescent from 480 families from the Seattle Washington metropolitan area (348 families) and Provo Utah area (132 families) were interviewed. Mothers were on average 47.63 years old (*SD* = 5.46) and fathers were on average 49.85 years old (*SD* = 5.62). Participating siblings were on average 16.30 years old (*SD* = 1.08; 51% female; 44% were the older sibling, 54% the younger sibling, and 2% were the same age) and non participating siblings were on average 16.68 years old (*SD* = 3.86; 53% female). On average siblings were 3.16 years apart in age (*SD* = 2.10).

3.3.2 Procedure

Participant families for the first wave of the FFP were primarily recruited using a purchased national telephone survey database (Polk Directories/Info USA) that claimed to contain detailed information including the presence and age of children of 82 million households across the United States. Using the directory, families with a child between the ages of 10 to 14 were deemed eligible for participation. In the Summer of 2007, focusing on the Seattle Washington and Provo Utah areas, approximately 900 families (200 from Provo; 692 from Seattle) were randomly selected and contacted for

participation, 623 agreed to participate (70% response rate; 200 from Provo; 423 from Seattle). An additional 77 families (from Seattle) were recruited from the initial sample of 623 via referral. The final sample consisted of 700 families. Waves 1 through 5 of the FFP were conducted via in home interviews. In wave 6 a total of 618 families were interviewed using online surveys (88.3% retention from wave 1). Of those 618 families 72 were excluded because differential treatment from fathers was not reported. Additionally, 66 more families were excluded from this study because it was unclear as to the biological relatedness of the father being reported on. Therefore, the final sample for this study consisted of 480 families. The excluded participants did not differ on any independent variable or dependent variable except for depressive symptoms, $t(617) = 2.13$, $p < .05$, where participants included in the analyses ($M = 1.71$, $SD = .63$) reported significantly fewer symptoms than those not included in the analyses ($M = 1.84$, $SD = .63$).

3.3.3 Measures

3.3.3.1 Demographic Information

Parents and adolescents reported on basic demographic information including age, gender, family structure, and household income. Adolescents provided the age and gender of their closest aged sibling.

3.3.3.2 Perceived Differential Treatment

Offspring reported about their perception of differential treatment with their closest aged sibling. An adapted version of the Sibling Inventory of Differential Experiences was used (SIDE; Daniels & Plomin, 1985). Separate items were asked to index maternal treatment and paternal treatment. Items were worded, "Overall, compared to [sibling name] who does your mom/dad treat better?" Items were based on a 5-point scale, 1 = *me much more*, 2 (*me a little more*), 3 (*both of us the same*), 4 (*my sibling a little more*), 5 (*my sibling much more*). Each item was reverse scored and centered at zero so that positive values reflected the perception of being favored, zero reflected equal treatment, and negative values reflected the perception of being less favored. Overall offspring perceived favored treatment from mothers (M = .78, SD = 1.01) and fathers (M = 1.07, SD = .98). For use in analyses, each variable was then collapsed into an ordinal variable indicating favored treatment, equal treatment, or less favored treatment. For maternal differential treatment and paternal differential treatment most youth reported favored treatment (64% for mothers; 75% for fathers), fewer reported equal treatment (25% for mothers; 18% for fathers) and even fewer reported less favored treatment (11% for mothers; 7% for fathers).

3.3.3.3 Aggression

Adolescents reported on their aggressive behavior using five items from Weinberger, Schwartz, and Davidson (1979). Participants rated the degree to which items described them using a 5-point scale ranging from 1 (*does not describe me*), to 5 (*describes me very well*). Example items include, "If someone tries to hurt me, I make

sure I get even with them." And, "I lose my temper and let people have it when I'm angry." Items were averaged together with higher scores reflecting more aggression. In general, adolescents reported low levels of aggression (M = 1.96, SD = .82, α = .88).

3.3.3.4 Depression

Adolescents' depression was measured via 16 items from the Center for Epidemiological Studies Depression Scale for Children (CES-DC; Faulstich, 1986). Adolescents rated the extent to which items described themselves in the past week on a 4-point scale ranging from 1 (*not at all*), to 4 (*a lot*). Example items include, "I was bothered by things that usually don't bother me." And, "I felt like something bad was going to happen." Scores were averaged across the items with higher scores reflecting greater depression. Overall, reports indicated low levels of depression (M = 1.71, SD = .60, α = .93).

3.3.3.5 Prosocial Behavior Towards Family and Others

Prosocial behavior was assessed using an adapted version of Peterson and Seligman's (2004) measure of prosocial behavior. Behavior toward family was assessed via 8 items, and behavior toward others via 7 items, both on a 5-point scale ranging from 1 (*not like me at all*), to 5 (*very much like me*). Example items include, "I help my family/others even if it is not easy for me." And, "I voluntarily help my family/neighbors." Items for each scale were averaged together with higher scores indicating greater amounts of prosocial behavior. Adolescents reported high levels of

prosocial behavior both toward their family (M = 4.04, SD = .76, α = .92) and toward others (M = 3.56, SD = .75, α = .82).

3.3.3.6 Sibling Intimacy

Sibling intimacy was measured via 6 items (Stocker & McHale, 1992). Items were based on a 5 point scale ranging from 1 (*never*) to 5 (*always*). Example items included, "How often do you and your sibling share secrets with one another?" And, "How often do you and your sibling help one another feel better when one of you is hurt or upset?" The mean of all the items was created so that higher scores reflected more intimacy. In general, adolescents reported moderately high levels of sibling intimacy (M = 3.10, SD = .92, α = .89).

3.3.3.7 Sibling Conflict

Sibling intimacy was measured via 5 items (Stocker & McHale, 1992). Items were based on a 5 point scale ranging from 1 (*never*), to 5 (*always*). Example items included, "How often do you and your sibling feel mad or angry with each other?" And, "How often do you and your sibling start fights or cause trouble for each other?" The 5 items were averaged together with higher values indicating higher levels of sibling conflict. Overall adolescents reported moderately low levels of sibling conflict (M = 2.39, SD = .83, α = .87).

3.4 Results

3.4.1 Analytic Strategy

To examine mean differences in adolescents' adjustment, behavior, and sibling relationship qualities a series of 3 (maternal differential treatment: less favored vs. equal treatment vs. favored) X 3 (paternal differential treatment: less favored vs. equal treatment vs. favored) X 2 (gender composition of the sibling dyad: same- vs. mixed-gender) Analysis of Covariance (ANCOVA) models were tested. Identical, but separate models were tested for each dependent variable. Models controlled for youth age, age spacing, gender, birth order, family structure, and data collection site. Testing the models in this manner examined the main effects of maternal and paternal differential treatment (Hypothesis 1), the two-way interaction of maternal differential treatment X paternal differential treatment (Hypothesis 2), and the three-way interaction of maternal differential treatment X paternal differential treatment X gender composition of the sibling dyad (Hypothesis 3). Results are presented separately for each dependent variable.

3.4.2 Aggression

The ANCOVA model revealed no significant main effects of either maternal or paternal differential treatment or any significant interactions between maternal and paternal differential treatment and gender composition of the sibling dyad for youths' reports of aggressive behavior.

Table 3.1

Adjusted Means (and Standard Deviations) of Offspring Outcomes by Maternal Differential Treatment.

Dependent Variables	Maternal Differential Treatment		
	Less Favored $n = 53$	Equal $n = 120$	Favored $n = 307$
Depression	$1.98\ (.78)_{a}$	$1.81\ (.57)_{a,b}$	$1.57\ (.57)_{b}$
Sibling Intimacy	$2.58\ (.97)_{a}$	$2.87\ (.80)_{a,b}$	$3.23\ (.94)_{b}$
Sibling Conflict	$3.41\ (.79)_{a}$	$2.96\ (.56)_{b}$	$2.57\ (.63)_{c}$

Note: Means in the same row that do not share subscripts differ at $p < .05$ with Tukey adjustment.

3.4.3 Depression

With respect to youths' reports of depressive symptoms, results indicated a significant main effect of maternal differential treatment, $F(2, 456) = 5.33$, $p < .01$. Post-hoc probing of the means (see Table 3.1) indicated that those receiving less favorable treatment from mothers reported significantly higher rates of depression than those receiving favorable treatment. Youth who received equal treatment did not differ significantly from either those receiving less favorable or favorable treatment. There were no other significant main effects or interactions.

3.4.4 Prosocial Behavior toward the Family

For prosocial behavior toward the family a significant main effect for fathers' differential treatment emerged, $F(2, 456) = 6.54$, $p < .01$. Post-hoc analyses (see Table

3.2) revealed that those receiving favorable treatment from fathers reported greater amounts of prosocial behavior directed toward their family than youth who received equal or less favorable treatment. Those receiving less favorable and equal treatment did not differ significantly in their prosocial behavior toward their family. No other significant main effects or interactions were revealed.

Table 3.2

Adjusted Means (and Standard Deviations) of Offspring Outcomes by Paternal Differential Treatment.

Dependent Variables	Paternal Differential Treatment		
	Less Favored $n = 35$	Equal $n = 87$	Favored $n = 358$
Prosocial Behavior to Family	3.63 (.80)$_a$	3.79 (.73)$_a$	4.15 (.74)$_b$
Sibling Conflict	3.54 (.78)$_a$	3.07 (.53)$_b$	2.34 (.63)$_c$

Note: Means in the same row that do not share subscripts differ at $p < .05$ with Tukey adjustment.

3.4.5 Prosocial Behavior toward Others

No significant main effects or interactions emerged regarding youths' prosocial behavior directed toward others.

3.4.6 Sibling Intimacy

Findings indicated mean differences in sibling intimacy as a function maternal differential treatment, $F(2, 456) = 5.85$, $p < .01$. Follow-up analyses (see Table 3.1) revealed that those receiving less favorable treatment from their mothers reported significantly lower sibling intimacy than those receiving favorable treatment. Those who reported receiving equal treatment did not differ significantly from either those reporting favored or less favored treatment. No other main effects or interactions emerged.

3.4.7 Sibling Conflict

With respect to sibling conflict, results indicated a significant main effect of maternal differential treatment, $F(2, 456) = 25.85$, $p < .001$. Post-hoc analyses (see Table 3.1) revealed that youth who reported receiving less favorable treatment from mothers reported the highest rates of sibling conflict. Youth who reported receiving favorable treatment also reported the lowest amounts of sibling conflict. Those who received equal treatment in comparison to a sibling reported less conflict than those receiving less favorable treatment, but more conflict than those receiving favorable treatment.

Results from this model also revealed a main effect of paternal differential treatment, $F(2, 456) = 57.54$, $p < .001$. As can be seen in Table 3.2, follow-up analyses revealed similar patterns as to those observed with maternal differential treatment and sibling conflict. Those who received less favorable treatment from fathers reported the most conflict, those who received equal treatment were in the middle, and those who received favorable treatment reported the least amount of sibling conflict. These main effects were not qualified by any two- or three-way interactions.

3.5 Discussion

Parental differential treatment has been linked to youths' adjustment, behavior, and sibling relationship qualities (e.g., Kowal & Kramer, 1997; McGuire et al., 1995; Richmond et al., 2005), yet few studies have examined the interactive nature and implications of both maternal and paternal differential treatment (e.g., McHale et al., 1995; Meunier, Bisceglia, et al., 2012; Tucker et al., 2003). In contrast to the proposed hypotheses and past research (Meunier, Bisceglia, et al., 2012), the results of the current study suggest that the interaction of maternal and paternal differential treatment may not matter above and beyond the main effects of PDT.

3.5.1 Main Effects of Differential Treatment

Based on past research (e.g., Scholte et al., 2007; Shanahan et al., 2008), I hypothesized that youth who perceived receiving less favorable treatment from their mothers or fathers would report the highest levels of aggression, depression and sibling conflict, as well as the lowest levels of prosocial behavior to family, prosocial behavior to others, and sibling intimacy. Conversely, I expected those who perceived receiving favorable treatment from their parents would report the lowest levels of aggression, depression and sibling conflict, and the highest levels of prosocial behavior to family, prosocial behavior to others and sibling intimacy. Finally, I expected that those who perceived equal treatment would report levels on each dependent variable that fell in between those reported by less favored and favored youth. Consistent with these hypotheses, significant main effects emerged for all of the dependent variables except for aggression and prosocial behavior to others. Patterns for the observed main effects were

mostly consistent with expectations: Siblings who perceived they were less favored generally fared the worst, whereas favored offspring fared the best. Patterns were mixed for those reporting equal treatment. For some outcomes they fell in between favored and disfavored youth (sibling conflict) and for others (i.e., depression, prosocial behavior to the family, and sibling intimacy) they did not differ significantly from the less favored and the favored youth. Overall, these findings corroborate past research (e.g., Feinberg & Hetherington, 2001; Richmond et al., 2005; Shebloski et al., 2005) finding that less favored siblings fare poorly in comparison to favored siblings.

Unexpectedly, main effects did not emerge for all dependent variables. Specifically, significant effects of differential treatment did not emerge for aggression and prosocial behavior toward others. In regards to aggression, the null finding is surprising, especially given past work has found links between PDT and similar behaviors (e.g., Burt et al., 2006; Coldwell et al., 2008; Dunn et al., 1990). It is possible that the association between PDT and aggression is smaller than is that with other outcomes (e.g., depression) and because few adolescents reported receiving less favorable treatment (11% for maternal treatment; 7% for paternal treatment) these data may not have had enough power to detect effects that could have emerged in a larger sample. With respect to prosocial behavior toward others, little work has linked PDT to aspects of positive development/adjustment and prosocial behaviors (for an exception see Bissell-Havran et al., 2012). It is possible that the links between PDT and prosocial behavior are either small and difficult to detect or non-existent. Although this may only be regarding prosocial behavior external to the family because results also suggested a

link between fathers' differential treatment and youths' prosocial behaviors toward their family members.

Despite a few significant findings for paternal differential treatment, differences in maternal treatment were linked to more adolescent outcomes. This finding was unexpected given that past work has shown that both maternal and paternal differential treatment are uniquely linked to youths' depressive symptoms (e.g., Jensen et al., 2013; Shanahan et al., 2008) and sibling relationship qualities (e.g., Brody et al., 1992a; Shanahan et al., 2008). Most of the studies finding concurrent links for both maternal and paternal differential treatment to youth depression and sibling relationship qualities have used the approach of measuring PDT via difference scores, whereas the current study measured the target's perception of PDT. It is possible that the perception of maternal and paternal differential treatment covary to a greater degree than maternal and paternal treatment measured via difference score. Greater covariance may lead to fewer instances of both maternal and paternal treatment being uniquely linked to youths' outcomes. The same argument may apply for why links to prosocial behavior to the family were only found for paternal treatment. Additionally, this finding is consistent with past work that suggests that fathers may play a unique role in youths' prosocial behavior towards family members (Eberly & Montemayor, 1999).

3.5.2 Interactive of Maternal and Paternal Differential Treatment

Beyond main effects, the current study did not reveal any significant interactions among maternal differential treatment, paternal differential treatment, and the gender composition of the sibling dyad. Given the theoretical premises of Family Systems

Theory (Cox & Paley, 1997; Cox & Paley, 2003) and previous work (Meunier, Bisceglia, et al., 2012), these null findings are particularly surprising. Three reasons may account for the lack of significant findings. First, the current study assessed differential treatment in general. Meunier, Bisceglia and colleagues (2012) measured PDT approach based on the domains of positivity and negativity and the interaction of maternal and paternal differential treatment only emerged for differential negativity. It is possible that the interaction of maternal and paternal differential treatment is only evident for certain domains, and perhaps mostly for negative treatment. Second, as mentioned earlier, the rates of those reporting less favored treatment were low (7% for paternal treatment; 11% for maternal treatment). These small cell sizes reduced power and may have limited the ability to detect non-spurious significant interactions. Lastly, it is possible that Family Systems principles do not apply to differential treatment as I hypothesized. Although the differential treatment displayed by one parent is likely influenced by behavior of the other parent, perhaps further negative implications do not arise from an offspring being the least favorite of both parents beyond the harm of being less favored by either one of the parents.

3.5.3 Limitations and Conclusions

This study had several limitations. First was the inclusion of only one sibling per family. Differential treatment is a family level process that inherently involves all of the offspring within the family. Not including all of the siblings within a family has the potential to limit the variability in the differential treatment variable. For example, as mentioned earlier the current study was limited by the fact that participating youth rarely

reported that they were less favored. It is possible that parents selected more favored children to participate resulting in a restricted range on the differential treatment variable which could bias results. Additionally, the restricted range, or in this case a smaller number of youth indicating less favored treatment limited the ability to detect non-spurious significant effects. To account for this, future work should include the perspective of all siblings within the family.

Second, the study was limited by the cross sectional nature of the data. Although research on differential treatment has been based on the premise that differences in treatment lead to changes in offspring outcomes, it is possible that differences in siblings' personality, characteristics, or behaviors could lead to parents' differential treatment. Indeed a body of work highlights the role of child driven effects on parenting (e.g., Bell, 1968; Crouter & Booth, 2003; Kuczynski, 2003). Furthermore, as indicated by Lam and colleagues (2012), it is possible that the effects are circular in that PDT could lead to changes in sibling differences and sibling differences could lead to further PDT. Future studies with longitudinal data should seek further to elucidate these complex patterns.

Lastly, the study may have been limited by assessing PDT at the general level. I purported that a general measure of PDT, rather than domain specific, may have had the potential to better uncover and significant interactions. After examining these data, however, that proposition may be incorrect. In an influential piece, Tucker and colleagues (2003) examined the roles of domain specific differential treatment and sex-typed personal qualities. They concluded that parents differentiate to a greater or lesser extent depending on the domain and that offspring gender also plays a greater or lesser extent depending on the domain. Stemming from their conclusions, it is possible that the

broad measure of treatment in general is one in which there is less differentiation from both mothers and fathers. Perhaps future work would do better to understand the intersection of maternal and paternal differential treatment by examining more domain specific types of treatment.

Despite these limitations, the study contributes to the current literature. First it supports current research linking main effects of PDT to youth outcomes such as depression, sibling intimacy, and sibling conflict. Additionally the study adds to the extant research by suggesting that differential treatment, at least from fathers, may be linked to adolescents' prosocial behaviors toward their own family. Lastly, it is possible that maternal and paternal differential treatment do not interact to explain further variance in youth outcomes. Despite this null finding, future research should seek to explore this question further, and with varying measures of PDT.

CHAPTER 4. BEYOND THE DYAD: DO THE IMPLICATIONS OF PARENTAL DIFFERENTIAL TREATMENT OF YOUNG ADULT OFFSPRING VARY BY FAMILY SIZE?

4.1 Introduction

Since the 1980s, scholars have highlighted the importance of siblings' nonshared experiences within families for youth's development and adjustment (Daniels & Plomin, 1985; Plomin & Daniels, 1987). One critical dimension of siblings' nonshared experiences is parents' differential treatment (PDT), which has been linked to offspring development and behavior, including adjustment (e.g., Coldwell et al., 2008; Shebloski et al., 2005), self-esteem (e.g., Kowal et al., 2002; McHale et al., 2000), and family relationship qualities (e.g., Kowal & Kramer, 1997; Boll et al., 2005). Despite several decades of work, there is a critical gap in the literature regarding differential treatment: with a few notable exceptions (e.g., Browne et al., 2012; Jenkins, Rasbash, & O'Connor, 2003), the current literature has focused on parents' differential treatment of only two siblings. A large proportion of U.S. families who have multiple children, however, have three or more (40%; Kreider & Ellis, 2011). Therefore, the goal of this study is to address this gap by assessing the implications of parents' differential treatment among the entire family (i.e., all siblings) in a sample of young adults.

4.1.1 Theoretical and Empirical Foundation

Social Comparison Theory posits that individuals form their self-concept based on comparisons made with others (Festinger, 1954; Suls et al., 2002; Tesser et al., 1988). Comparisons made with those perceived as better off (upward comparisons) are often harmful to an individual's self-concept. Whereas comparisons made with those who are less well off (downward comparisons) typically promote one's self-concept (Suls et al., 2002). Comparisons are more likely to occur and have greater impact when made with those who are similar in personal characteristics (Wills, 1991; Wood, 1989), are emotionally familiar, and when the comparison is based on domains particularly important to the individual (Tesser et al., 1988).

Given their ubiquity throughout the life course (Conger & Little, 2010; McHale & Crouter, 1996; Milevsky, Smoot, Leh, & Ruppe, 2005) as well as their similarity in personal characteristics (Shanahan, Kim, McHale, & Crouter, 2007; Whiteman, McHale, & Crouter, 2007) siblings are prime targets of social comparison. Furthermore, siblings from the same family typically receive physical and emotional support from the same parents (Cooney & Uhlenberg, 1992), making parental treatment a particularly salient domain of comparison among siblings. Consistent with social comparison principles, many studies have found that, across the lifespan, less favored offspring (i.e., those making upward comparisons and receiving relatively less support) fare poorly, and favored offspring (i.e., those making downward comparisons and receiving relatively more support) fare better in terms of overall adjustment (e.g., Coldwell et al., 2008; Shebloski et al., 2005), self-esteem (e.g., Kowal et al., 2002; McHale et al., 2000), externalizing behaviors (e.g., Richmond et al., 2005; Scholte et al., 2007), emotional

affect (e.g., Brody et al., 1992b; Davey et al., 2009), and depression (e.g., Jensen et al., 2013; Shanahan et al., 2008).

4.1.2 Differential Treatment in Young Adulthood

Although parents' differential treatment has been linked to offspring outcomes in childhood (e.g., Meunier, Wade, et al., 2012; Brody et al., 1992a), adolescence (e.g., Scholte et al., 2007; Shanahan et al., 2008), and even middle adulthood (e.g., Boll et al., 2003; Pillemer, et al., 2010), young adulthood is a unique stage of life stage in which the role or saliency of PDT may shift. Typically, young adulthood is marked by events and experiences that occur for the first time in an individual's life and establish patterns that impact one's life trajectory, including moving away from home and establishing independence from the family of origin (Arnett, 2007; White & Riedmann, 1992), forming lasting and often more permanent positive social relationships beyond the family circle (Erikson 1968, 1982) and developing an overall sense of purpose (Steger, Oishi, & Kashdan, 2009). Aiding in this development, young adults continue to develop and foster abilities learned at younger ages such as emotion regulation (Eisenberg, 2000) and time management (Holmstrom, Karp, & Gray, 2002).

Although the developmental tasks of forming personal relationships, gaining a sense of purpose, and refining emotion regulation and time management skills typically occur beyond the natal family, the family still plays a role in young adults' success or failure in this life stage. In particular, young adults maintain expectations of parental support throughout young adulthood (Goldscheider, Thornton, & Yang, 2001) and continued support may aid offspring in successfully navigating this life stage (Aquilino,

2005; Eggebeen, 2005; Swartz, Kim, Uno, Mortimer, & O'Brien, 2011). Because differential treatment is linked to offspring outcomes in other life stages, and the importance of parental support in young adulthood, it is likely that differential support is associated with offspring's success (or failure) in the developmental tasks of young adulthood.

4.1.3 The Context of Family Size

To date, the majority of research on parental differential treatment has focused on differential treatment between two siblings (e.g., Tamrouti-Makkink et al., 2004; Tucker et al., 2003). Yet, as mentioned earlier, a high percentage of U.S. families with at least two children have three or more (40%; Kreider & Ellis, 2011). Family systems theory principles (Cox & Paley, 1997; Cox & Paley, 2003) suggest that all aspects of the system (i.e., members of the family), must be assessed in order to accurately depict family processes. Following this notion, in families with three or more children, simply examining differential treatment between two siblings will provide an inaccurate estimation of differential treatment as a family process.

Consistent with a family systems perspective, Jenkins and colleagues have published a series of studies that examined differential treatment among all siblings in the family (Browne et al., 2012; Jenkins et al., 2003; Meunier, Bisceglia, et al., 2012; Meunier, Wade, et al., 2012). Using multi-level modeling techniques, Jenkins and colleagues have conceptualized differential treatment among siblings as one's deviation from the family average; an acceptable approach because social comparison can occur not only between two people, but among a group of individuals (Goethals, 1986; Suls &

Wan, 1987). Consistent with past literature examining PDT between two siblings, this work found that, in early to middle childhood, offspring less favored compared to the family average fared worse across multiple domains, including behavioral problems, prosocial behavior, and aggression (Meunier, Bisceglia, et al., 2012; Meunier, Wade, et al., 2012).

Beyond simply examining differential treatment among all siblings within a family, as opposed to only between two, the comparison of treatment based on all the siblings within a family also allows for the examination of family size as a context. Theory and research on family size highlights that parents' social and emotional capital is finite (e.g., Becker & Lewis, 1973; Zajonc & Markus, 1975). Resource dilution principles, for example, suggest that the more siblings there are within a family the fewer parental resources there are available to each child (e.g., Downey, 1995; Steelman et al., 2002). Therefore, in families with multiple young adult offspring, parents may provide less support to each individual child than parents with fewer offspring. Additionally, given that resources are potentially stretched thin in larger families, it is possible that less favored offspring in larger families would fare even worse than would less favored offspring in smaller families because they receive a smaller piece of an already smaller pie. In fact, consistent with this notion, research examining parents' economic and emotional resources (but not family size) shows that less favored offspring in families with fewer resources tend to fare worse than less favored offspring from more advantaged families (e.g., Browne & Jenkins, 2012; Crouter, McHale, & Tucker, 1999; Meunier, Wade et al., 2012).

Given the role of family resources in differential treatment processes it is important to explore between-family differences in treatment (e.g., average amount of support provided to all offspring within a family) in addition to family size. Mean level differences in family support may have implications for offspring's development (Tamrouti-Makkink et al., 2004). For example, research reveals that on average offspring from families with higher levels of parental support tend to fare better than those from families with lower levels of support (e.g., Swartz et al., 2011). In addition to main effects, it is possible that the average level of parenting may moderate the implications of PDT processes. Indeed, multiple studies indicate that the associations of PDT are exacerbated when the average level of parenting is lower (Feinberg & Hetherington, 2001; Jenkins et al., 2003; Meunier, Wade et al., 2012), such that less favored offspring fare even more poorly when the level of parenting is low. Although this notion is similar to the ideas posited about family size and resource dilution, the average level of parenting may play an independent and further moderating role because families of all sizes vary in the amount of support given by parents (Schoeni & Ross, 2005).

4.1.4 Direction of Effects

The literature on differential treatment (e.g., Boll et al., 2003; Coldwell et al., 2008; McHale et al., 2000) as well as Social Comparison Theory (Festinger, 1954; Suls et al., 2002) intrinsically implies that differences in parental treatment lead to changes in offspring development. It is important to consider, however, that differences in offspring's characteristics may give rise to differences in parental treatment (e.g., Jensen et al., 2013; Lam et al., 2012; Richmond et al., 2005). Indeed, a body of work on child

driven effects highlights this notion (e.g., Bell, 1968; Kuczynski, 2003). Therefore, when considering parents' distribution of support to young adult offspring it is important to control for reasons why parents may provide more support to one offspring over others, such as age (e.g., Meunier, Bisceglia, et al., 2012; Shanahan et al., 2008), gender (e.g., Scholte et al., 2007; Tucker et al., 2003), life difficulties, employment status (Fingerman, Miller, Birditt, and Zarit, 2009), student status, marital status, coresidence with the parent, and parent-offspring relationship quality (Swartz et al., 2011).

4.2 Present Study

The current study examined the implications of parental differential treatment in a sample of young adult siblings and assessed the potential moderating roles of family size and the average level of parenting. Four outcomes relating to developmental success in young adulthood were examined: emotion regulation, time management, positive relationships, and meaning in life. Several factors associated with differential treatment were controlled for, including age, offspring gender, age spacing, and parent gender (e.g., Scholte et al., 2007; Tucker et al., 2003). Other factors associated with parental provision of support were also controlled for, including, offspring education level, offspring marital status, offspring student status, offspring employment status, offspring life difficulties, coresidence, and parent income (e.g., Fingerman et al., 2009; Schoeni & Ross, 2005).

Based on theory and extant literature, the following hypotheses were proposed: Hypothesis 1, offspring who received more support than the family average (i.e., favored) would report greater emotion regulation, better time management, more positive relationships with others, and greater meaning in life; whereas offspring who received

less support than the family average (i.e., less favored) would report poorer emotion regulation, poorer time management, less positive relationships, and lower meaning in life. Hypothesis 2, PDT and family size would interact such that less favored offspring in larger families will fare even worse (i.e., poorer emotion regulation, poorer time management, less positive relationships, lower meaning in life) than less favored offspring in smaller families. Hypothesis 3, PDT and the average level of parenting would interact such that less favored offspring in families with lower average levels of parenting would fare worse (i.e., poorer emotion regulation, poorer time management, less positive relationships, lower meaning in life) than those in families with higher average levels of parenting. Hypothesis 4, PDT, family size, and the average level of parenting would interact such that less favored offspring from larger families with lower levels of average parenting would fare worse than offspring in any other situation.

4.3 Method

4.3.1 Participants

Data were drawn from the Family Exchanges Study (wave 1) which examined familial support provided by and given to three generations of family members. Participating middle-aged parents provided contact information for up to three of their children who were 18 years of age or older. Parents provided contact information for 63% of offspring, 75% of whom participated. Offspring participants primarily resided in Pennsylvania (81%), the remaining participants were distributed across 20 other states within the US. The final sample included up to three siblings (M = 1.8 per family) from

229 families (N = 419). Participating young adults (M = 5.04; SD = 1.48) in families with three or more offspring received significantly more support than did non-participating youth (M = 3.82; SD = 1.69) in families with three or more offspring, $t(477) = 8.32$, $p < .001$. Independent of family size, participating youth (M = 24.04; SD = 5.01) were also significantly younger than non-participating young adults (M = 27.78; SD = 5.81), $t(643) = 5.95$, $p < .001$, and more likely to be female, χ^2 (1, N = 647) = 11.36, $p < .001$. Demographic information of participating offspring and parents are presented in Table 4.1.

4.3.2 Procedure

Parents and most young adults completed interviews using a Computer Assisted Telephone Interview (CATI) system; 14% of young adults, however, completed the interviews via a web survey (young adults completing the web survey did not differ on background characteristics with the exception that they were more likely to be male). Interviews lasted approximately one hour. Survey sections were presented in a randomized order. Parents indicated demographic information, the amount of support they give each of their young adult offspring, and the number of life difficulties of each offspring. Offspring provided reports of developmental outcomes in addition to demographic information.

4.3.3 Measures

4.3.3.1 Demographic Information

Parents and young adult offspring reported on basic demographic information, including age, gender, ethnicity, education, marital status, coresidence, and household income. Parents also reported on their number of living offspring over the age of 18. Over half of the parents had only two living offspring over age 18 (55.46%); 44.54% had three or more.

4.3.3.2 Parental Support

Parental support was indexed using the Intergenerational Support Index (Fingerman et al., 2009; Fingerman, et al., 2012). Parents reported on support given to all of their offspring over the age of 18 across six different dimensions (one item per dimension): emotional, practical, communication, advice giving, socializing, and financial support. Items were rated on an 8-point scale, ranging from 1 (*less than once a year or never*) to 8 (*daily*). All six items were averaged together with higher values reflecting greater frequency of support ($M = 5.15$, $SD = 1.40$, $\alpha = .86$).

4.3.3.3 Average Level of Parenting

The average level of parenting was calculated via the mean of parents' report of support given to each of their adult offspring. Overall parents provided moderately high amounts of support to their young adult offspring ($M = 4.91$, $SD = 1.22$).

Table 4.1
Demographic Characteristics of Participants

Variables	Parents (n = 229) M (SD)	Offspring (n = 419) M (SD)
Age	51.45 (4.67)	23.99 (5.03)
Income[a]	4.34 (2.29)	3.90 (1.59)
Years of Education	14.46 (2.15)	13.95 (2.16)
	Proportions	Proportions
Women	.55	.56
Married	.79	.17
Employed		.79
Student		.45
Coresides with Parent		.51
Ethnicity		
African American	.20	.25
European American	.77	.68
Hispanic	.01	.01
Other	.02	.06

[a]Household income in 2007: 1 = *less than $10,000,* 2 = *$10,001 - $25,000,* 3 = *$25,001 - $40,000,* 4 = *$40,001 - $75,000,* 5 = *$75,001 - $100,000,* 6 = *more than $100,000*

4.3.3.4 Differential Support

Differential support was derived from parents' reports of support given to each of their offspring. To index individual level differential treatment, the average amount of support given to all of the parents' offspring was subtracted from that given to each participating offspring. Thus, positive values on this difference score denoted the participating offspring receiving more support (i.e., favored) than the average given to all their siblings. Negative values reflected receiving less support (i.e., less favored)

compared to the average support given to their siblings. As a whole, participating offspring received slightly more support than their family averages (M = .24, SD = .92).

4.3.3.5 Emotion Regulation

Offspring's emotion regulation was assessed via self-report on three items from the Emotion Regulation Questionnaire (Gross & John, 2003). Items were rated on a 4-point scale ranging from 1 (*strongly disagree*), to 4 (*strongly agree*). Example items include: "To feel more positive I change my thoughts." And, "I make sure not to express negative emotions." Items were averaged together with higher values indicated greater ability to regulate emotions. Overall, offspring indicated high levels of emotion regulation (M = 3.11, SD = .55, α = .59).

4.3.3.6 Time Management

Time management was measured with two items from the time management subscale of the Youth Experiences Survey (Hansen & Larson, 2002; Hansen, Larson, & Dworkin, 2003). Each participating offspring reported on their individual time management. Items were rated on a 4-point scale ranging from 1 (*strongly disagree*), to 4 (*strongly agree*). Items were worded: "I am good about setting priorities." And, "I am able to organize my time and not put things off." Scores were averaged together with higher values reflecting better time management. Offspring reported relatively high time management skills (M = 2.91, SD = .74, α = .72).

4.3.3.7 Positive Relationships

Positive relationships with others were assessed using two items from the positive relationships subscale of Ryff and Keyes (1995) psychological well-being scale. Each offspring reported on the nature of their relationships in general. Items were rated on a 4-point scale ranging from 1 (*strongly disagree*), to 4 (*strongly agree*). Items were: "I do not have many warm/trusting relationships." And, "I have difficulty opening up when talking with others." Items were reverse coded so that higher values reflected more positive relationships and then all items were averaged together. Overall, offspring reported having moderately high positive relationships with others ($M = 3.00$, $SD = .83$, $\alpha = .58$).

4.3.3.8 Meaning in Life

Meaning in life was measured using two items from the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). Each offspring reported on their meaning in life. Items were rated on a 4-point scale ranging from 1 (*strongly disagree*), to 4 (*strongly agree*). Items were: "My life has a clear sense of purpose." And, "I have a good sense of what makes my life meaningful." Items were averaged together with larger scores reflecting greater meaning in life. On average respondents reported high levels of meaning in life ($M = 3.39$, $SD = .70$, $\alpha = .71$).

4.3.3.9 Life Difficulties

Parents reported on whether each of their offspring had experienced life difficulties across 10 dimensions within the past two years (developmental delay,

physical disability, health, emotional, alcohol/drug, financial, trouble with law, victim of crime, divorce/relationship problems, other). The 10 items were summed to give a value of how many problems offspring had experienced. The observed range was zero to six with 53% of offspring having experienced no difficulties, 23% having experienced one life difficulty, and 24% having experienced two or more difficulties ($M = 0.86$, $SD = 1.17$, $\alpha = .51$). Because of the distribution, the variable was recoded into an effect code contrasting those with no life difficulties (-1) to those with at least one life difficulty (1).

4.3.3.10 Parent-Offspring Relationship Quality

Offspring reported on their relationship quality with their parent via two items (Umberson, 1992). Items were based on a 5-point scale, ranging from 1 (*not at all*) to 5 (*a great deal*). The items were, "How much does your father/mother love and care for you?" And, "How much does your father/mother understand you?" Items were averaged together with higher values reflecting more positive relationships ($M = 4.14$, $SD = .83$, $\alpha = .67$).

4.4 Results

4.4.1 Analytic Strategy

To examine the links between differential treatment and young adult offspring outcomes in the context of family size and the average level of parenting, a series of regression models were tested using SAS PROC SURVEYREG with the cluster option to account for the nested nature of siblings within families. Models were tested separately

for each dependent variable, but in identical fashion. Each model controlled for offspring and parent gender (-1 = female; 1 = male), age spacing (the standard deviation of the mean age of all offspring in the family over 18), offspring years of education, offspring marital status (-1 = not married; 1 = married), individual offspring coresidence (-1 = has not resided with parent in last year; 1 = resided with parent in the last year), offspring student status (-1 = not a student; 1 = student), offspring work status (-1 = not employed; 1 = employed full or part time), offspring life difficulties (-1 = no life difficulties; 1 = at least one life difficulty), and parent income. All continuous control variables and the average level of parenting were mean centered.

Models were tested hierarchically. In the first step, all controls, differential support, the average level of parenting, and family size were entered. This step tested Hypothesis 1, whether favored offspring (i.e., those who receive more support than the family average) fared better than less favored offspring. It also provided evidence for between-family differences relating to family size and average level of parenting. In the second step, three two-way interactions were entered: differential support X family size, differential support X the average level of parenting, and the average level of parenting X family size. These interactions tested whether less favored offspring fared even worse in larger families (Hypothesis 2) and in families with overall lower levels of parenting (Hypothesis 3). In the third and final step, a three-way interaction of differential support X family size X the average level of parenting was entered. This three-way interaction assessed Hypothesis 4, whether less favored offspring fared even worse when in larger families with lower levels of average parenting. Results are presented in the text for

independent variables only (control variables are presented in the tables) and separately for each dependent variable.

4.4.2 Emotion Regulation

With respect to young adults' emotion regulation, Model 1 revealed a significant main effect of differential support (see Table 4.2). Contrary to Hypothesis 1, the main effect for differential support indicated that young adults who received more support than the family average reported poorer emotion regulation. This main effect, however, was qualified by the two-way interaction between differential support and average level of parenting, and the three-way interaction between differential support, average level of parenting, and family size. As can be seen in Figure 4.1, inconsistent with expectations, there was a significant negative association between differential support and emotion regulation for offspring in families with three or more siblings who received high amounts of support on average (b = -.18, SE = .06, β = -.30, p < .01) and for those in families with only two siblings who received low amounts of support on average (b = -.24, SE = .07, β = -.40, p < .001). In both of these instances, young adults who received more support than their family average (i.e., favored siblings) reported poorer emotion regulation. There was no association between differential support and emotion regulation for young adults in families with three or more siblings and low levels of average parenting (b = -.01, SE = .03, β = -.02, *ns*) or young adults in families with only two siblings and high levels of average parenting (b = -.05, SE = .06, β = -.08, *ns*).

Table 4.2

*Summary of Survey Regression Analysis for Variables Predicting Young Adults' Emotion Regulation (*N = 419*)*

	Model 1			Model 2			Model 3		
Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Life Difficulties	-.09*	.04	-.07	-.08*	.04	-.07	-.09*	.04	-.07
Relationship with Parent	.02	.03	.03	.02	.03	.03	.02	.02	.03
Marital Status	.01	.06	.00	.00	.06	.00	.02	.06	.01
Employment Status	-.05	.04	-.03	-.05	.04	-.04	-.05	.04	-.04
Student Status	-.14**	.05	-.13	-.14**	.05	-.12	-.13**	.05	-.12
Years of Education	-.01	.01	-.05	-.01	.01	-.05	-.01	.01	-.04
Age	-.01	.01	-.06	-.01	.01	-.06	-.01	.01	-.06
Gender	-.08*	.04	-.08	-.08	.04	-.07	-.08*	.04	-.07
Age Spacing	.02	.01	.05	.02	.01	.06	.02*	.01	.06
Parent Gender	.08*	.04	.07	.08*	.04	.07	.08*	.04	.07
Parent Income	.00	.01	.01	.00	.01	.00	.00	.01	.00
Coresidence	.01	.05	.01	.02	.05	.02	.02	.05	.02
Family Average Support (Avg)	.00	.02	.02	.01	.02	.04	.00	.02	.03
Family Size (Size)	-.06	.04	-.05	-.07	.04	-.06	-.08	.04	-.06
Differential Support (Dif)	-.04*	.02	-.10	-.07**	.04	-.24	-.09***	.03	-.24
Avg X Size				.00	.03	-.00	.01	.03	.02
Avg X Dif				-.01	.01	-.09	.07*	.02	.15
Dif X Size				.01	.04	.10	.05	.04	.07
Avg X Dif X Size							-.10**	.03	-.28
R^2		.04			.05			.05	
F for change in R^2		1.08			1.16			2.68	

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

4.4.3 Time Management

Differential support, average level of parenting, and family size were not significantly associated with young adults' time management (see Table 4.3).

4.4.4 Positive Relationships

As can be seen in Table 4.4, no significant main effects emerged between differential support and young adults' positive relationships with others. Main effects for average level of parenting and family size, however, were observed. Specifically, those in families in which parents provided higher levels of support to their grown offspring as well as those from larger families reported less positive relationships with others.

Table 4.3
*Summary of Survey Regression Analysis for Variables Predicting Young Adults' Time Management (*N = 419*)*

Variables	*B*	*SE B*	*β*
Life Difficulties	-.17***	.05	-.11
Relationship with Parent	.13***	.04	.15
Marital Status	.09	.07	.05
Employment Status	.00	.06	.00
Student Status	-.07	.06	-.04
Years of Education	.04**	.01	.10
Age	-.00	.01	-.06
Gender	-.24***	.04	-.17
Age Spacing	-.02	.01	-.04
Parent Gender	.06	.05	.04
Parent Income	.00	.01	.00
Coresidence	-.06	.06	-.04
Family Average Support	-.00	.02	-.03
Family Size	-.07	.05	-.04
Differential Support	.03	.03	.01
R^2		.10	
F for change in R^2		3.01***	

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

4.4.5 Meaning in Life

Model 1 revealed no significant main effects of differential support, average level of parenting, or family size on young adults' meaning in life (see Table 4.5). Consistent with Hypothesis 2, however, results indicated a significant two-way interaction between differential support and family size. As can be seen in Figure 4.2, there was a positive association between receiving more support relative to a sibling and meaning in life for those in families with only two siblings (b = .21, SE = .05, β = .31, p < .001), but no association for those with in families with three or more siblings (b = -.05, SE = .04, β = -.07, *ns*).

Table 4.4
*Summary of Survey Regression Analysis for Variables Predicting Young Adults' Positive Relationships with Others (*N = 419*)*

Variables	*B*	*SE B*	*β*
Life Difficulties	.09	.05	.05
Relationship with Parent	.18***	.03	.20
Marital Status	.28***	.08	.13
Employment Status	.17**	.06	.09
Student Status	-.05	.07	-.03
Years of Education	.06***	.01	.16
Age	-.03**	.01	-.16
Gender	-.21***	.05	-.13
Age Spacing	.02	.01	.05
Parent Gender	-.08	.06	-.05
Parent Income	.05**	.01	.13
Coresidence	-.06	.07	-.02
Family Average Support	-.05*	.02	-.10
Family Size	-.13*	.06	-.08
Differential Support	-.03	.03	-.05
R^2		.17	
F for change in R^2		5.45***	

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

Table 4.5

*Summary of Survey Regression Analysis for Variables Predicting Young Adults' Meaning in Life (*N = 419*)*

	Model 1			Model 2		
Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Life Difficulties	-.00	.04	-.00	-.01	.04	-.01
Relationship with Parent	.16***	.03	.21	.17***	.03	.22
Marital Status	.09	.05	.06	.08	.05	.05
Employment Status	-.08	.05	-.05	-.09	.05	-.06
Student Status	-.04	.05	-.03	-.05	.05	-.04
Years of Education	.04***	.01	.15	.04***	.01	.15
Age	-.00	.01	-.01	-.00	.01	-.00
Gender	-.14**	.04	-.11	-.13**	.04	-.10
Age Spacing	-.01	.01	-.03	-.01	.01	-.04
Parent Gender	-.02	.04	-.01	-.01	.04	-.01
Parent Income	-.01	.01	-.03	-.01	.01	-.02
Coresidence	-.01	.05	-.01	-.01	.05	-.01
Family Average Support (Avg)	.00	.02	.01	-.00	.03	-.00
Family Size (Size)	-.01	.04	-.01	.02	.05	.02
Differential Support (Dif)	-.01	.03	-.02	.21***	.05	.31
Avg X Size				.00	.04	.00
Avg X Dif				-.00	.03	-.00
Dif X Size				-.26***	.06	-.35
R^2		.10			.12	
F for change in R^2		3.03***			2.49	

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

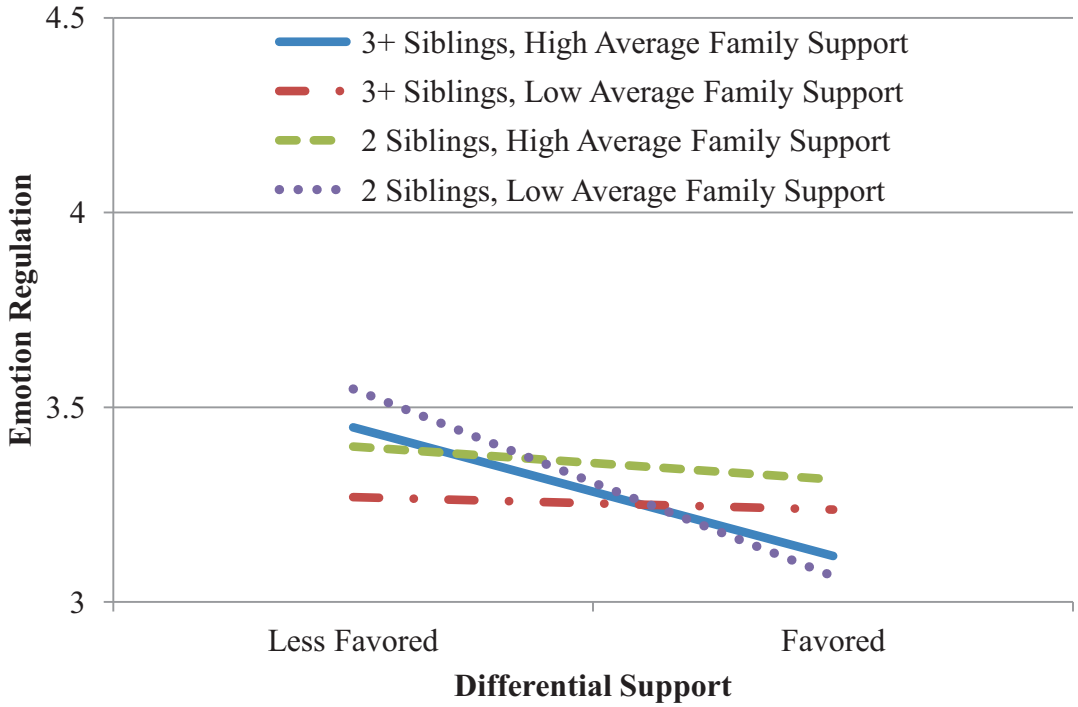


Figure 4.1 The Association between Parental Differential Support and Young Adults' Emotion Regulation, Moderated by Average Family Support and Number of Siblings.

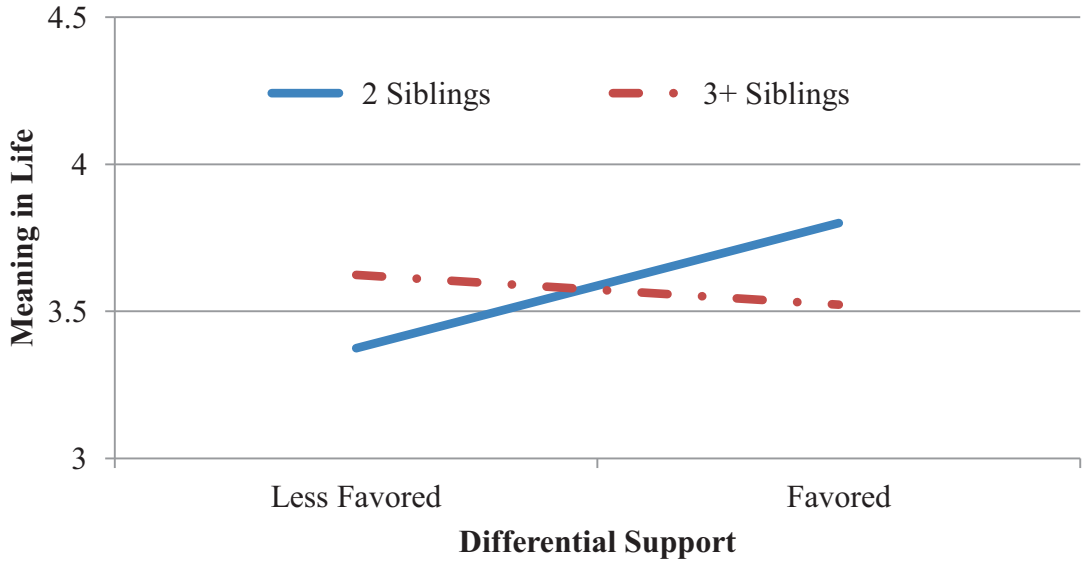


Figure 4.2 The Association between Parental Differential Support and Young Adults' Meaning in Life, Moderated by Number of Siblings.

4.5 Discussion

Past research on parents' differential treatment has linked discrepancies in treatment between two siblings to offspring outcomes including adjustment, depression, and self-worth (e.g., Brody et al., 1992a; Richmond et al., 2005; Shebloski et al., 2005). In general, this work revealed that offspring receiving less favored treatment tend to fare poorly, whereas favored offspring tend to fare better (e.g., Coldwell et al., 2008; McHale et al., 2000; Scholte et al., 2007). The current study sought to expand this work by examining differential treatment among all the siblings in the family, including in families with three or more siblings. Overall, results indicated links between PDT and some offspring outcomes varied by both family size and the average level of parenting.

4.5.1 Emotion Regulation

Of the four dependent variables analyzed, the three-way interaction of differential support X family size X average level of parenting emerged only for emotion regulation. I hypothesized that the association between PDT and emotion regulation would be more salient for those in larger families in which fewer resources on average were distributed to the offspring. Findings, however, were not consistent with this hypothesis. Rather there was a negative association between differential support and emotion regulation for those in families with three or more young adults and high average support as well as for those in families with only two youth and low average support. In other words, in these instances, being more favored was linked to poorer emotion regulation. As discussed previously, a body of work has highlighted the role that child driven effects in parenting behaviors (e.g., Bell, 1968; Crouter & Booth, 2003; Kuczynski, 2003). Although in the

current study I sought to control for several factors that may account for child effects, it is possible that the observed findings regarding emotion regulation are the result differences in offspring emotion regulation. That is, parents may provide more support to offspring with low emotion regulation because those offspring are in greater need of support.

Although PDT and offspring adjustment likely reciprocate (i.e., PDT leads to differences between offspring, but these differences also lead to increased PDT), it is possible that child driven effects are more prominent during adulthood. For example, past work shows that in adolescence PDT leads to changes in offspring adjustment more than sibling differences lead to PDT (e.g., Lam et al., 2012; Richmond et al., 2005). Given that adolescents are still developing emotionally and cognitively, they may be more sensitive and potentially malleable (i.e., correcting maladaptive behaviors) to parenting. As youth move into adulthood, however, their characteristics and behavioral patterns may become more rigid, potentially provoking parents to change or adapt their parenting behaviors.

Although useful, the child driven effects explanation does not explain why the association between differential support and emotion regulation was observed for only those in families with three or more youth with high levels of average support and in families with only two offspring and low levels of support. In larger families where parents provide high levels of support, the differences in treatment may be smaller than in large families with less overall support because parents are providing higher levels of support to all their offspring. For those in families with only two offspring and lower levels of average support, parents may have fewer resources to give their offspring so

they may simply focus on providing for the sibling who is in greater need emotional need. In this case, that may be the sibling with poorer emotion regulation.

4.5.2 Time Management

In contrast to expectations, parents' differential support was not associated with young adults' time management. Although past studies have linked PDT to outcomes such as physical health (Browne & Jenkins, 2012) and even the likelihood of attending college (Bissell-Havran et al., 2012), the majority of research has linked PDT with more affective and emotional behavioral outcomes like externalizing and internalizing behaviors (e.g., Burt et al., 2006; Jensen et al., 2013; Shanahan et al., 2008) and family relationship qualities (e.g., Kowal & Kramer, 1997; Kowal et al., 2004; McHale et al., 1995). It is possible that PDT is not linked to skill based behaviors, like time management. More research and discussion in the literature is needed regarding what types of behaviors are and are not linked with parents' differential treatment.

4.5.3 Positive Relationships

Analyses did not reveal any main effects or interactions involving differential treatment being linked to young adults' positive relationships with others. Although previous work has linked PDT to sibling relationship qualities (e.g., Jensen et al., 2013; Kowal et al., 2004; McHale et al., 1995), it is possible that dynamics of PDT do not extend to relationships outside the family. Instead, PDT may only be linked to sibling relationships because siblings are the social comparison targets in reference to parental treatment.

Although there were no links between PDT and positive relationships with others, significant negative associations did emerge, however, for the average level of support and family size. These links suggest that being from a family in which parents provide higher amounts of support to their grown offspring or being from a family with more offspring is linked to poorer quality relationships with others. Consistent with past work (e.g., Linder, Crick, & Collins, 2002), it is possible that those who receive a higher amount of parental support may have less need for support from those outside their family. In regards to the negative link between family size and positive relationships with others, perhaps mechanisms similar to resource dilution (e.g., Downey, 1995) are in play. Specifically, resource dilution hypotheses suggest that parents have fewer resources to devote to each individual offspring in larger families. If youth from larger families are continually provided less support from parents over time, it is possible that these individuals model those less supportive interaction styles and subsequently have less positive relationships with others. Longitudinal data, however, are necessary to test such claims.

4.5.4 Meaning in Life

Although no main effects emerged for young adults' reports of meaning in life, a differential support X family size interaction was revealed. I hypothesized that the association between PDT and meaning in life would be particularly salient for those in larger families, such that less favored young adults in families with three or more offspring would report lower meaning in life than less favored youth in families with only two offspring. Inconsistent with this expectation, results suggested that there was no

association between PDT and meaning in life for those in larger families. The association for those in smaller families, however, was in the hypothesized direction: Favored siblings reported higher meaning in life than did less favored siblings. It is possible that the association only emerged for those in two child families because social comparison may be less salient when directed toward a group of siblings as opposed to only one. Furthermore, those in larger families who receive less support than the family average may not perceive being less favored because they may be less favored than some siblings, but more favored than others. In contrast, in families with only two offspring, the sibling receiving less support by definition receives the least, and therefore may be more likely to perceive the discrepancy. Perhaps in larger families the link between PDT and meaning in life would be more evident if contrasting the sibling who received the least amount of support to all of their siblings. In future work with larger families researchers should consider the way in which favored and less favored treatment is operationalized and how that may translate to actual family process.

4.5.5 Limitations and Conclusions

The current study was not without limitations. First, the data were cross sectional. Although I controlled for several factors that may contribute to why parents treat their offspring differently (i.e., life difficulties, marital status, employment status, parent-offspring relationship quality), it is not possible to determine whether differences in parental support led to changes in adjustment or vice versa. Moreover, it is possible that other factors not controlled for account for why parents gave more support to some siblings than others. Given that significantly more females participated in the study than

would be expected by chance, it is possible that parents' biases in which offspring they nominated for participation in the study influenced results as well.

Second, the study was limited by data not being collected from all of the offspring in every family. Although I sought to examine differential treatment among all the siblings in the family, the data did not fully allow me to do so. Differential treatment was measured as the discrepancies in support among all the young adult siblings in the family over the age of 18; many families (31.8%), however, had offspring under 18 who were not included in the calculation of differential treatment which likely biased the index within those families. Furthermore, among offspring over 18, not all siblings participated. As indicated earlier, at least in the families with three or more offspring, the siblings who participated in the study received significantly more support on average than those who did not participate. The exclusion of these less favored offspring from the larger families may have biased results and limited my ability to detect non-spurious associations. Although very difficult to do, in addition to assessing differential treatment among all siblings regardless of age, future work should also seek to obtain outcome data from all offspring in the family.

Third, differential treatment was based on overall support as the mean of six separate dimensions (emotional, socializing, advice giving, communication, practical, and financial). Literature on support between parents and grown offspring (e.g., Parrott & Bengston, 1999; Silverstein, Conroy, Wang, Giarrusso, & Bengston, 2002), however, suggests that parental support may be comprised of several constructs such as emotional support, social support, informational support, and practical support. In the current study these four types of support were originally examined, but a global measure was

determined to be optimal given the pattern of associations between the variables (*r*'s ranged from .76 to .89). Importantly, results of models examining the individual dimensions of support produced nearly identical findings. Notwithstanding, future work should consider the possibility of distinct types of support and how they may matter for different indices of adjustment and well-being.

Lastly, the study may have been influenced by the dependent variables examined. Specifically, emotion regulation and positive relationships with others had poor reliability ($\alpha < .60$) which may have reduced the ability to detect meaningful non-spurious associations. Furthermore, each of the four dependent variables was measured using a subset of items from the original measure as opposed to the entire measure. It is possible that the used items did not fully capture the construct intended in the complete scale.

Aside from these limitations this study does make some contributions. First, these findings suggest that differential treatment may be more robustly linked (or only linked) to certain types of outcomes, such as emotional and behavioral qualities. Additionally, although not consistent with my original hypotheses, the results suggested that in some cases associations with PDT may vary by both family size and the average level of parenting. Family processes revolving around differential treatment, however, are complex and more theoretical and empirical examination is needed to elucidate the ways in which family size and the average level of parenting may affect the role of differential treatment in the lives of young adults.

CHAPTER 5. DISCUSSION

The goal of this dissertation was to examine the correlates and implications of parents' differential treatment in adolescence and young adulthood. Building upon past empirical work (e.g., Coldwell et al., 2008; Boyle et al., 2004; Richmond et al., 2005) and the theoretical principles of Family Systems Theory (Cox & Paley, 1997; Cox & Paley, 2003) and Social Comparison Theory (Festinger, 1954; Suls et al., 2002), these studies examined three specific gaps in the literature. First, I investigated whether different approaches to measuring PDT (i.e., difference scores and perceptions) were distinct yet conceptually linked in their associations with adolescent substance use and delinquent behaviors (Study 1). Second, I examined the possibility that being less favored by both mothers and fathers would be associated with poorer adolescent emotional, behavioral, and relational outcomes than if less favored by one parent only (Study 2). Lastly, I explored whether the associations of differential treatment were exacerbated among those in larger families or when parents provided on average fewer resources to their offspring (Study 3). In the following pages I will discuss how the findings from these three studies intersect and help clarify these gaps in the literature. Additionally, I detail possible implications for the links between PDT and offspring outcomes across the developmental periods of adolescence and young adulthood. Finally, I discuss the broad limitations of research on this topic and suggest directions for future research.

5.1 Difference Scores and Perceptions

As introduced previously, extant research on parents' differential treatment has been based on two general measurement approaches, difference scores and perceptions. To date, researchers have largely assumed these two approaches to be analogous. The aim of the first study was to address the possibility that these two ways of measuring PDT are actually distinct, yet linked conceptually. As evidenced by low to moderate associations between difference scores and perceptions on both maternal and paternal treatment, it is likely that the two approaches are indeed distinct; however, the associations between the two types of measurements were also significant (i.e., non-zero) which suggests that they may be linked at some level.

Beyond the first study, however, the results of the second and third study may also help shed some light on the use of perceptions (used in Study 2) and difference scores (used in Study 3) and why researchers may choose one approach over the other. Consistent with past work (Dunn et al., 1990) the results of Study 2 and Study 3 suggest that perceptions are more robustly linked to offspring outcomes than are difference scores. This pattern may lead some researchers to choose the perceptions based measure over difference scores. Scholars, however, should keep in mind that like the data from Study 2, few siblings may actually report less favored treatment on a perceptions based measure, which may make the testing of higher order interactions difficult. Ultimately, researchers should base their measurement decisions on the theoretical aspects of differential treatment that each approach differs on rather than which measure will provide significant results. In doing so, it may be the best practice to focus on domain specific differential treatment. Although the perception variables in Study 1 and Study 2

were regarding treatment in general, domain specific PDT will allow for the testing of the implications of PDT and how they may vary by other Social Comparison principles such as the importance of the domain to the individual sibling.

5.2 Maternal and Paternal Treatment

Based on Family Systems Theory (Cox & Paley, 1997; Cox & Paley, 2003) and past research (Meunier, Bisceglia, et al., 2012), I anticipated that the interaction of maternal and paternal treatment would explain further variation in youth outcomes than would main effects alone. Study 2 directly addressed this notion, but did not find any evidence for the expected patterns of moderation. As addressed in the discussion section for Study 2 and in contrast to Family Systems Theory principles, it is possible that the perception of maternal and paternal treatment do no interact above and beyond their main effects. The distinction between difference scores and perceptions, however, may offer insight as to why the proposed patterns did not emerge. For example, it is possible that the perception of differential treatment reflects a psychological construct rooted more strongly in personal characteristics such as temperament or personality as opposed to family process (i.e., differences in treatment). As such, the interaction of maternal and paternal treatment may be more evident when measured via difference scores that may more accurately capture family processes surrounding PDT. Indeed, the significant interaction of maternal and paternal differential treatment identified by Meunier, Bisceglia, and colleagues (2012) was based on PDT being measured via difference score. Unfortunately, the findings of the other two studies of this dissertation fail to aid in

understanding these issues because neither tested the interaction of maternal and paternal differential treatment.

Beyond the interaction (or lack thereof) of maternal and paternal treatment, the results of Studies 1 and 2 offer some insight to implications of differential treatment from mothers and fathers. Past research that has simultaneously examined treatment from both mothers and fathers has been mixed. For instance, some studies have suggested that because mothers are more involved with their offspring than are fathers that differential treatment from mothers may be more salient in relation to offspring outcomes (Davey et al., 2009). Others used the same explanation that mothers' presence is more ubiquitous and so differential treatment from fathers may actually be more robustly linked to youth outcomes because of the relative scarcity of paternal affection (Brody et al., 1992a). It is more likely, however, that discrepant treatment from both mothers and fathers plays a role in offspring adjustment (e.g., Jensen et al., 2013; Tamrouti-Makkink et al., 2004). Interestingly, although findings from Study 1 suggested that paternal differential treatment (measured via difference scores and perceptions) was linked to delinquent behavior at the bivariate level, when assessed concurrently with treatment from mothers the association was ameliorated. There was no link between fathers' differential treatment based on difference scores or perceptions with substance use at the bivariate level or concurrently with maternal treatment. Taken together, these findings suggests that, at least for adolescents' substance use and delinquency, differential treatment from mothers is more relevant than is that from fathers. Perhaps maternal treatment is more salient for certain types of outcomes and paternal treatment for others. For example, the results of Study 2 revealed that maternal, but not paternal, treatment was linked to

depression and sibling intimacy; whereas paternal, but not maternal, treatment was linked to prosocial behavior toward the family. Treatment from both mothers and fathers was linked to sibling conflict. It is possible that maternal treatment is linked more with adjustment, delinquency, and relational qualities and treatment from fathers is linked more strongly to family engagement and conflict. Future studies should perhaps seek to identify types of outcomes in which mothers' discrepant treatment, or that from fathers is more salient.

5.3 Differential Treatment, Family Size, and the Average Level of Parenting

Given that many families have more than two offspring (Kreider & Ellis, 2011), Study 3 aimed to address how differential treatment among all the siblings in the family was linked to individual outcomes. Within this context I hypothesized that PDT would be more salient for those in larger families, especially when the average level of parental support was low. As outlined in Study 3, results were not consistent with these expectations. For example, in regards to emotion regulation, the association with PDT was only evident for those in families with three offspring and high levels of support and in families with only two siblings and low levels of support (see Study 3 for a more complete discussion of possible explanations for this finding). Only one other interaction emerged regarding family size, indicating that differential support was only linked to meaning in life for those in families with two offspring only. Overall this is scant evidence for the moderating role of family size. As discussed in Study 3, however, the data were limited by parents' nominating more favored offspring in larger families which may have biased the results. In light of this future research should still consider the

possibility of associations varying by family size but strive to examine them with outcome data from all the siblings.

5.4 PDT from Adolescence into Young Adulthood

Although all three studies in this dissertation were cross-sectional and focused on different outcomes, they still provide some insight about the role of PDT from adolescence into young adulthood. As discussed in greater detail in Study 3, little work has examined the correlates and implications of PDT in young adulthood (e.g., Jensen et al., 2013) and, to my knowledge, no work has examined the development and trajectory of PDT from adolescence into young adulthood. Examining themes across these three studies, however, may provide insight for future research to consider. First, in Study 1 and Study 2, which both examined PDT in adolescence, main effects of PDT were more consistently linked with youth outcomes than in Study 3, which examined PDT in early adulthood. In fact, across Studies 1 and 2 there were only aggression and prosocial behavior toward others were not linked to PDT from at least one parent. In Study 3, two of the four dependent variables were not related to PDT either at the main effect level or in higher order interactions. Taken together, these findings suggest that perhaps the importance of PDT declines into young adulthood, possibly because siblings typically do not reside with one another (Arnett, 2007; White & Riedmann, 1992) and they may be less aware of discrepant parental treatment. It should be noted, however, that this pattern may also be the result of differences in outcomes examined, or the difference between using different markers of PDT (i.e., perceptions only in Study 2, difference scores only in Study 3, or a combination of the two in Study 1). To understand whether and how the

implications of PDT change across the transition to adulthood future research needs to examine associations longitudinally using the same approach to assess PDT.

The second insight regarding PDT from adolescence into young adulthood has to do with the direction of effects. The observed effects in Studies 1 and 2 (both of which focused on adolescence) were consistent with hypotheses which posited that favored offspring fare better, whereas less favored siblings fare poorer. These results are in line with Social Comparison Theory principles (Festinger, 1954; Suls et al., 2002; Wood, 1989) suggesting that PDT influences changes in offspring development. In Study 3, however, findings for emotion regulation were in the opposite direction. That is, favored offspring had poorer emotion regulation and less favored offspring better emotion regulation. This pattern is more consistent with a child driven effects hypothesis (e.g., Bell, 1968; Crouter & Booth, 2003; Kuczynski, 2003) suggesting that sibling differences in emotion regulation lead to parents treating the siblings differently. It is important to remember that although the data cannot actually confirm this conclusion they do not prohibit it either. The implication is that during adolescence, when offspring typically reside with their parents, social comparison processes may exert more of an influence as siblings can more readily compare themselves to one another based on parental treatment, leading favored siblings to generally fare better than the less favored. Moving into young adulthood when siblings often no longer reside together (Arnett, 2007; White & Riedmann, 1992) and the role of social comparison may diminish and child driven effects may increase. This is a tenuous argument, but certainly a possibility.

5.5 Limitations and Future Directions

Since first highlighting the notion of within family differences in parental treatment in the 1980s (Daniels & Plomin, 1985; Plomin & Daniels, 1987), research on this topic has developed and evolved toward a better understanding of the many complexities that encompass PDT. Despite the progress there are several limitations to the overall body of research beyond those addressed in this dissertation that need more attention. The first limitation is the lack of focus on family process, specifically observed process. Although some studies have used observational techniques to index parenting differences (Brody et al., 1992a; Brody et al., 1992b; Dunn et al., 1990), this approach has been limited to studying PDT with young children. Observational tasks involving parents and siblings together may provide opportunities for researchers to observe differential treatment as it occurs naturally and may possibly reduce reporter bias. Observational methods may also pick up on patterns of differential treatment too subtle for questionnaires such as differential attention or acknowledgement within a discussion task.

Another limitation of the research on differential treatment is based on understanding the ways in which siblings and families think and talk about differential treatment. Work by Kowal and Kramer (Kowal & Kramer, 1997; Kowal et al., 2002) suggests that cognitions about differential treatment may impact the role of parents' discrepant treatment. Specifically, their findings suggest that when offspring view the differential treatment as fair, there is no association between PDT and children's family relationships (i.e., the negative impact of PDT is mitigated). Other types of cognitions revolving around differential treatment may moderate its effects as well, including the

thought processes of the parents. For example, it is possible that the reasons why parents treat siblings differently or the ways in which parents justify or explain their differential treatment may moderate associations with outcomes. Researchers could take these notions further and assess the ways in which parents communicate and talk with their offspring about differential treatment. In fact, considering these possibilities may further the understanding of how PDT is experienced as a family level process.

Another limitation of work on this topic is the notion of appropriate differential treatment. To date, research has generally followed either Adler's Theory of Individual Psychology (Ansbacher & Ansbacher, 1956) and suggested that any amount of differential treatment has negative implications for offspring (e.g., Boll et al., 2003; Kowal & Kramer, 1997) or has been based on Social Comparison Theory (e.g., Davey et al., 2009; Feinberg, Neiderhiser, et al., 2000; Jensen et al., 2013) and suggested that PDT has negative consequences for the less favored sibling but is beneficial for favored sibling. Few scholars, however, have considered that some levels of differential treatment may actually be appropriate and healthy for offspring development (Feinberg, McHale, Crouter, & Cumsille, 2003; Meunier, Boyle, O'Connor, & Jenkins, 2013). For example, rates of differential treatment are higher in families where one sibling has a disability. In this context differential treatment is not linked to the socio-emotional adjustment of the non-disabled sibling (McHale & Pawletko, 1992). In these instances, some amount, or even large amounts of differential treatment is appropriate. Although less dramatic, in families with a non-disabled offspring some level of differential treatment is normative and likely healthy. The link between PDT and emotion regulation from Study 3 may also be consistent with the notion of appropriate differential treatment.

In that study, in some cases, favored offspring reported poorer emotion regulation. I suggested that that parents may tend to give more support to offspring who are in greater need (i.e., have poor emotion regulation). Although it may yield differential treatment, parents' response to differing needs of their offspring is likely appropriate in many cases.

5.6 Conclusion

Despite the limitations of the studies contained in this dissertation, findings reinforce the complexity of parental differential treatment as a family level process. Results from Study 1 highlight this complexity by addressing different measurement approaches which may not be analogous as assumed by scholars in the past. Study 2 addressed the complexity of PDT by examining the intersection of maternal and paternal differential treatment and testing whether being less favored by both parents was more detrimental for adolescents than being less favored by one parent only. Lastly, Study 3 captured the complexity of PDT by focusing on the context of PDT within smaller or larger families. Future work will benefit by continuing to focus on these complexities and capturing the dynamic processes of differential treatment.

REFERENCES

REFERENCES

Ansbacher, H. L., & Ansbacher, R. R. (1956). *The individual psychology of Alfred Adler*. New York: Basic Books.

Aquilino, W. S. (2005). Impact of family structure on parental attitudes toward the economic support of adult children over the transition to adulthood. *Journal of Family Issues*, *26*, 143-167. doi:10.1177/0192513X04265950

Arnett, J. J. (2007) Emerging adulthood: What is it, and what is it good for? *Child Development Perspectives, 1*, 68-73. doi:10.1111/j.1750-8606.2007.00016.x

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi:10.1037/0022-3514.51.6.1173

Becker, G. S., & Lewis, H. G. (1973). On the interaction between the quantity and quality of children. *Journal of Political Economy, 81*, 279-288.

Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review, 75*, 81-95. doi:10.1037/h0025583

Bissell-Havran, J. M., Loken, E., & McHale, S. M. (2012). Mothers' differential treatment of adolescent siblings: Predicting college attendance of sisters versus brothers. *Journal of Youth and Adolescence, 41*, 1267-1279. doi:10.1007/s10964-011-9727-6

Blyth, D., Hill, J., & Thiel, K. (1982). Early adolescents' significant others: Grade and gender differences in perceived relationships with familial and nonfamilial adults and young people. *Journal of Youth and Adolescence, 11*, 425-450. doi:10.1007/BF01538805

Boll, T., Ferring, D., & Filipp, S. (2003). Perceived parental differential treatment in middle adulthood: Curvilinear relations with individuals' experienced relationship quality to sibling and parents. *Journal of Family Psychology, 17*, 472-487. doi:10.1037/0893-3200.17.4.472

Boll, T., Ferring, D., & Filipp, S. (2005). Effects of parental differential treatment on relationship quality with siblings and parents: Justice evaluations as mediators. *Social Justice Research, 18*, 155-182. doi:10.1007/s11211-005-7367-2

Booth, B. M., Curran, G., Han, X., Wright, P., Frith, S., Leukefeld, C., & ... Carlson, R. G. (2010). Longitudinal relationship between psychological distress and multiple substance use: Results from a three-year multisite natural-history study of rural stimulant users. *Journal of Studies on Alcohol and Drugs, 71*, 258-267.

Boyle, M. H., Jenkins, J. M., Georgiades, K., Cairney, J., Duku, E., & Racine, Y. (2004). Differential-maternal parenting behavior: Estimating within- and between-family effects on children. *Child Development*, *75*, 1457-1476. doi:10.1111/j.1467-8624.2004.00751.x

Brody, L. R., Copeland, A. P., Sutton, L. S., Richardson, D. R., & Guyer, M. (1998). Mommy and daddy like you best: Perceived family favouritism in relation to affect, adjustment and family process. *Journal of Family Therapy*, *20*, 269-291. doi:10.1111/1467-6427.00087

Brody, G. H., Stoneman, Z., & McCoy, J. K. (1992a). Associations of maternal and paternal direct and differential behavior with sibling relationships: Contemporaneous and longitudinal analyses. *Child Development, 63*, 82-92. doi:10.2307/1130903

Brody, G. H., Stoneman, Z., & McCoy, J. K. (1992b). Parental differential treatment of siblings and sibling differences in negative emotionality. *Journal of Marriage and the Family*, *54*, 643-651. doi:10.2307/353250

Browne, D. T., & Jenkins, J. M. (2012). Health across early childhood and socioeconomic status: Examining the moderating effects of differential parenting. *Social Science & Medicine*, *74*, 1622-1629. doi:10.1016/j.socscimed.2012.01.017

Browne, D. T., Meunier, J., O'Connor, T. G., & Jenkins, J. M. (2012). The role of parental personality traits in differential parenting. *Journal of Family Psychology*, *26*, 542-553. doi:10.1037/a0028515

Burt, S., McGue, M., Iacono, W. G., & Krueger, R. F. (2006). Differential parent-child relationships and adolescent externalizing symptoms: Cross-lagged analyses within a monozygotic twin differences design. *Developmental Psychology*, *42*, 1289-1298. doi:10.1037/0012-1649.42.6.1289

Coldwell, J., Pike, A., & Dunn, J. (2008). Maternal differential treatment and child adjustment: A multi-informant approach. *Social Development, 17*, 596-612. doi:10.1111/j.1467-9507.2007.00440.x

Conger, K. J., & Little, W. M. (2010). Sibling relationships during the transition to adulthood. *Child Development Perspectives, 4*, 87-94. doi:10.1111/j.1750-8606.2010.00123.x.

Conley, D., Pfeiffer, K. M., & Velez, M. (2007). Explaining sibling differences in achievement and behavioral outcomes: The importance of within- and between-family factors. *Social Science Research, 36*, 1087-1104.

Cooney, T. M., & Uhlenberg, P. (1992). Support from parents over the life course: The adult child's perspective. *Social Forces, 71*, 63-84. doi:10.2307/2579966

Cox, M. J., & Paley, B. (1997). Families as systems. *Annual Review of Psychology*, *48*, 243-267. doi:10.1146/annurev.psych.48.1.243

Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current Directions in Psychological Science, 12*, 193-196. doi:10.1111/1467-8721.01259

Crouter, A. C., & Booth, A. (2003). *Children's influence on family dynamics: The neglected side of family relationships*. Mahwah, NJ: Erlbaum.

Crouter, A. C., Manke, B., & McHale, S. M. (1995). The family context of gender intensification in early adolescence. *Child Development, 66*, 317–329. doi:10.2307/1131580

Crouter, A. C., McHale, S. M., & Tucker, C. (1999). Does stress exacerbate parental differential treatment of siblings? A pattern-analytic approach. *Journal of Family Psychology*, *13*, 286-299. doi:10.1037/0893-3200.13.2.286

Daniels, D., & Plomin, R. (1985). Differential experience of siblings in the same family. *Developmental Psychology*, *21*, 747-760. doi:10.1037/0012-1649.21.5.747

Davey, A., Tucker, C. J., Fingerman, K., & Savla, J. (2009). Within-family variability in representations of past relationships with parents. *Journal of Gerontology: Social Sciences, 64B*, 125–136, doi:10.1093/geronb/gbn001

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. *Developmental Psychology, 27*, 172-180. doi: 10.1037/0012-1649.27.1.172

Downey, D. B. (1995). When bigger is not better: Family size parental resources and children's educational performance. *American Sociological Review, 60*, 746-761. doi:10.2307/2096320

Dunn, J., Stocker, C., & Plomin, R. (1990). Nonshared experiences within the family: Correlates of behavioral problems in middle childhood. *Development and Psychopathology*, *2*(2), 113-126. doi:10.1017/S0954579400000651

Eberly, M. B., & Montemayor, R. (1999). Adolescent affection and helpfulness toward parents: A 2-year follow-up. *The Journal of Early Adolescence*, *19*(2), 226-248. doi:10.1177/0272431699019002005

Eccles, J. S., & Barber, B. (1990). Risky behavior measure. Unpublished scale, University of Michigan.

Eggebeen, D. J. (2005). Cohabitation and exchanges of support. *Social Forces*, *83*, 1097-1110. doi:10.1353/sof.2005.0027

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology*, *51*, 665-697. doi:10.1146/annurev.psych.51.1.665

Erikson, E. H. (1968). Identity: Youth and crisis. New York: Norton.

Erikson, E. H. (1982). The life cycle completed: A review. New York: Norton.

Faulstich, M. E. (1986). Assessment of depression in childhood and adolescence: An evaluation of the Center for Epidemiological Studies Depression Scale for Children (CES-DC). *American Journal of Psychiatry, 143*, 1024-1027.

Feinberg, M., & Hetherington, E. M. (2001). Differential parenting as a within family variable. *Journal of Family Psychology, 15*, 22-37. doi:10.1037/0893-3200.15.1.22

Feinberg, M. E., Howe, G. W., Reiss, D., & Hetherington, E. (2000). Relationship between perceptual differences of parenting and adolescent antisocial behavior and depressive symptoms. *Journal of Family Psychology*, *14*, 531-555. doi:10.1037/0893-3200.14.4.531

Feinberg, M. E., McHale, S. M., Crouter, A. C., & Cumsille, P. (2003). Sibling differentiation: Sibling and parent relationship trajectories in adolescence. *Child Development, 74*, 1261–1274. doi:10.1111/1467-8624. 00606

Feinberg, M. E., Neiderhiser, J. M., Simmens, S., Reiss, D., & Hetherington, E. (2000). Sibling comparison of differential parental treatment in adolescence: Gender, self-esteem, and emotionality as mediators of the parenting-adjustment association. *Child Development*, *71*, 1611-1628. doi:10.1111/1467-8624.00252

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140. doi: 10.1177/001872675400700202

Fingerman, K. L., Cheng, Y., Wesselmann, E. D., Zarit, S., Furstenberg, F., & Birditt, K. S. (2012). Helicopter parents and landing pad kids: Intense parental support of grown children. *Journal of Marriage and Family, 74*, 880 – 896.

Fingerman, K. L., Miller, L., Birditt, K., & Zarit, S. (2009). Giving to the good and the needy: Parental support of grown children. *Journal of Marriage and Family, 71*, 1220 – 1233. doi:10.1111/j.1741- 3737.2009.00665.x

Goethals, G. R. (1986). Constructing and ignoring social reality: Positive self-appraisal consistent estimates of consensus. In J. Olson, C. P. Herman, & M. Zanna (Eds.), *Relative deprivation and social comparison: The Ontario Symposium* (pp. 137-157). Hillsdale, NJ: Erlbaum.

Goldscheider, F. K., Thornton, A., & Yang, L. (2001). Helping out the kids: Expectations about parental support in young adulthood. *Journal of Marriage and Family*, *63*, 727-740. doi:10.1111/j.1741-3737.2001.00727.x

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*, 348-362. doi:10.1037/0022-3514.85.2.348

Hansen, D. M., & Larson, R. W. (2002). *The Youth Experience Survey.* Unpublished manuscript, University of Illinois at Urbana-Champaign.

Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence*, *13*, 25-55. doi:10.1111/1532-7795.1301006

Harris, K. M., & Morgan, S. P. (1991). Fathers, sons, daughters: Differential paternal involvement in parenting. *Journal of Marriage and the Family, 53*, 531–544. doi:10.2307/352730

Hawkins, D. N., Amato, P. R., & King, V. (2007). Nonresident father involvement and adolescent well-being: Father effects or child effects?. *American Sociological Review*, *72*(6), 990-1010. doi:10.1177/000312240707200607

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, *76*, 408-420. doi:10.1080/03637750903310360

Hoeve, M., Dubas, J., Gerris, J. M., van der Laan, P. H., & Smeenk, W. (2011). Maternal and paternal parenting styles: Unique and combined links to adolescent and early adult delinquency. *Journal of Adolescence*, *34*, 813-827. doi:10.1016/j.adolescence.2011.02.004

Holmstom, L., Karp, D. A., & Gray, P. S. (2002). Why laundry, not Hegel? Social class, transition to college, and pathways to adulthood. *Symbolic Interaction*, *25*, 437-462. doi:10.1525/si.2002.25.4.437

Jenkins, J. M., Rasbash, J., & O'Connor, T. G. (2003). The role of the shared family context in differential parenting. *Developmental Psychology*, *39*, 99-113. doi:10.1037/0012-1649.39.1.99

Jensen, A. C., Whiteman, S. D., Fingerman, K. L., & Birditt, K. S. (2013). "Life still isn't fair": Parental differential treatment of young adult siblings. *Journal of Marriage and Family, 75*, 438-452. doi:10.1111/jomf.12002

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2006). *Monitoring the future: National survey results on drug use, 1975-2005. Volume I: Secondary school students* (NIH Publication No. 06-5883). Bethesda, MD: National Institute on Drug Abuse.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2010). *Monitoring the future: National survey results on drug use, 1975–2009: Volume 1: Secondary school students* (NIH Publication No. 10-7584). Bethesda, MD: National Institute on Drug Abuse.

Kowal, A., & Kramer, L. (1997). Children's understanding of parental differential treatment. *Child Development, 68*, 113-126. doi:10.2307/1131929

Kowal, A., Kramer, L., Krull, J. L., & Crick, N. R. (2002). Children's perceptions of the fairness of parental preferential treatment and their socioemotional well-being. *Journal of Family Psychology*, *16*, 297-306. doi:10.1037/0893-3200.16.3.297

Kowal, A. K., Krull, J. L., & Kramer, L. (2004). How the differential treatment of siblings is linked with parent-child relationship quality. *Journal of Family Psychology*, *18*, 658-665. doi:10.1037/0893-3200.18.4.658

Kowal, A. K., Krull, J. L., & Kramer, L. (2006). Shared understanding of parental differential treatment in families. *Social Development, 15*, 276-295. doi:10.1111/j.1467-9507.2006.00341.x

Kreider, R. M., & Ellis, R. (2011). Living arrangements of children: 2009. *Current Population Reports, U.S. Census Bureau*, 70-126.

Kuczynski, L. (2003). Beyond bidirectionality: Bilateral conceptual frameworks for understanding dynamics in parent – child relations. In L. Kuczynski (Ed.), *Handbook of dynamics in parent – child relations* (pp. 3 – 24). Thousand Oaks, CA: Sage.

Lam, C., Solmeyer, A. R., & McHale, S. M. (2012). Sibling differences in parent–child conflict and risky behavior: A three-wave longitudinal study. *Journal of Family Psychology*, *26*, 523-531. doi:10.1037/a0029083

Linder, J., Crick, N. R., & Collins, W. (2002). Relational aggression and victimization in young adults' romantic relationships: Associations with perceptions of parent, peer, and romantic relationship quality. *Social Development*, *11*(1), 69-86. doi:10.1111/1467-9507.00187

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*, 83-104. doi:10.1037/1082-989X.7.1.83

Martin, S. L., Clark, K. A., Lynch, S. R., Jupper, L. L., & Clienti, D. (1999). Violence in the lives of pregnant teenage women: Associations with multiple substance use. *American Journal of Drug and Alcohol Abuse, 25*, 425-440. doi:10.1081/ADA-100101870

Mason, W., & Spoth, R. L. (2012). Sequence of alcohol involvement from early onset to young adult alcohol abuse: Differential predictors and moderation by family-focused preventive intervention. *Addiction*, *107*, 2137-2148. doi:10.1111/j.1360-0443.2012.03987.x

McGuire, S., Dunn, J., & Plomin, R. (1995). Maternal differential treatment of siblings and children's behavioral problems: A longitudinal study. *Development and Psychopathology*, *7*, 515-528. doi:10.1017/S0954579400006660

McHale, S. M. (2006). Parents' differential treatment of children: Children's perceptions of fairness. Unpublished scale. The Pennsylvania State University.

McHale, S. M., & Crouter, A. C. (1996). The family contexts of children's sibling relationships. In G. H. Brody (Ed.), *Sibling relationships: Their causes and consequences* (pp. 173-195). Westport, CT US: Ablex Publishing.

McHale, S. M., Crouter, A. C., McGuire, S. A., & Updegraff, K. A. (1995). Congruence between mothers' and fathers' differential treatment of siblings: Links with family relations and children's well-being. *Child Development, 66*, 116-128. doi:10.2307/1131194

McHale, S. M., & Pawletko, T. M. (1992). Differential treatment of siblings in two family contexts. *Child Development*, *63*, 68-81. doi:10.2307/1130902

McHale, S. M., Updegraff, K. A., Jackson-Newsom, J., Tucker, C. J., & Crouter, A. C. (2000). When does parents' differential treatment have negative implications for siblings? *Social Development, 9*, 149–172. doi:10.1111/1467-9507.00117

Mendes, W., Blascovich, J., Major, B., & Seery, M. (2001). Challenge and threat responses during downward and upward social comparisons. *European Journal of Social Psychology*, *31*, 477-497. doi:10.1002/ejsp.80

Meunier, J., Bisceglia, R., & Jenkins, J. M. (2012). Differential parenting and children's behavioral problems: Curvilinear associations and mother–father combined effects. *Developmental Psychology*, *48*, 987-1002. doi:10.1037/a0026321

Meunier, J., Boyle, M., O'Connor, T. G., & Jenkins, J. M. (2013). Multilevel mediation: Cumulative risk, maternal differential treatment, and children's behavior within families. *Child Development.* Advance online publication. doi:10.1111/cdev.12066

Meunier, J., Wade, M., & Jenkins, J. M. (2012). Mothers' differential parenting and children's behavioural outcomes: Exploring the moderating role of family and social context. *Infant and Child Development*, *21*, 107-133. doi:10.1002/icd.763

Milevsky, A., Smoot, K., Leh, M., & Ruppe, A. (2005). Familial and contextual variables and the nature of sibling relationships in emerging adulthood. *Marriage & Family Review, 37*, 123-141. doi: 10.1300/J002v37n04_07

Muthén, L. K., & Muthén, B. O. (2010). *Mplus User's Guide. Sixth Edition*. Los Angeles, CA: Muthén & Muthén.

National Institute on Alcohol Abuse and Alcoholism Task Force on Recommended Alcohol Questions. (2003). Recommended sets of alcohol consumption questions. Retrieved from: http://www.niaaa.nih.gov/research/guidelines-and-resources/recommended-alcohol-questions

Novak, S. P., & Clayton, R. R. (2001). The influence of school environment and self-regulation on transitions between stages of cigarette smoking: A multilevel analysis. *Health Psychology, 20*, 196-207. doi:10.1037/0278-6133.20.3.196

Parrott, T. M., & Bengtson, V. L. (1999). The effects of earlier intergenerational affection, normative expectations and family conflict on contemporary exchanges of help and support. *Research on Aging*, *21*, 73-105. doi:10.1177/0164027599211004

Parsons, T. (1974). Age and sex in social structure. In R. L. Coser (Ed.), *The family: Its structures and functions* (pp. 243 – 255). New York: St. Martins. (Original work published 1942)

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification.* Washington, DC: Oxford University Press.

Pillemer, K., Suitor, J. J., Pardo, S., & Henderson, C. J. (2010). Mothers' differentiation and depressive symptoms among adult children. *Journal of Marriage and Family, 72*, 333-345. doi:10.1111/j.1741-3737.2010.00703.x

Plomin, R., & Daniels, D. (1987). Why are children in the same family so different from one another? *Behavioral and Brain Sciences*, *10*, 1-16. doi:10.1017/S0140525X00055941

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments and Computers, 36*, 717-731.

Quittner, A. L., & Opipari, L. C. (1994). Differential treatment of siblings: Interview and diary analyses comparing two family contexts. *Child Development*, *65*(3), 800-814. doi:10.2307/1131419

Richmond, M. K., Stocker, C. M., & Rienks, S. L. (2005). Longitudinal associations between sibling relationship quality, parental differential treatment, and children's adjustment. *Journal of Family Psychology, 19*, 550-559. doi:10.1037/0893-3200.19.4.550

Roberts, T. (1991). Gender and the influence of evaluations on self-assessments in achievement settings. *Psychological Bulletin, 109*, 297-308. doi:10.1037/0033-2909.109.2.297

Ryff, C. D., & Keyes, C. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*, 719-727. doi:10.1037/0022-3514.69.4.719

Sayer, L. C., Bianchi, S. M., & Robinson, J. P. (2004). Are parents investing less in children? Trends in mothers' and fathers' time with children. *American Journal of Sociology*, *110*, 1-43. doi:10.1086/386270

Schoeni, R. F., & Ross, K. E. (2005). Material assistance from families during the transition to adulthood. In R. A. Settersten, F. F. Furstenberg, & R. G. Rumbaut (Eds.), *On the frontier of adulthood: Theory, research, and public policy* (pp. 396 – 417). Chicago: University of Chicago Press.

Scholte, R. H., Engels, R. C. M. E., de Kemp, R. A. T., Harakeh, Z., & Overbeek, G. (2007). Differential parental treatment, sibling relationships and delinquency in adolescence. *Journal of Youth and Adolescence, 36*, 661-671. doi:10.1007/s10964-006-9155-1

Shanahan, L., Kim, J., McHale, S. M., & Crouter, A. C. (2007). Sibling similarities and differences in time use: A pattern-analytic, within-family approach. *Social Development*, *16*, 662-681. doi:10.1111/j.1467-9507.2007.00410.x

Shanahan, L., McHale, S. M., Crouter, A. C., & Osgood, D. W. (2008). Linkages between parents' differential treatment, youth depressive symptoms, and sibling relationships. *Journal of Marriage and Family, 70*, 480-494. doi:10.1111/j.1741-3737.2008.00495.x

Shebloski, B., Conger, K. J., & Widaman, K. F. (2005). Reciprocal links among differential parenting, perceived partiality, and self-worth: A three-wave longitudinal study. *Journal of Family Psychology, 19*, 633-642. doi:10.1037/0893-3200.19.4.633

Silverstein, M., Conroy, S. J., Wang, H., Giarrusso, R., & Bengtson, V. L. (2002). Reciprocity in parent-child relations over the adult life course. *The JournalsoOf Gerontology: Series B: Psychological Sciences and Social Sciences*, *57B*, S3-S13. doi:10.1093/geronb/57.1.S3

Simons, L., & Conger, R. D. (2007). Linking mother-father differences in parenting to a typology of family parenting styles and adolescent outcomes. *Journal of Family Issues*, *28*, 212-241. doi:10.1177/0192513X06294593

Smetana, J. G. (1988). Concepts of self and social convention: Adolescents' and parents' reasoning about hypothetical and actual family conflicts. In M. R. Gunnar & W. A. Collins (Eds.), *Minnesota Symposia on Child Psychology, Vol. 21: Development during the transition to adolescence* (pp. 79-122). Hillsdale, NJ: Lawrence Erlbaum.

Spoth, R., Greenberg, M., & Turrisi, R. (2009). Overview of preventive interventions addressing underage drinking: State of the evidence and steps toward public health impact. *Alcohol Research & Health*, *32*, 53-66.

Stapel, D. A., & Suls, J. (2004). Method matters: Effects of explicit versus implicit social comparisons on activation, behavior, and self-views. *Journal of Personality and Social Psychology*, *87*, 860-875. doi:10.1037/0022-3514.87.6.860

Steelman, L., Powell, B., Werum, R., & Carter, S. (2002). Reconsidering the effects of sibling configuration: Recent advances and challenges. *Annual Review of Sociology, 28*, 243-269. doi:10.1146/annurev.soc.28.111301.093304

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*, 80-93. doi:10.1037/0022-0167.53.1.80

Steger, M. F., Oishi, S., & Kashdan, T. B. (2009). Meaning in life across the life span: Levels and correlates of meaning in life from emerging adulthood to older adulthood. *The Journal of Positive Psychology*, *4*, 43-52. doi:10.1080/17439760802303127

Stocker, C. M., & McHale, S. M. (1992). The nature and family correlates of preadolescents' perceptions of their sibling relationships. *Journal of Social and Personal Relationships, 9*, 179-195. doi:10.1177/0265407592092002

Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science, 11*, 159-163. doi:10.1111/1467-8721.00191

Suls, J., & Wan, C. K. (1987). In search of the false-uniqueness phenomenon: Fear and estimates of social consensus. *Journal of Personality and Social Psychology*, *52*, 211-217. doi:10.1037/0022-3514.52.1.211

Swartz, T., Kim, M., Uno, M., Mortimer, J., & O'Brien, K. (2011). Safety nets and scaffolds: Parental support in the transition to adulthood. *Journal of Marriage and Family*, *73*, 414-429. doi:10.1111/j.1741-3737.2010.00815.x

Tamrouti-Makkink, I. D., Dubas, J. S., Gerris, J. R. M., & van Aken, M. A. G. (2004). The relation between the absolute level of parenting and differential parental treatment with adolescent siblings' adjustment. *Journal of Child Psychology and Psychiatry, 45*, 1397-1406. doi:10.1111/j.1469-7610.2004.00331.x

Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Personality and Social Psychology, 54*, 49-61. doi: 10.1037/0022-3514.54.1.49

Tucker, C. J., McHale, S. M., & Crouter, A. C. (2003). Dimensions of mothers' and fathers' differential treatment of siblings: Links with adolescents' sex-typed personal qualities. *Family Relations, 52*, 82-89. doi:10.1111/j.1741-3729.2003.00082.x

Umberson, D. (1992). Relationships between adult children and their parents: Psychological consequences for both generations. *Journal of Marriage and the Family, 544*, 664-674. doi:10.2307/353252

Updegraff, K. A., McHale, S. M., Whiteman, S. D., Thayer, S. M., & Delgado, M. Y. (2005). Adolescents' sibling relationships in Mexican American families: Exploring the role of familism. *Journal of Family Psychology, 19*, 512-522. doi:10.1037/0893-3200.19.4.512

VanderZee, K. I., Buunk, B. P., & Sanderman, R. (1995). Social comparison as a mediator between health problems and subjective health evaluations. *British Journal of Social Psychology, 34*, 53-65.

Weinberger, D., Schwartz, G., & Davidson, R. (1979). Low-anxious, high-anxious, and repressive coping styles: Psychometric patterns and behavioral and physiological responses to stress. *Journal of Abnormal Psychology, 88*, 369-380.

Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, *62*, 760-773. doi:10.1037/0022-3514.62.5.760

White, L. K., & Reidmann, A. (1992). Ties among adult siblings. *Social Forces, 71*, 85-102. doi:10.2307/2579967

Whiteman, S. D., McHale, S. M., & Crouter, A. C. (2007). Explaining sibling similarities: Perceptions of sibling influences. *Journal of Youth and Adolescence*, *36*, 963-972. doi:10.1007/s10964-006-9135-5

Wills, T. A. (1991). Social comparison processes in coping and health. In Snyder, C. R., & Forsyth, D. R. (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 376-394). Elmsford, NY, US: Pergamon Press.

Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *106*, 231-248. doi:10.1037/0033-2909.106.2.231

Zajonc, R. B., & Markus, G. B. (1975). Birth order and intellectual development. *Psychological Review, 82*, 74-88. doi:10.1037/h0076229

VITA

VITA

Education

Purdue University, West Lafayette, Indiana
Human Development and Family Studies
Ph.D. Human Development and Family Studies (August 2013)
Dissertation: The implications of parental differential treatment: A family systems approach

Purdue University, West Lafayette, Indiana
Child Development and Family Studies
MS Child Development and Family Studies (August 2011)
Thesis: "Life still isn't fair": Parental differential treatment of young adult siblings

Brigham Young University, Provo, Utah
School of Family Life
BS Marriage, Family and Human Development, Cum Laude (August 2009)

Research Experience

2009-Present
Graduate Research Assistant
The Purdue Parent, Adolescent and Sibling Study,
Purdue University

Worked closely with other Ph.D. candidates, undergraduate students, and one faculty member collecting and analyzing data from 327 families. Questionnaire measures focused on family relationships, eating and exercise habits, parent-child conflict, sibling relationships/conflict, and substance use. Tasks and duties included editing and preparing questionnaires, recruiting and interviewing participants, supervising undergraduate research assistants, data management, data analysis, and preparation of manuscripts for publication.

2007-2009

Undergraduate Research Assistant
The Flourishing Families National Study of Family Life,
Brigham Young University

Worked closely with two Ph.D. students and one faculty member to design a coding system based on the Iowa Family Interaction Ratings System that would suit the abilities of undergraduate coders. Trained students in the coding system and directed their coding efforts. Successfully developed numerous ways of measuring and evaluating coder performance in an effort to increase efficiency and reliability. Overall, trained approximately 50 other research assistants in the Iowa Family Interaction Ratings System.

Research Interests

Direct and indirect sibling influence processes (including differential treatment, resource dilution, modeling and deidentification), family systems responses in the transition to adulthood, observational coding techniques, adolescence, emerging adulthood

Journal Publications

Barry, A. E., Whiteman, S. D., Piazza-Gardner, A., & Jensen, A. C. (in press). Gender differences in the association between BMI, weight loss, exercise, and drinking among college students. *Journal of American College Health*

Jensen, A. C., Whiteman, S. D., Fingerman, K. L., & Birditt, K. S. (2013). "Life still isn't fair": Parental differential treatment of young adult siblings. *Journal of Marriage and Family, 75*, 438-452. doi: 10.1111/jomf.12002

Whiteman, S. D., Jensen, A. C., & Maggs, J. L. (2013a). Similarities and differences in adolescent siblings' alcohol-related attitudes, use, and delinquency: Evidence for convergent and divergent influence processes. *Journal of Youth and Adolescence.* Advance online publication. doi: 10.1007/s10964-013-9971-z

Whiteman, S. D., Jensen, A. C., & Maggs, J. L. (2013b). Similarities in adolescent siblings' substance use: Testing competing pathways of influence. *Journal of Studies on Alcohol and Drugs, 74*, 104-113.

Carroll, J. S., Nelson, D., Yorgason, J. B., Harper, J. M., Hagmann, R., & Jensen, A. C. (2010). Relational aggression in marriage. *Aggressive Behavior, 36*, 315-329. doi:10.1002/ab.20349

Padilla-Walker, L. M., Harper, J. M., & Jensen, A. C. (2010). Self regulation as a mediator between sibling relationship quality and early adolescents' positive and negative outcomes. *Journal of Family Psychology, 24*, 419-428. doi: 10.1037/a0020387

Padilla-Walker, L. M., Nelson, L. J., Carroll, J. S., & Jensen, A. C. (2010). More than just a game: Video game and internet use during emerging adulthood. *Journal of Youth and Adolescence, 39*, 103-113. doi:10.1007/s10964-008-9390-8

Book Chapters

Whiteman, S. D., Jensen, A. C., & Bernard, J. M. (2012). Sibling influences. In J. R. Levesque (Ed.), *Encyclopedia of adolescence* (pp. 2713-2717). New York: Springer.

Whiteman, S. D., Bernard, J. M., & Jensen, A. C. (2011). Sibling influence in human development. In J. Caspi (Ed.), *Sibling development: Implications for mental health practitioners* (pp. 1-15). New York: Springer.

Manuscripts under Review

Harper, J. M., Padilla-Walker, L. M., & Jensen, A. C. (under review). *Do siblings matter? Self-regulation and empathic concern as mediators between sibling relationships and outcomes.*

Senguttuvan, U., Whiteman, S. D., & Jensen, A. C. (under review). *The implications of sibling relationships for adolescents' eating, weight, and health attitudes.*

Works in Progress

Jensen, A. C., Bernard, J. M., & Whiteman, S. D. (in preparation). *Resource reallocation? Implications of parents' resource distribution following firstborns' leaving home.*

Whiteman, S. D., & Jensen, A. C. (in preparation). *Community level ecological factors of sibling influence on adolescent substance use.*

Whiteman, S. D., & Jensen, A. C. (in preparation). *Patterns of sibling influence and siblings' similarities in temperament and personality.*

Whiteman, S. D., & Jensen, A. C. (in preparation). *Processes of sibling influence on substance use: A mediation and moderation approach.*

Conference Presentations

Jensen, A. C., Whiteman, S. D., Fingerman, K. L., & Birditt, K. S. (2013, November). *Correlates of Parents' Differential Treatment across Three Generations.* Poster to be presented at the annual conference of the National Council on Family Relations. San Antonio, TX.

Jensen, A. C., Whiteman, S. D., & Senguttuvan, U. (2013, April). *Perceptions and difference scores of parents' differential treatment: Do varying measures provide diverging results?* Poster presented at the biennial meeting of the Society for Research on Child Development. Seattle, WA.

Senguttuvan, U., Jensen, A. C., & Whiteman, S. D. (2013, April). *Adolescent health: Links with sibling relationship qualities.* Poster presented at the biennial meeting of the Society for Research on Child Development. Seattle, WA.

Whiteman, S. D., Jensen, A. C., & Gold, Z. S. (2013, April). *Similarities and differences in adolescent siblings' substance use: Testing convergent and divergent influence processes.* Poster presented at the biennial meeting of the Society for Research on Child Development. Seattle, WA.

Jensen, A. C., Whiteman, S. D., & Fingerman, K. L. (2012, November). *The implications of maternal and paternal differential treatment in young adulthood.* Paper presented at the annual conference of the Gerontological Society of America. San Diego, CA.

Whiteman, S. D., & Jensen, A. C. (2012, November). *Sibling similarities in substance use: The role of proximal and distal influence processes.* Paper presented at the annual conference of the National Council on Family Relations. Phoenix, AZ.

Jensen, A. C., Senguttuvan, U., & Whiteman, S. D. (2012, March). *Parents' differetnial treatment as a family process: The role of parent and offspring gender.* Poster presented at the biennial meeting of the Society for Research on Adolescence. Vancouver, BC.

Senguttuvan, U., Jensen, A. C., & Whiteman, S. D. (2012, March). *Sibling influences on adoelscents' weight and health attitudes.* Poster presented at the biennial meeting of the Society for Research on Adolescence. Vancouver, BC.

Whiteman, S. D., Jensen, A. C., & Senguttuvan, U. (2012, March). *Sibling influences on adolescents' substance use orientations: Testing competing pathways of social influence*. Paper presented at the biennial meeting of the Society for Research on Adolescence, Vancouver, British Columbia, Canada.

Jensen, A. C., Whiteman, S. D., & Fingerman, K. L. (2011, November). *'Life still isn't fair': Parents' differential treatment of young adult siblings.* Paper presented at the annual conference of the National Council on Family Relations. Orlando, FL.

Jensen, A. C., Whiteman, S. D., & Fingerman, K. L. (2011, May). *'Life still isn't fair': Parents' differential treatment of emerging adult siblings.* Paper presented at the annual conference of the Association for Psychological Sciences. Washington, DC.

Whiteman, S. D., Jensen, A. C., & McHale, S. M. (2011, April). *Models or foils? The nature and family correlates of sibling influence processes.* Paper presented at the biennial meeting of the Society for Research on Child Development. Montreal, Quebec, Canada.

Anderson, J., Bardsley, C., Brown, M., Jensen, A. C., & Harper, J. M. (2009, April). *Sugar and spice vs. spiders and snakes: Gender and interaction with parents.* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Jensen, A. C., & Coyne, S. M. (2009, April). *Self-regulation beyond parental correlates: Are younger siblings out of control?* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Jensen, A. C., Leonhardt, S. A., Burningham, J., & Harper, J. M. (2009, April). *Reported child self-regulation compared to observed child self-regulation.* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Jensen, A. C., Padilla-Walker, L. M., Nelson, L. J., & Carroll, J. S. (2009, April). *More than just a game: Video game use during emerging adulthood.* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Ricks, A., Bramwell, V., Settles, M., Jensen, A. C., & Harper, J. M. (2009, April). *Children's interaction with mothers and fathers: Are there differences?* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Harper, J. M., Mauzy, M., Hall, S., Jensen, A. C., Barnes, L., & Leonhardt, S. (2008, October). *Coding in therapy training: How does it help?* Poster presented at annual conference of the American Association for Marital and Family Therapy. Memphis, TN.

Barnes, L. A., Jensen, A. C., Stoddard, J., Mauzy, M., Hall, S., & Harper, J. M. 2008, April). *Observational coding lab training procedures.* Poster presented at the annual Mary Lou Fulton Research Conference. Provo, UT.

Grants

2008

Research Grant from the Office of Research and Creative Activities (Brigham Young University), $1,500.

Honors and Awards

2013

Second place – Purdue University's 1st Annual 3 Minute Thesis Competition, $250.

2013

Human Development and Family Studies departmental nominee for the College of Health and Human Sciences outstanding doctoral candidate award (Purdue University)

2009

Ross Fellowship (Purdue University) awarded to outstanding new Ph.D. candidates, $18,000.

Teaching Experience

2012

Teaching Assistant/Independent Lab Instructor
Advanced Methods in Child Development and Family Studies
Purdue University

2012

Instructor
Introduction to Couple and Family Relationships
Purdue University

Invited Lectures

Jensen, A. C. (2013). *The nature of sibling relationships in and through childhood and adolescence.* CDFS 210, Purdue University.

Professional Service

Reviewer

Journal of Marriage and Family
Emerging Adulthood

University Service

2012

Student member, family/developmental processes and health faculty search committee, Purdue University.

2008-2009

President, School of Family Life Student Association, School of Family Life, Brigham Young University.

2008-2009

Council member, Family, Home, and Social Sciences Student College Council, College of Family, Home, and Social Sciences, Brigham Young University.

2007-2008

Vice President, School of Family Life Student Association, School of Family Life, Brigham Young University.

Professional Affiliations

National Council on Family Relations

Society for Research on Adolescence

Society for Research in Child Development