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## Mothers', Fathers', and Siblings' Perceptions of Parents' Differential Treatment of Siblings: Links with Family Relationship Qualities

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### Abstract

A family systems perspective directs attention to the potentially different experiences and perspectives of family members. This study examined parents' differential treatment (PDT) of siblings, discrepancies between parent and youth reports of PDT, and their links with relationships between adolescents and their mothers and fathers across three years. Participants were first- (Time 1 *M age* = 15.71, *SD* = 1.07) and secondborn (Time 1 *M age* = 13.18, *SD* = 1.29) siblings from 381, predominately white, working and middle class families. Analyses revealed that siblings' perceptions of being favored predicted less conflict with and greater warmth from both mothers and fathers, primarily for secondborn adolescents. Larger discrepancies between maternal and youth reports of differential affection were linked to more maternal conflict and less warmth for firstborns. These findings may suggest a hierarchy within families: parents may serve as referents for firstborns and firstborns as referents for secondborns.

### Keywords

parents; relationships; siblings; differential treatment; longitudinal; discrepancy

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For the more than 82% of youth who grow up with one or more siblings (King et al., 2010; McHale, Updegraff, & Whiteman, 2012), their relationships with their parents are interpreted in the context of how their siblings get along with their parents (Shanahan, McHale, Crouter, & Osgood, 2008; Shebloski, Conger, & Widaman, 2005). This process, labeled parental differential treatment (PDT), has the potential to influence youth development (Kowal, Krull, & Kramer, 2006; Richmond, Stocker, & Reinks, 2005; Scholte, Engels, de Kemp, Harakeh, & Overbeek, 2007). Grounded in social comparison theory (Festinger, 1954; Gibbons & Buunk, 1999), research has linked PDT to higher rates of youth risky behavior and poorer sibling relationships, such that PDT tends to have negative implications for youth who receive less favorable treatment than their siblings (Kowal &

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Kramer, 1997; Jensen & Whiteman, 2014). Another line of research on differences between family members' experiences has examined discrepancies between parents' and adolescents' reports of their shared experiences. This work has shown that parent-youth differences—for example, in reports of parental warmth or conflict in their dyadic relationship—are linked to youth adjustment problems (Abar, Jackson, Colby, & Barnett, 2015; Berger, Jodl, Allen, McElhaney, & Kuperminc, 2005; Berg-Nielsen, Vika, & Dahl, 2003).

A family systems perspective provides a framework for both of these lines of research. An understanding of how families operate as socializing systems requires moving away from a focus on the experiences and adjustment of one individual to take into account the perspectives and experiences of multiple family members: A focus on the implications of *differences between family members'* experiences does just this. In the current study, we aimed to advance understanding of how families operate as systems by examining the implications of differences between family members' experiences by integrating findings from the PDT and parent-youth discrepancies literatures. We addressed three study goals. First, we examined the longitudinal links between PDT and dyadic parent-child relationship qualities, specifically parental warmth and parent-youth conflict in adolescence. Second, we assessed whether discrepancies between parents' and youth's perceptions of PDT were linked to these dyadic parent-child relationship qualities. Finally, based on tenets pertaining to social comparison accuracy and cumulative risk (Perkins, Luster, & Villarruel, 1998; Rutter, 1979; Wills, 1991; Wood, 1989), we examined whether parent-youth discrepancies in perceptions of PDT moderated the effects of PDT on youth's dyadic parent-child relationship qualities. For the main effects of PDT and discrepancies in perceptions of PDT as well their interaction, we examined whether patterns varied by birth order.

## Implications of PDT for Youth Well-Being

Social comparison processes (Festinger, 1954; Gibbons & Buunk, 1999) have been invoked to explain links between PDT and youth's individual and relational outcomes (Feinberg, Neiderhiser, Simmens, Reiss, & Hetherington, 2000; Jensen, Pond, & Padilla-Walker, 2015; Shebloski et al., 2005). From this perspective, siblings who receive favorable treatment form “downward comparisons,” and as a result of their favored status, they have enhanced self-concepts and well-being. Siblings who perceive that they are less favored, in contrast, form “upward comparisons” relative to their favored sister or brother, with correspondingly negative implications for their self-concepts and well-being. Past work on PDT provides support for these social comparison tenets. For example, relative to less-favored siblings, youth who experience favored treatment exhibit better academic performance (Barrett, Singer, & Weinstein, 2000) and mental health (Shanahan et al., 2008), as well as lower levels of risky behavior (Scholte et al., 2007) and substance use (Jensen & Whiteman, 2014). Siblings who perceive favored treatment also report more positive sibling relationship quality (Tamrouiti-Makkink, Dubas, Gerris, & van Aken, 2004).

Although work on PDT has established links with adolescent behavior and sibling relationships (Kowal & Kramer, 1997; Tamrouiti-Makkink et al., 2004), less is known about links between PDT and parent-child relationships (Kowal, Krull, & Kramer, 2004). Given the implications of parent-child relationships for youth development (Kerr, Stattin, &

Özdemir, 2012; Steinberg, 2001), it is critical that sibling scholars consider the ways in which PDT is linked to parent-child relationship qualities. Adolescents who perceive themselves as favored may develop better relationships with parents over time, at least in part due to the links between favored status and youth positive self-concepts. In contrast, less favored siblings may perceive their parents as unfair (Kowal & Kramer, 1997) and experience greater emotional distance and tension in their parent-child relationship.

Tenets of social comparison theory further suggest that effects of comparisons, and as a result, PDT, may vary based on individuals' personal characteristics (Suls, Gastorf, & Lawhon, 1978; Wood, 1989). Recent work on social comparison and siblings suggest that birth order may play a particularly salient role. For example, Litt, Stock, & Gibbons (2015), found that younger siblings who engaged in more social comparison were more likely to use alcohol if their older sibling did. Jensen et al., (2015) more specifically found that younger siblings engaged in more social comparison of their siblings than did older siblings and that PDT was linked to youth outcomes, but only for younger siblings who engaged in more comparisons. Thus, links between PDT and parent-youth relationships may be more salient for laterborn siblings.

### Parent-Youth Discrepancies in Perceptions of Family Experiences

Past work suggests low to modest agreement between parent and youth reports of family patterns, processes, and parenting, with correlations typically ranging between .04 and .41 (Abar et al., 2015; Berger et al., 2005; Berg-Nielsen et al., 2003). Although discrepancies raise concerns about reporter bias and measurement reliability, from another perspective, the level of disagreement between parents and youth may be substantively meaningful. For example, Abar and colleagues (2015) found that youth reports of parental monitoring were more closely tied to their risky behavior than were the reports of parents. The discrepancy between youth and parent reports, however, was uniquely predictive of youth adjustment; larger discrepancies were linked to higher levels of risky behavior. Similar patterns have been found in relation to parent and youth reports of family conflict (Ehrlich, Richards, Lejuez, & Cassidy, 2015) and adjustment (Ohannessian & de Los Reyes, 2014; Ohannessian, Lerner, Lerner, & von Eye, 1995; Skinner & McHale, 2016).

Discrepancies may also be important in regard to PDT. When youth and parents disagree about the amount of PDT in the family it may cause tension in their relationships; as a result, parents and youth may feel less close to each other and may have more conflict. Essentially, discrepancies may be a risk factor for parent-youth relationship quality. Beyond main effects, discrepancies between youth and parent reports of PDT may have a cumulative impact on relationship outcomes (Perkins et al., Luster, & Villarruel, 1998; Rutter, 1979). Youth who perceive themselves as less favored may be at risk for poorer parent-youth relationships, and a discrepancy in the perception of PDT may elevate that risk.

Alternatively, greater discrepancies may diminish the main effects of PDT. Past research on social comparisons (Wills, 1991; Wood, 1989) suggests that accurate comparisons are more closely linked to outcomes than inaccurate comparisons. Although parent reports of PDT are not necessarily more or less accurate than those provided by youth, agreement between

parent and child about PDT may provide confirmation for youth that their perceptions are accurate or at least shared. Thus, when there is greater agreement between parents and youth about PDT, links between youth-reported PDT and well-being outcomes, such as dyadic parent-child relationship quality, may be stronger than when there are greater discrepancies. Again, given some research showing that siblings lower in the birth hierarchy are more focused on sibling comparisons, we tested whether these linkages were moderated by birth order.

## Present Study

In sum, we examined the roles of PDT and discrepancies between parent and youth perceptions of PDT in parent-adolescent relationship qualities by using a lagged longitudinal design and by grounding our work in a family systems perspective, social comparison theory, and past research on PDT and parent-youth discrepancies (Abar et al., 2015; Gibbons & Buunk, 1999; Jensen et al., 2015; Ohannessian et al., 1995; Richmond et al., 2005). Specifically, we tested the hypothesis that youth's perceptions of PDT would be linked to parents' reports of parent-youth relationships in the following year, such that parents would report more warmth and less conflict with youth who perceived themselves as more favored. We used youths' reports of perceived PDT because past work highlights that perceptions of PDT as reported by adolescents play a consistent role in development (Jensen & Whiteman, 2014; Richmond et al., 2005; Scholte et al., 2007). Parent reports of parent-child relationships were used to avoid single reporter bias.

Further, we anticipated that these patterns would be more evident for secondborns than firstborns. In addition, we tested the hypothesis that larger discrepancies between youth and parent ratings of PDT would predict poorer parent-child relationships (i.e., less warmth, more conflict) in the following year, and again, whether these patterns differed by birth order. Additionally, we tested two hypotheses about the interaction between youth's perceptions of PDT and parent-youth discrepancies in perceptions. First, from a cumulative risk perspective (Perkins et al., 1998; Rutter, 1979), we tested whether the link between PDT and parent-youth relationship qualities was stronger when there were *larger* parent-youth discrepancies in PDT reports, specifically that larger discrepancies would exacerbate the link between youth's unfavorably status and less-positive parent-child relationship characteristics. Second, from a social comparison accuracy perspective (Festinger, 1954; Gibbons & Buunk, 1999), we tested if links between youth's perceptions of PDT and parent-youth relationships were stronger when parent-youth discrepancies were *smaller*, that is, when there was greater parent-youth agreement. Again, we tested whether these processes differed by birth order. Each hypothesis was tested separately for relationships with mothers and relationships with fathers.

## Method

### Participants

Participants included firstborns, secondborns, mothers, and fathers from 393 families living in a northeastern state in the United States who were interviewed in their homes as a part of a larger longitudinal study. To recruit the sample, letters were sent home with fourth and fifth

graders in 17 school districts. Because we did not have demographic information on the families to which letters were sent, the true response rate of eligible families is unknown, however, more than 90% of families who responded and were eligible (i.e., always married parents, at least two offspring who were no more than four years apart in age) participated. Reports for the current study came from yearly interviews across three years in which participants were in adolescence (Times 1, 2, and 3). The final sample included 381 families who participated in all three time points (96.9% retention rate). Families who did not participate at all three time points did not differ on any dependent or independent variable except that firstborns in families who remained in the study were slightly younger at Time 1 ( $M = 15.69$ ,  $SD = 1.06$ ) compared to those who did not participate at all time points ( $t(386) = -2.34$ ,  $p < .05$ ;  $M = 16.64$ ,  $SD = .83$ ). Reflecting the demographics of the region (U.S. Census Bureau, 2000), almost all families were white and working to middle class. Most parents had completed some college or post-high school training (mothers:  $M = 14.58$ ,  $SD = 2.16$ ; fathers:  $M = 14.55$ ,  $SD = 2.40$ ; on a scale where 12 = *high school graduate* and 16 = *college graduate*), and almost all were dual-earners ( $M_{family\ income} = \$72,807$ ,  $SD = \$41,090$ ). Most parents were in their early 40s (at Time 1, mothers:  $M = 41.08$ ,  $SD = 4.14$ ; fathers:  $M = 43.17$ ,  $SD = 4.89$ ). At Time 1, firstborns averaged 15.69 ( $SD = 1.06$ ), and secondborns averaged 13.18 ( $SD = 1.29$ ) years of age. The sample was approximately evenly divided by youth gender (49% girls) and sibling dyad gender constellation (24% older sister/younger sister, 26% older sister/younger brother, 24% older brother/younger sister, and 26% older brother/younger brother). Most of the families had only two children (55%). In families with only two children, the firstborns and secondborns were slightly farther apart in age ( $t(379) = 2.83$ ,  $p < .01$ ;  $M = 2.65$  years,  $SD = .89$ ) than in families with three or more children ( $M = 2.38$  years,  $SD = .92$ ). The families did not differ on any other independent or dependent variable.

## Procedure

Separate home interviews were conducted with mothers, fathers, and each sibling by trained interviewers. Youth interviews averaged about one hour, and parent interviews averaged about three hours, combined. After providing informed consent/assent, families received an honorarium of \$100 to \$200 depending on the year of the study (an honorarium was given at each time point). The study was approved by the university's IRB.

## Measures

**Parent-youth warmth**—At separate points in the interviews, mothers and fathers reported on their warmth with their first- and secondborns using a 24-item scale from the Child Report of Parental Behavior Inventory-Parent Version (CRPBI; Schaefer, 1965; Schwarz, Barton-Henry, & Prusinsky, 1985). Parents rated items such as, “I am a person who understands my child’s problems and worries,” on a 5-point scale ranging from 1 (*not at all*) to 5 (*very much*). Overall, parents reported high levels of warmth, but mothers reported warmer relationships than did fathers ( $t(738) = 11.23$ ,  $p < .001$ ; mothers:  $M = 3.99$ ,  $SD = .49$ ; fathers:  $M = 3.72$ ,  $SD = .53$ ;  $\alpha$  ranged from .92 to .94). Mothers did not report being closer to firstborns or secondborns. Fathers, however, on average reported having a warmer relationship with secondborns ( $t(738) = -3.45$ ,  $p < .001$ ;  $M = 3.78$ ,  $SD = .45$ ) than with firstborns ( $M = 3.66$ ,  $SD = .51$ ).

**Parent-youth conflict**—At separate points in the interviews, mothers and fathers each reported on the frequency of their conflicts with each child. Parents rated conflict in 12 domains, including chores, school work, social life, and behavior, using a measure adapted from Smetana (1988) using a 6-point scale ranging from 1 (*not at all*) to 6 (*several times a day*). Overall, parents reported low levels of conflict, and mothers and fathers did not differ in their reported conflict with their adolescents (mothers:  $M = 2.19$ ,  $SD = .62$ ; fathers:  $M = 2.11$ ,  $SD = .57$ ;  $\alpha$  ranged from .83 to .90). Mothers reported, on average, having more conflict with secondborns ( $t(760) = -4.18$ ,  $p < .001$ ;  $M = 2.27$ ,  $SD = .57$ ) than with firstborns ( $M = 2.11$ ,  $SD = .52$ ). Fathers also reported, on average, as having more conflict with secondborns ( $t(738) = -3.07$ ,  $p < .01$ ;  $M = 2.16$ ,  $SD = .49$ ) than with firstborns ( $M = 2.04$ ,  $SD = .52$ ).

**Perceptions of PDT**—Perceptions of PDT were assessed with items adapted from Daniels and Plomin (1985; items can be found in Appendix A). Parents used a 5-point scale to rate their differential affection and discipline toward their firstborns versus secondborns: 1 (*secondborn much more*), 2 (*secondborn a little more*), 3 (*both the same*), 4 (*firstborn a little more*), 5 (*firstborn much more*). Youth used a similar 5-point scale to rate their mothers' and fathers' affection and discipline toward themselves versus their target sibling: 1 (*sibling much more*), 2 (*sibling a little more*), 3 (*the same*), 4 (*me a little more*), 5 (*me much more*). In these analyses, greater affection and less discipline relative to a sibling were considered as favored treatment, and reports were recoded so that 0 reflected equal treatment, positive values reflected self-favored (youth reports) or firstborn-favored (parent reports) treatment, and negative values reflected sibling-favored (youth report) or secondborn-favored (parent reports). On average both mothers and fathers reported displaying slightly more affection (mothers:  $M = -.15$ ,  $SD = .75$ ; fathers:  $M = -.23$ ,  $SD = .76$ ) and discipline (mothers:  $M = .28$ ,  $SD = 1.04$ ; fathers:  $M = .24$ ,  $SD = .97$ ) toward secondborns, and did not significantly differ from one another in their reports. On average, secondborns perceived themselves as being more favored in terms of affection from both mothers ( $t(760) = -2.52$ ,  $p < .05$ ;  $M = .06$ ,  $SD = .61$ ) and fathers ( $t(750) = -2.48$ ,  $p < .05$ ;  $M = .11$ ,  $SD = .58$ ) than did firstborns (mothers:  $M = -.03$ ,  $SD = .35$ ; fathers:  $M = .02$ ,  $SD = .37$ ). In regards to differential discipline, firstborns perceived similar levels of treatment from mothers ( $M = -.03$ ,  $SD = .47$ ) and fathers ( $M = -.03$ ,  $SD = .47$ ) as compared to secondborns (mothers:  $M = -.06$ ,  $SD = .86$ ; fathers:  $M = .04$ ,  $SD = .73$ ).

**Discrepancies in perceptions of PDT**—We calculated discrepancies in perceptions of differential treatment by taking the absolute value of the difference between parent and youth reports for each domain (affection and discipline) and each parent. Although some researchers have suggested that difference scores are not the best method for examining discrepancies and interactions should be used instead (e.g., Laird & De Los Reyes, 2013; Laird & Weems, 2011). Others, however, have suggested that the difference score approach is acceptable (Padilla, McHale, Rovine, Updegraff, & Umana-Taylor, 2016). In our analyses the difference score approach was preferable because of the hypothesized three-way interactions, using the interaction approach to the discrepancy would have created a four-way interaction, which would be unnecessarily difficult to interpret. Additionally, the absolute value of the difference score was used so that we could test the accuracy



hypothesis. The resulting variables fell on a 4-point scale where 0 reflected agreement and 4 reflected the maximum possible extent of disagreement. On average, firstborns and parents had small to moderate levels of discrepancies about the level of PDT (maternal affection:  $M = .53$ ,  $SD = .58$ ; paternal affection:  $M = .56$ ,  $SD = .60$ ; maternal discipline:  $M = .62$ ,  $SD = .62$ ; paternal discipline:  $M = .63$ ,  $SD = .61$ ). Similarly, secondborns and parents had small to moderate levels of discrepancies regarding PDT (maternal affection:  $M = .53$ ,  $SD = .57$ ; paternal affection:  $M = .54$ ,  $SD = .58$ ; maternal discipline:  $M = .63$ ,  $SD = .59$ ; paternal discipline:  $M = .61$ ,  $SD = .61$ ). Discrepancies between parent and youth report did not differ between firstborns and secondborns.

## Results

### Analytic Strategy

We tested our hypotheses using a three-level multi-level residualized change model with lagged variables. Specifically, time (three time points) was clustered within siblings, who were clustered within families. Separate models were tested for each dependent variable (maternal conflict, maternal warmth, paternal conflict, and paternal warmth). Each model was tested in three steps. In the first step we entered the lagged dependent variable to control for that parent-adolescent relationship quality the year before. This variable was centered on the cross-time average, thus effects of the lagged dependent variables reflect differences from the dyad's cross-time average conflict and warmth. We also tested youth age, sibling age spacing, sibship size, parent education level, gender (0 = *female*; 1 = *male*), sibling gender constellation (0 = *same gender*; 1 = *different gender*), and birth order (0 = *firstborn*; 1 = *secondborn*). All continuous control variables were mean-centered. In this step we also entered youth's ratings of differential affection (PDA) and differential discipline (PDD) and the absolute value of the difference between parent and youth perceptions of differential affection (DDA) and discipline (DDD). Both youth perceptions of differential treatment and discrepancies in perceptions of differential treatment were lagged variables, so that we could test whether Time T-1 effects predicted parent-child relationships at Time T (Time T refers to either Time 2 or 3 and T-1 refers to the previous time point).

In the second step we entered six two-way interactions to examine the accuracy and cumulative risk, and birth order hypotheses, specifically, PDA X DDA, PDD X DDD, birth order X DDA, birth order X DDD, birth order X PDA, and birth order X PDD. In the third step, to test whether potential accuracy and cumulative risk effects varied by birth order, we included two three-way interactions, birth order X PDA X DDA and birth order X PDD X DDD.

### Mothers' Reports of Warmth

Findings for mother-youth warmth are reported in Table 1. Among controls, when mothers reported higher than typical levels of warmth at Time T-1, then they reported less warmth at Time T, youth age was negatively related to warmth, and mothers reported less warmth toward sons and secondborns. Further, main effects indicated, as expected, that youth's report of being favored with relatively more maternal affection (PDA) predicted more mother-reported warmth the next year, but larger discrepancies between mothers' and

youth's PDA reports (DDA) predicted less maternal warmth the next year. These two main effects, however, were qualified by an interaction between PDA and DDA (see Figure 1a): Consistent with the accuracy hypothesis, tests of the simple slopes revealed that youth reports of being favored with more maternal affection predicted subsequent maternal warmth only when mother-youth discrepancies in reports were small ( $\gamma = .06$ ,  $SE = .02$ ,  $p < .01$ ). Turning to differential discipline, no main effects were evident, but an interaction between youth's perception of PDD and birth order (see Figure 2a), in combination with tests of the simple slopes, revealed that secondborns' reports of being favored with relatively less discipline predicted higher levels of mother-reported warmth the next year ( $\gamma = .08$ ,  $SE = .03$ ,  $p < .01$ ), but there was no such association for firstborns. No significant three-way interactions emerged.

### Fathers' Reports of Warmth

Findings for father-youth warmth are reported in Table 2. When fathers' reported higher than usual levels of warmth at Time T-1, they reported less warmth at Time T, and they reported less warmth toward older adolescents, firstborns, same-gendered siblings, and when there were more siblings in the family. There was no main effect for differential affection (PDA) or father-youth discrepancy in reports of differential affection (DDA). An interaction between DDA and birth order did emerge, but testing of the simple slopes revealed that the association was not significant for firstborns nor secondborns. With respect to fathers' differential discipline, a main effect for youth's perception of PDD emerged, but was moderated by birth order (see Figure 2b). Here, tests of the simple slopes revealed a significant association only for secondborns ( $\gamma = .06$ ,  $SE = .01$ ,  $p < .001$ ): Secondborns' reports of being favored with less discipline at Time T-1 predicted higher levels of father-reported warmth at Time T. There were no significant three-way interactions.

### Mothers' Reports of Conflict

Findings for mother-youth conflict are presented in Table 3. Among controls, mothers' reports of higher levels of conflict than usual at T-1 predicted lower levels the next year, and mothers reported less conflict with older youth and daughters. Additionally, PDA was a significant predictor, such that youth's reports of being favored by more maternal affection at Time T-1 predicted mothers' reports of less conflict at Time T. The effect, however, was qualified by the interaction of PDA with discrepancies in perceptions of differential affection (DDA; see Figure 1b). Testing of simple slopes revealed that, consistent with the accuracy hypothesis, the negative link between differential affection and mother-youth conflict was significant only when mother-youth differences were small ( $\gamma = -.11$ ,  $SE = .00$ ,  $p < .001$ ). An interaction between DDA and birth order also emerged. Simple slopes showed that for firstborns, larger discrepancies in their own versus their mothers' reports of differential affection predicted more conflict on the next occasion ( $\gamma = .08$ ,  $SE = .03$ ,  $p < .01$ ), but this link was not significant for secondborns.

For differential discipline, there were no main effects of either perceptions of differential discipline (PDD) or discrepancies in report (DDD). There was a significant interaction between PDD and DDD, but testing of the simple slopes revealed that neither association was significantly different from zero. Results also showed an interaction between PDD and



birth order (see Figure 3a). Testing of the simple slopes revealed that, as expected, secondborns' reports of receiving comparatively less discipline (favored treatment) at Time T-1 predicted maternal reports of less conflict at Time T ( $\gamma = -.11$ ,  $SE = .02$ ,  $p < .001$ ); in contrast, firstborns' reports of relatively less discipline predicted maternal reports of higher levels of conflict at Time T ( $\gamma = .03$ ,  $SE = .01$ ,  $p < .05$ ). There were no significant three-way interactions.

### Fathers' Reports of Conflict

Among covariates, fathers' reports of higher than typical levels of conflict at Time T-1 predicted less conflict at Time T (see Table 4), and they reported less conflict with older adolescents, secondborns, and daughters. There was no main effect of differential affection (PDA) or discrepancies in differential affection (DDA) on conflict with fathers. There was an interaction of PDA and birth order, but simple slope follow-up tests revealed no significant effects for either firstborns or secondborns. Turning to differential discipline, a main effect of youth's reports of fathers' differential discipline (PDD) emerged, and revealed that being favored with less discipline at Time T-1 predicted lower conflict at Time T. This effect, however, was qualified by an interaction with birth order (see Figure 3b), and tests of the simple slopes showed that pattern was evident only for secondborns ( $\gamma = -.09$ ,  $SE = .02$ ,  $p < .001$ ). There were no significant three-way interactions.

### Exploratory Analysis

In each model the interaction of perception of differential discipline X birth order was significant. Because age and birth order could be confounded in our sample and the birth order effect could be due to secondborns being younger than firstborns, we additionally tested if that two-way interaction varied by age. In the model predicting conflict with mother, the three-way interaction of perception of mother's differential discipline X birth order X age was significant ( $\gamma = -.05$ ,  $SE = .02$ ,  $p < .01$ ). The corresponding three-way interaction in the model predicting conflict with father was also significant ( $\gamma = -.04$ ,  $SE = .02$ ,  $p < .05$ ). In each case, testing of the simple slopes revealed that the association became stronger over time for secondborns, but was not significant for firstborns. The interaction was not significant in models predicting warmth with either mother or father.

### Discussion

Siblings serve as important sources of social comparison regarding parental treatment, and a growing body of research shows that PDT is linked to adolescent adjustment (Lindell, Campione-Barr, & Greer, 2014; Samek, McGue, Keyes, & Iacono, 2014; Whiteman et al., 2015). We built on this research to examine links between PDT and warmth and conflict in adolescents' relationships with their mothers and fathers using a lagged longitudinal design. Borrowing from research that has examined parent-youth discrepancies in perceptions of their shared relationship experiences (Abar et al., 2015; Berger et al., 2005; Berg-Nielsen et al., 2003), we also expanded on prior research to test whether parent-youth discrepancies in perceptions of PDT were linked to parent-adolescent relationship qualities. In addition, testing social comparison accuracy (Festinger, 1954; Gibbons & Buunk, 1999) and cumulative risk hypotheses (Perkins et al., 1998; Rutter, 1979), we also explored whether

parent-youth discrepancies in perceptions of PDT moderated the links between PDT and parent-adolescent relationship qualities. Finally, due to prior research having shown that social comparisons are more common for siblings lower in the birth order hierarchy (Jensen et al., 2015; Litt et al., 2015), we tested birth order as a potential moderator of these processes.

### **PDT and Parent-Youth Relationships**

We anticipated that youth who perceived themselves as favored would develop better relationships with their mothers and fathers. Additionally, we expected that these patterns would be stronger for secondborns (Jensen et al., 2015; Litt et al., 2015). In all four models when secondborns perceived themselves as favored in terms of receiving less discipline, both mothers and fathers reported more positive relationships (i.e., more warmth, less conflict) with them the following year. Importantly, this effect was manifested over time, was net of the effects of dyadic parent-youth relationship qualities in the previous year, and was based on PDT reported by the youth and parent-youth relationships reported by the parents. In only one instance (conflict with mother) was the association also significant for firstborns. Consistent with recent findings from other samples (Jensen et al., 2015; Litt et al., 2015), it is possible that later-born siblings engage in more sibling comparison and thus are more reactive to PDT given that older siblings are more advanced in most domains and are granted more privileges and autonomy. Prior research shows that PDT is linked to higher levels of risky behavior (Jensen & Whiteman, 2014; Scholte et al, 2007), and such behaviors may be both cause and consequence of poorer-quality parent-youth relationships.

Effects that vary by birth order, however, need to be interpreted cautiously. Parent-youth relationships and interactions vary by age (Laursen, Coy, & Collins, 1998; McGue, Elkins, Walden, & Iacono, 2005), and in analyses that only include firstborns and secondborns from the same families, age and birth order may be confounded so that apparent birth order effects could be due to age and not ordinal position in the family. We reduced the risk of this confound in our analysis by controlling for age and testing whether significant interactions with birth order further varied by age. In cases where the interaction with age was significant, patterns still supported the basic findings from two-way interactions with birth order. Specifically, even at older ages, PDT was more salient for secondborns. To increase confidence in these patterns, future studies will need to include firstborns and secondborns in a wider array of ages.

### **Parent-Youth Discrepancies in Perceptions of PDT**

We hypothesized that greater discrepancies in perceptions of PDT would be linked to poorer parent-youth relationships. Our findings provided only limited support for this hypothesis. In only one instance was a greater discrepancy linked to poorer relationships with parents. When mothers and firstborns had a greater discrepancy in perceptions of differential affection they had greater conflict the following year. Given that in our study PDT was more salient for secondborns, it is possible that in some instances firstborns serve as a social referent for younger siblings, and parents as a referent for firstborns (Jensen et al., 2015; Lee, Padilla, & McHale, 2016).

Discrepancy in reports also allowed us to test the social comparison accuracy hypothesis and the cumulative risk hypothesis. In line with social comparison research (Wills, 1991; Wood, 1989), we only found support for the accuracy hypothesis, although support was limited. Specifically, lower discrepancies in perceptions of differential affection from mothers accentuated the role of mothers' differential affection. When youth reported receiving comparatively more affection and their mother reports the same, their relationships improved the following year (more warmth and less conflict). This raises the question as to why differential affection and discrepancy in perception of differential affection mattered and not differential discipline, and why the effects only emerged with mothers and not fathers. Differential affection may be more salient if youth are unable to justify differences in affection, whereas with differential discipline, youth may be able to justify the differences in treatment due to different ages, or differing levels of behavior between the siblings (Kowal & Kramer, 1997). In regards to mothers, given that mothers spend much more time with their children than do fathers (Sayer, Bianchi, & Robinson, 2004), it is possible that youth are more aware of discrepancies in perceptions with their mothers than with their fathers.

### Limitations and Conclusions

In the face of its contributions, this study was not without limitations. First, the sample included only two siblings per family. The processes of interest and our focus on birth order call for future studies that incorporate measurement of the experiences of all siblings in a family. Findings also were limited in their generalizability by the sample's homogeneity in family structure (i.e., two-parent families), race/ethnicity, and socio economic status. Although others (Jensen et al., 2015; Lee et al., 2016) have found similar patterns in more ethnically and socially diverse samples it will be important to examine these processes in varying contexts. Lastly, the study was limited by its focusing on differential affection and discipline as these related to parental warmth and conflict. These domains of PDT are the most commonly studied, and an important research direction will be to examine other domains of PDT such as parents' investments of time and material resources in their children.

Despite the limitations, the findings of this study suggest that social comparisons within families regarding parental treatment may play a significant role in parent-youth relationships, especially for laterborn siblings. The findings of this study suggest that if parents want to improve their relationship with a laterborn youth that they need to help that child feel favored, or at least, not less favored. This process need not come at the expense of the other children in the family, but future work will need to be conducted to explore how parents can help each child feel favored and appreciated.

### Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

### Acknowledgments

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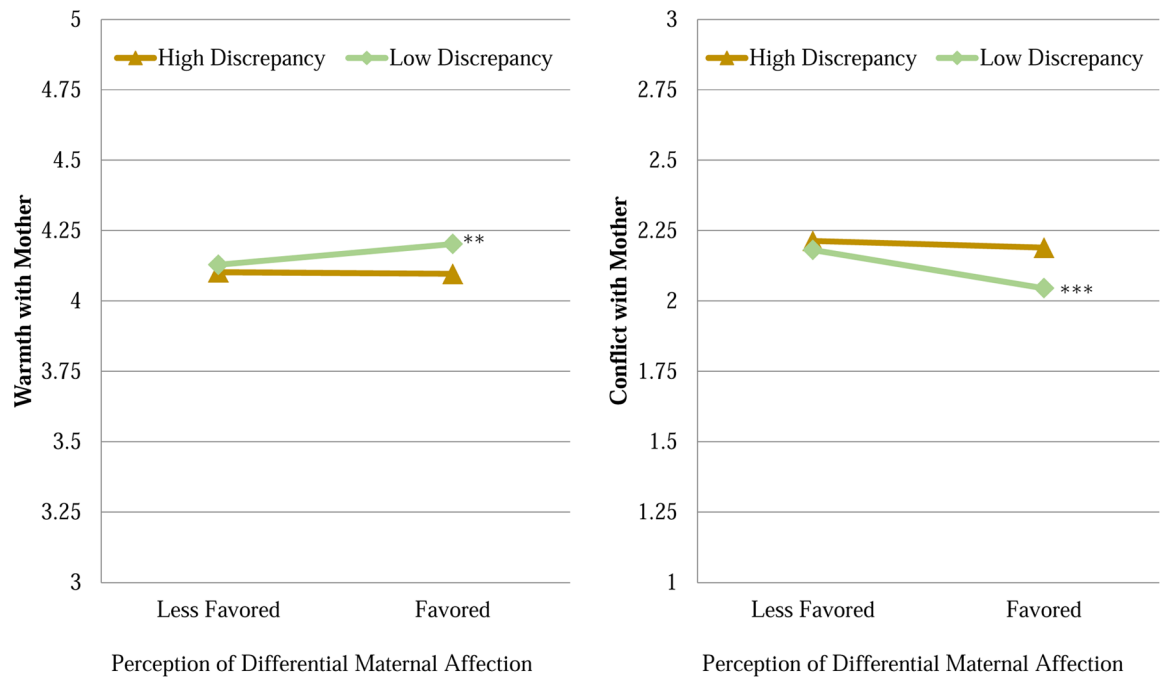
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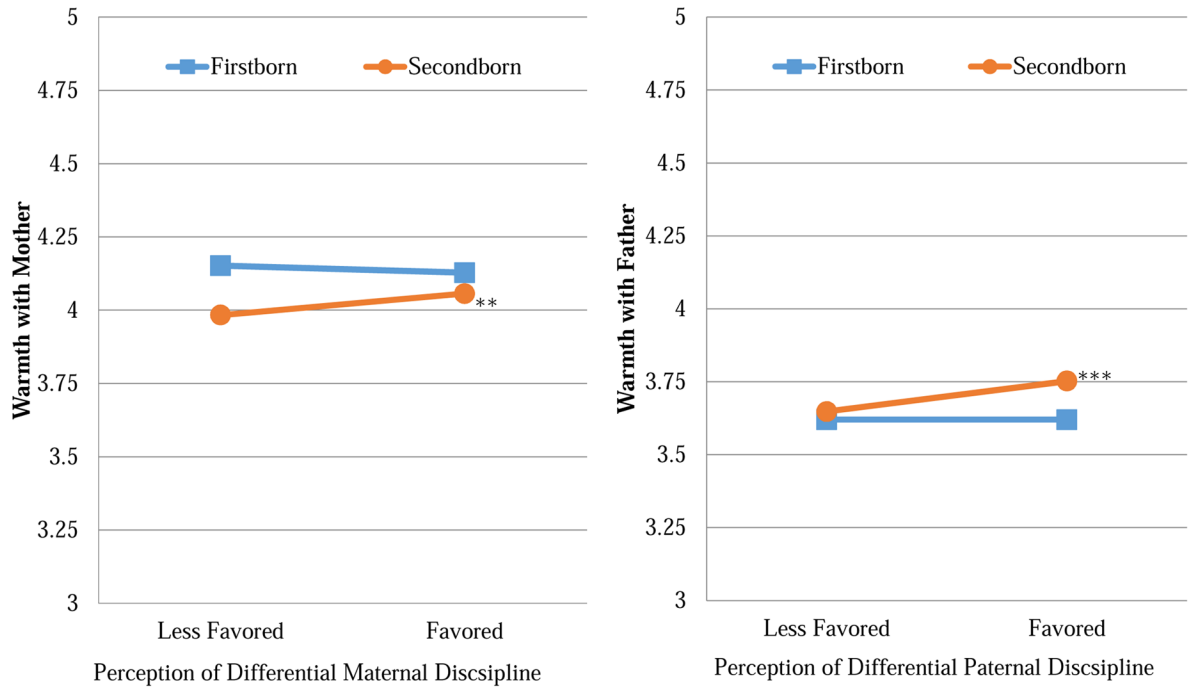




**Figure 1.**

Figure 1a. The association between perception of differential maternal affection and warmth with mother as moderated by discrepancy in perception of differential affection. \*\* $p < .01$

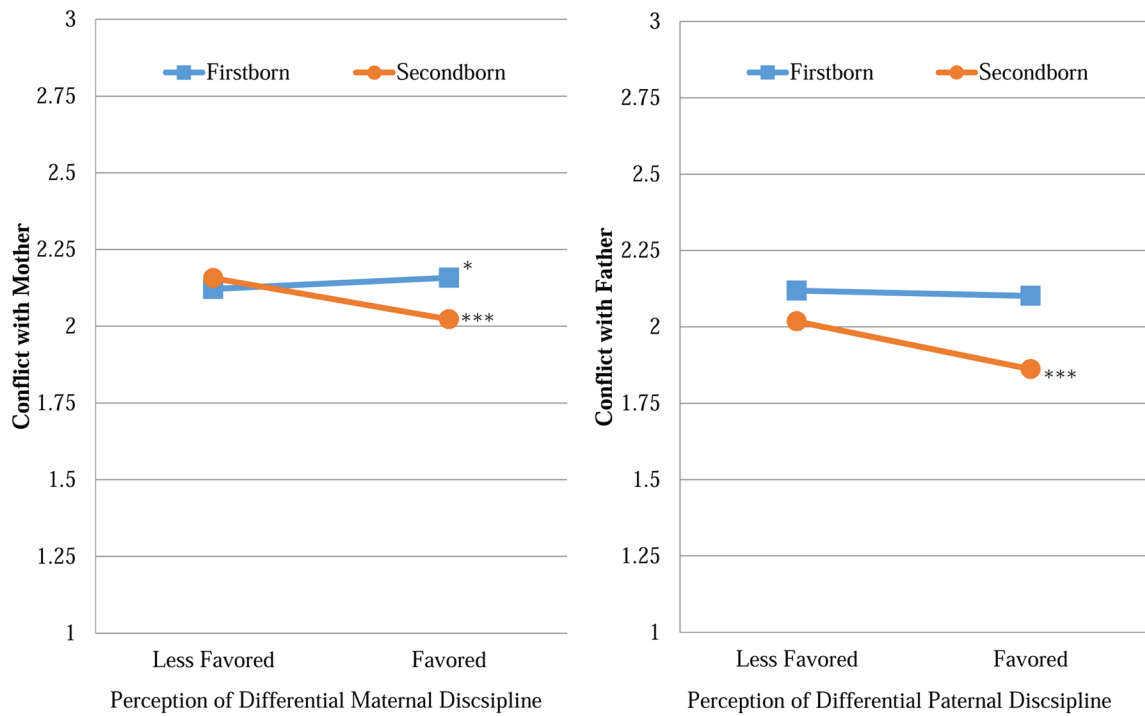
Figure 1b. The association between perception of differential maternal affection and conflict with mother as moderated by discrepancy in perception of differential affection. \*\*\* $p < .001$



**Figure 2.**

Figure 2a. The association between perception of differential maternal discipline and conflict with mother as moderated by birth order. \*\* $p < .01$

Figure 2b. The association between perception of differential paternal discipline and conflict with father as moderated by birth order. \*\*\* $p < .001$



**Figure 3.**

Figure 3a. The association between perception of differential maternal discipline and conflict with mother as moderated by birth order. \* $p < .05$ ; \*\*\* $p < .001$

Figure 3b. The association between perception of differential paternal discipline and conflict with father as moderated by birth order. \*\*\* $p < .001$

**Table 1**

Estimates ( $\gamma$ ) and Standard Errors (SE) from Multi-Level Models Predicting Mothers' Reported Warmth with Youth,  $N = (762)$

Variables	Model 1		Model 2	
	$\gamma$	SE	$\gamma$	SE
Intercept	4.15 <sup>***</sup>	.04	4.14 <sup>***</sup>	.04
Mother-youth warmth (T-1)	-.42 <sup>***</sup>	.04	-.43 <sup>***</sup>	.04
Age	-.06 <sup>***</sup>	.01	-.06 <sup>***</sup>	.01
Birth order	-.15 <sup>***</sup>	.03	-.12 <sup>***</sup>	.03
Gender (female = 0, male =1)	-.10 <sup>***</sup>	.02	-.09 <sup>***</sup>	.02
Sibling gender constellation	-.04	.04	-.04	.04
Sibship size	.00	.03	.00	.03
Differential affection (PDA; T-1)	.02 <sup>*</sup>	.01	.03	.02
Differential discipline (PDD; T-1)	.01	.01	-.02	.01
Mother-youth discrepancy in differential affection (DDA; T-1)	-.03 <sup>*</sup>	.01	-.06 <sup>**</sup>	.02
Mother-youth discrepancy in differential discipline (DDD; T-1)	.00	.01	-.01	.02
Birth order X PDA			.04	.02
Birth order X PDD			.08 <sup>***</sup>	.02
Birth order X DDA			.02	.03
Birth order X DDD			.03	.02
PDA X DDA			-.05 <sup>**</sup>	.02
PDD X DDD			-.01	.01

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

NOTE: T-1 signifies predictor variables measured in the year prior to the dependent variable. Controls that were not significant in any model were excluded from the tables: sibling age spacing and parents' education. Two three-way interactions, birth order X PDA X DDA, and birth order X PDD X DDD, were tested in an additional step, but were not significant, and so they are omitted from this table.

**Table 2**

Estimates ( $\gamma$ ) and Standard Errors (SE) from Multi-Level Models Predicting Fathers' Reported Warmth with Youth, N = (740)

Variables	Model 1		Model 2	
	$\gamma$	SE	$\gamma$	SE
Intercept	3.64 <sup>***</sup>	.04	3.62 <sup>***</sup>	.04
Father-youth warmth (T-1)	-.40 <sup>***</sup>	.03	-.40 <sup>***</sup>	.03
Age	-.03 <sup>***</sup>	.01	-.03 <sup>**</sup>	.01
Birth order	.06 <sup>*</sup>	.03	.08 <sup>**</sup>	.03
Gender (female = 0, male = 1)	.03	.02	.04	.02
Sibling gender constellation	.10 <sup>*</sup>	.05	.10 <sup>*</sup>	.05
Sibship size	-.08 <sup>**</sup>	.03	-.08 <sup>**</sup>	.03
Differential affection (PDA; T-1)	.00	.01	.00	.01
Differential discipline (PDD; T-1)	.02 <sup>**</sup>	.01	.00	.01
Father-youth discrepancy in differential affection (DDA; T-1)	-.01	.01	-.05 <sup>**</sup>	.02
Father-youth discrepancy in differential discipline (DDD; T-1)	-.01	.01	-.01	.02
Birth order X PDA			.02	.02
Birth order X PDD			.06 <sup>***</sup>	.02
Birth order X DDA			.08 <sup>***</sup>	.02
Birth order X DDD			-.01	.02
PDA X DDA			.00	.01
PDD X DDD			-.02	.01

\*  
 $p < .05$ .

\*\*  
 $p < .01$ .

\*\*\*  
 $p < .001$ .

NOTE: T-1 signifies predictor variables measured in the year prior to the dependent variable. Controls that were not significant in any model were excluded from the tables: sibling age spacing and parents' education. Two three-way interactions, birth order X PDA X DDA, and birth order X PDD X DDD, were tested in an additional step, but were not significant, and so they are omitted from this table.

**Table 3**

Estimates ( $\gamma$ ) and Standard Errors (SE) from Multi-Level Models Predicting Mothers' Reported Conflict with Youth, N = (762)

Variables	Model 1		Model 2	
	$\gamma$	SE	$\gamma$	SE
Intercept	2.12 <sup>***</sup>	.05	2.14 <sup>***</sup>	.05
Mother-youth conflict (T-1)	-.31 <sup>***</sup>	.04	-.32 <sup>***</sup>	.04
Age	-.07 <sup>***</sup>	.01	-.08 <sup>***</sup>	.01
Birth order	.00	.04	-.05	.04
Gender (female = 0; male =1)	.09 <sup>*</sup>	.04	.07 <sup>*</sup>	.04
Sibling gender constellation	.04	.05	.03	.05
Sibship size	-.03	.03	-.03	.03
Differential affection (PDA; T-1)	-.05 <sup>**</sup>	.02	-.07 <sup>**</sup>	.02
Differential discipline (PDD; T-1)	-.01	.01	.03 <sup>*</sup>	.01
Mother-youth discrepancy in differential affection (DDA; T-1)	.01	.02	.08 <sup>**</sup>	.03
Mother-youth discrepancy in differential discipline (DDD; T-1)	-.01	.02	.01	.03
Birth order X PDA			-.03	.03
Birth order X PDD			-.14 <sup>***</sup>	.02
Birth order X DDA			-.08 <sup>*</sup>	.04
Birth order X DDD			-.02	.04
PDA X DDA			.07 <sup>**</sup>	.02
PDD X DDD			.04 <sup>*</sup>	.02

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

NOTE: T-1 signifies predictor variables measured in the year prior to the dependent variable. Controls that were not significant in any model were excluded from the tables: sibling age spacing and parents' education. Two three-way interactions, birth order X PDA X DDA, and birth order X PDD X DDD, were tested in an additional step, but were not significant, and so they are omitted from this table.



**Table 4**

Estimates ( $\gamma$ ) and Standard Errors (SE) from Multi-Level Models Predicting Fathers' Reported Conflict with Youth, N = (740)

Variables	Model 1		Model 2	
	$\gamma$	SE	$\gamma$	SE
Intercept	2.09***	.04	2.11***	.04
Father-youth conflict (T-1)	-.34***	.03	-.34***	.03
Age	-.10***	.01	-.10***	.01
Birth order	-.13***	.04	-.17***	.04
Gender (female = 0, male =1)	.10**	.03	.10**	.03
Sibling gender constellation	.06	.05	.06	.05
Sibship size	.06	.03	.05	.03
Differential affection (PDA; T-1)	.00	.01	.02	.02
Differential discipline (PDD; T-1)	-.04**	.01	-.01	.01
Father-youth discrepancy in differential affection (DDA; T-1)	.00	.02	.01	.03
Father-youth discrepancy in differential discipline (DDD; T-1)	.03	.02	.04	.02
Birth order X PDA			-.07*	.03
Birth order X PDD			-.08***	.02
Birth order X DDA			-.03	.03
Birth order X DDD			-.02	.03
PDA X DDA			-.02	.02
PDD X DDD			.02	.02

\*  
 $p < .05$ .

\*\*  
 $p < .01$ .

\*\*\*  
 $p < .001$ .

NOTE: T-1 signifies predictor variables measured in the year prior to the dependent variable. Controls that were not significant in any model were excluded from the tables: sibling age spacing and parents' education. Two three-way interactions, birth order X PDA X DDA, and birth order X PDD X DDD, were tested in an additional step, but were not significant, and so they are omitted from this table.