Mothers and fathers : Parenting practices in families with two children

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MOTHERS AND FATHERS:

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Parenting is undoubtedly a gendered activity.

Marjorie E. Starrels

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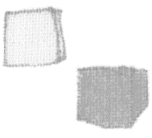
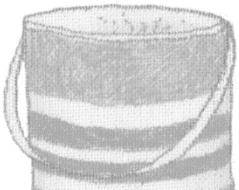
General introduction





Traditionally, mothers were the primary caregivers of their children and fathers were seen as the breadwinners of the family (Lamb & Lewis, 2010). Because mothers were generally the ones responsible for child care within the family, research on child development primarily focused on the influence of mothers in relation to child behavior (Lamb, 2010). The impact of fathers' behavior was often assumed to be unsubstantial for child development (Gelles, 1995), and as a result, the role of fathers within the family was often neglected in research. It was not until the 1970's that this traditional view of the family changed. The main reason for this change was the increased participation of women in the labor market (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Lamb, 2010). Prior to the 1970's, most women stopped working after giving birth to their first child, but from the 1970's onwards almost 70 percent of the Dutch mothers with preschool children participated in any form of paid labor (O'Brien & Moss, 2010; Sociaal Cultureel Planbureau [SCP], 2014). This increase in female employment led to growing pressures on fathers to assume a greater role in the care and socialization of their children (Roggman, Bradley, & Raikes, 2013) and since then, the time fathers spent with their children has increased substantially (SCP, 2011). In response to these changes, researchers became increasingly aware of the need to study fathers in order to address these fast-growing changes in the family, with Lamb (1975) as one of the first researchers who put research on fatherhood on the agenda. Today, there is consensus among researchers that both mothers and fathers are important for child development (e.g., Lamb & Lewis, 2010), but less agreement exists about the differences or similarities between mothers' and fathers' parenting practices. The overall aim of this dissertation is to examine parenting behavior of both mothers and fathers within families with two young children.

Father involvement: causes and consequences

The first major attempt to conceptualize father involvement was undertaken by Lamb, Pleck, Charnov, and Levine (1985), who proposed a conceptualization of father involvement consisting of engagement, accessibility to the child, and responsibility. Although this approach provided the field with a framework to assess the ways fathers are involved with their children, this conceptualization primarily focused on the quantity of involvement with little attention paid to the quality of involvement. Therefore, Pleck (2010; 2012) recently proposed a revised conceptualization of paternal involvement including three primary components: (1) positive engagement activities (i.e., interaction with the child that is likely to promote development), (2) warmth and responsiveness, and (3) control (i.e., monitoring). These three components are seen as the core dimensions of paternal involvement and incorporate important concepts that have long been established in parenting research on mothers. In addition, two supplementary components

include indirect care (i.e., material or social indirect care, bread-winning excluded) and process responsibility.

In modern-day society there is still great variation in the degree and quality of father involvement in child care (Parke 2002, 2013). Lamb and colleagues (1985) proposed a four-factor model for the sources of father involvement, including (1) motivation, (2) skills and self-confidence, (3) social support (especially from the child's mother), and (4) absence of institutional barriers (especially in the workplace). Fathering behavior can be motivated by men's attitudes about fathering and their self-perceptions as father (Pleck, 2012). Paternal behavior is for a large part guided by the extent to which a father believes his role is important in child development (Palkovitz, 1984). To date, there is evidence from a large longitudinal study that the extent to which men valued their role as father predicted the level of their child care engagement, warmth, and control (Hofferth, Pleck, Goldscheider, Curtin, & Hrapczynski, 2013).

Even when men are motivated to be involved in child care, their involvement may be limited by a perceived or real lack of skills. These variations in parenting skills may be related to the level and quality of father involvement. Indeed, intervention studies have shown that fathers who receive training in caregiving, aimed at increasing their parenting skills, spend more time with their children and show higher levels of parenting quality than fathers who did not receive any training (Doherty, Erickson, & LaRossa, 2006; Fagan & Hawkins, 2000; Nowak & Heinrichs, 2008).

Besides fathers' motivation and skills, paternal involvement can also be affected by the amount of maternal support. However, despite increased female employment many women find it hard to actively involve fathers in the daily routines of caregiving (Coltrane, 1996; Sasaki, Hazen, & Swann Jr., 2010). There is a strong notion among mothers that they are indispensable and naturally more suited for child care (Dienhart & Daly, 1997), leading mothers to consciously or unconsciously prevent fathers from being actively involved in child care by criticizing or failing to encourage them when they interact with their children (Allen & Hawkins, 1999; Puhlman & Pasley, 2013). As a result, such maternal gate-keeping can seriously undermine the confidence of fathers and may result in less opportunities for involved fathering (Fagan & Barnett, 2003; Puhlman & Pasley, 2013; Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowsky, 2008). It is important to note, though, that although most studies assume that maternal gatekeeping negatively affects paternal involvement rather than the other way around, there are as yet no longitudinal studies that have tested this direction (Adamsons, 2010). Whereas maternal gatekeeping is related to lower paternal involvement, mother’s positive and supportive relationship with their spouse predicts father's active involvement in child care activities. Spousal support (i.e., psychological or instrumental) may help fathers to explore their role as fathers and

to acquire and practice skills that are essential for caregiving (Cannon, Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2008; Parke, 2013; Schoppe-Sulivan et al., 2008).

Finally, institutional factors may either enhance or prevent fathers from being as involved in child care as they would like to be. For example, during the mid-1990s European governments began to acknowledge the relevance of paternal care at the time of childbirth and in the early years of a child's life (Caracciolo di Torella, 2014; Moss & Deven, 2006). From this moment onwards, parental leave policies emerged to encourage and support fathers to be more actively involved in child care (e.g., Brandth & Kvande, 2002). To date, the majority of the European member states provide a form of paternity leave (O'Brien & Moss, 2010). With some exceptions, the period of leave varies from two to ten days and is usually paid on the same basis as maternity leave (Moss, 2009). Within the Netherlands, Dutch fathers are entitled to two days of paid paternity leave and another three days unpaid paternity leave within the first month after birth, which is relatively limited compared to other European countries. In addition, Dutch fathers have the opportunity to take a total of 26 weeks of unpaid paternal leave until the eight birthday of their child (e.g., Moss, 2009; Rijksoverheid, 2015a; Rijksoverheid, 2015b), but only 23% of the fathers actually made use of this right (SCP, 2014). The main reason for fathers not to take paternal leave is the decline in family income (SCP, 2004). So, even though there are clear trends towards more family-friendly policies, workplace barriers for active involvement in child care remain large for fathers (Parke & Brott, 1999).

When Lamb and colleagues (1985) formulated the paternal involvement construct, they cautiously put forward that paternal involvement potentially had consequences for children, mothers, and fathers themselves. To date, a growing body of research documents the independent influence of the quality of paternal involvement on positive child and adolescent outcomes (Pleck, 2010). In addition, one study that controlled for the reciprocal influence of children on fathers showed that fathers' shared activities and communication with their children predicted fewer internalizing problems and higher academic achievement (Hawkins, Amato, & King, 2007). However, in this study maternal involvement was not controlled for. In addition, although the conceptualization of paternal involvement shifted from its original emphasis on time spent with the child towards a more qualitative focus (e.g., positive engagement activities, warmth, and control), several studies suggest that time spent with children in itself does play a role. More specifically, one study showed that the influence of the time fathers spend with their children on father-child attachment security is dependent unpon qualitative aspects of fathering behavior (Brown, McBride, Shin, & Bost, 2007) The time fathers pent with their children was unrelated to attachment security when fathers engaged in high-quality parenting behavior, but was associated with lower levels of attachment security

when fathers engaged in less adaptive parenting behavior (e.g., little positive emotion, insufficient task structure, excessive overcontrol).

Several studies suggest that paternal involvement benefits not only children, but also mothers and fathers themselves (Eggebeen, Knoester, & McDaniel, 2013; Parke, 2002). For example, a growing body of research points towards long-term positive effects of paternal involvement in child care on marriage quality (e.g., Kalmijn, 1999; Snarey, 1993). In addition, several studies suggest that paternal involvement has positive effects op fathers' well-being and social relationships (e.g., Palkovitz, 2002). However, as fathers increase their involvement in child care they are more likely to perceive higher levels of work-family stress (Parke, 2002). Involved fathers face the dilemma of combining child care with having a job (Allen & Finkelstein, 2014; Winslow, 2005). Many fathers report that they want to spent more time with their children than they currently do (Milkie, Mattingly, Nomaguchi, Bianchi, & Robinson, 2004; Nomaguchi, Milkie, & Bianchi, 2005). However, despite increased female employment fathers still have a strong belief that they should be the economic providers within the family (Pfau-Effinger, 2004; Planting, 2007). Indeed, most fathers are still the main breadwinners within the family (e.g., Ciccia & Verloo, 2012). Today, many fathers struggle to combine the different dimensions of fatherhood (i.e., being accessible and nurturing as well as economically supportive to their children) and how to manage conflicts between having a job and looking after the children (e.g., Brannen, Moss, & Mooney, 2004; Dermott, 2008).

Mothers' and fathers' parenting practices

Quantitative aspects of parenting. Although there is a trend for fathers to spend more time taking care of their children over the last few decades (Maume, 2011), there is clear evidence pointing towards parenting differences between mothers and fathers. For example, mothers are still the primary caregivers of their children in most Western societies. On average, mothers spend two to three times as much time on child care activities than fathers, even when they work full-time (Craig, 2006; Huerta et al., 2013; SCP, 2011). In addition, several studies suggest that the time mothers spent on child rearing activities remained roughly the same, even though maternal employment increased substantially over the last decades (Blakemore, Berenbaum, & Liben, 2009; Craig, 2006). There is evidence that fathers' involvement has increased over the last decades, albeit slowly. While fathers only spend approximately 30% to 45% as much time with their children as mothers in the 1970s and 1980s, the amount of time fathers spend with their children increased substantially (Pleck, 2010; SCP, 2011; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). For example, Dutch fathers on average spent 65% of mothers' time in interactive activities with their children (SCP, 2011). Further, the time U.S. fathers in intact families are actively engaged with their children is 67% of that of mothers

on weekdays and 87% of that of mothers on weekend days. In addition, the time fathers are accessible to their children (i.e., available to the child but not directly involved with him or her) showed a similar pattern (Yeung et al., 2001). These findings suggest that mothers still shoulder the lion's share of child care on weekdays, but fathers do become more equal partners in caring for the children on weekends (Yeung et al., 2001).

Qualitative aspects of parenting. Although mothers are generally seen as natural caregivers, most fathers adapt positively to their role as parent as well (Henwood & Procter, 2003). Just like mothers, fathers respond with caring and protective behavior when introduced to their newborn infant (e.g., Lamb & Lewis, 2013). In addition, other researchers reported that that both mothers and fathers adjust their speech and singing patterns (i.e., speaking more slowly and at high pitch) when interacting with their child (e.g., Lamb & Lewis, 2013; Parke, 2013; Rowe, Coker, & Pan, 2004).

Mother and fathers differ not only with respect to quantity of time spent with children, they also differ in the naure and quality of their parenting practices. In 1996, Parke already stated that fathers are not simply substitute mothers, but that mothers and fathers show significant differences in their parenting behavior (Parke, 1996). Since then, a growing body of research provides evidence for this assumption. For example, mothers and fathers have been found to adopt different play styles during parent-child interactions. Mothers tend to be more verbal, didactic, and toy mediated during play, whereas fathers use more tactile and physical play with their children (Parke, 2002). In addition, gender differences have been found with respect to parenting style. Mothers are generally more sensitive and less intrusive towards their children than fathers (e.g., Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Bergmann, Wendt, Von Klitzin, & Klein, 2013; Lovas, 2005; Schoppe-Sullivan et al., 2006). Moreover, mothers use more supportive speech and less directive and informing speech than fathers (Leaper, Anderson, & Sanders, 1998: Tenenbaum & Leaper, 2003). There is also evidence that mothers are more concerned with disciplining their children than fathers. Mothers have been found to use more verbal and physical discipline strategies in response to child noncompliance than fathers (e.g., Blandon & Volling, 2008; Day, Peterson, & McCracken, 1998; Power, McGrath, Hughes, & Manire, 1994; Xu, Tung, & Dunaway, 2000).

Overall, there is empirical evidence that mothers and fathers show different parenting strategies. However, several studies suggest that the differences between mothers and fathers are relatively small (Lytton & Romney, 1991; Maccoby, 1990; Russel & Saebel, 1997). Even though differences between mothers and fathers may be small, their parenting behavior can still affect child development differently (e.g., Cabrera, Shannon, & Tamis-LeMonda, 2007; Grossmann et al., 2002; Kochanska, Askan, Prisco, & Adams, 2008; LaBounty, Wellman, Olson, Lagattuta, & Liu, 2008;

Martin, Ryan, & Brooks-Gunn, 2007), indicating that parent gender is an important factor to consider in research on parenting and child development.

Biological factors associated with mothers' and fathers' parenting practices

It had long been assumed that hormones play an unimportant role in paternal behavior (Lamb, 1975). However, recent studies suggest that fathers may be more biologically prepared for parenting than previously thought. Just like women, men experience significant hormonal changes during pregnancy and childbirth. More specifically, prolactin levels are higher for both men and women in the late prenatal period than in the early postnatal period, and cortisol levels increase just before birth and decrease in the postnatal period for both men and women (Storey, Walsh, Quinton, & Wynne-Edwards, 2000). In addition, gonadal hormone levels (i.e., testosterone, estrogens) are lower in the early postnatal period, which corresponds to the first opportunity for interaction with their infants (Storey et al., 2000). These hormonal changes in men and women have been found to facilitate positive parenting behavior, such as parental responsiveness to infant cues (Alvergne, Faurie, & Raymons, 2009; Kuzawa, Gettler, Huang, & McDade, 2010; Storey et al, 2000; Weisman, Zagoory-Sharon, & Feldman, 2014).

To date, several biological processes have been linked to gender differences in parenting behavior, with gonadal hormones (i.e., testosterone, estrogens) as the most extensively studied factors (Hines, 2004). One of the most important biological differences between men and women is that high levels of testosterone are primarily responsible for the establishment of the male physical phenotype, whereas the absence of testosterone leads to the development of the female physical phenotype (Blakemore et al., 2009). To date, several studies have shown the importance of gonadal hormones for sexual differentiation of behavior. For example, high levels of testosterone are associated with competitive behavior or mating, whereas low levels of testosterone are associated with parenting (e.g., Gettler, McDade, Feranil, & Kuzawa, 2011; Kuzawa et al., 2010; Van Anders, Tolman, & Volling, 2012; Wingfield, Hegner, Dufty Jr., & Ball, 1990). However, the link between gonadal hormones and behavior might be more complex than previously thought. There is preliminary evidence suggesting that the testosterone system might play a different role in mothers' and fathers' parenting behavior. For example, one study found that lower testosterone levels in fathers and higher testosterone levels in mothers were associated with parental responsiveness to infant cues (Steiner, Fleming, Stallings, Corter, & Worthman, 1998). Unfortunately, the underlying processes explaining this different effect of testosterone on mothers' and fathers' parenting practices are yet unknown and the association between gonadal hormones and parenting behavior might be complicated.

Child characteristics affecting mothers' and fathers' parenting practices

In addition to biological predispositions to parenting, characteristics of the child are also thought to play an important role in shaping parenting behavior. There is ample evidence that parenting behavior is affected by the child's gender, age, and birth order (e.g., Price, 2008; Raley & Bianchi, 2006; Russel & Saebel, 1997). In addition, there is preliminary support that these child characteristics affect parenting behavior of mothers and fathers differently (e.g., Bergmann et al., 2013; Lytton & Romney, 1991; Shanahan, McHale, Crouter, & Osgood, 2007), indicating that it is essential to consider child characteristics in research on parenting behavior of mothers and fathers.

Child gender. It is generally assumed that parents treat sons and daughters differently, and that this is especially the case for fathers (Lytton & Romney, 1991; Raley & Bianchi, 2006; Russel & Saebel, 1997; Siegal, 1987). Gender-differentiated parenting can take various forms and may occur through the direct instruction of the child in specific gendered activities, the type of expectations a parent imposes on the child, the type of opportunities parents provide or encourage in their child, or through the way parents monitor and manage their child's activities (Leaper, 2002). According to Maccoby and Jacklin (1974), the mechanisms underlying these potential gender differences in parental treatment can be attributed to both child-driven effects and parent-driven effects. Children are not just passive recipients of parenting behavior, but they also influence the parent by their own behaviors (Bell, 1968; Avinun & Knafo, 2014). For example, higher levels of disruptive behavior in children have been found to elicit more negative reactions from mothers (McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). Since boys display more disruptive behavior than girls (Alink et al., 2006; Archer, 2004; Baillargeon et al., 2007), boys may thus evoke more negative parental responses than girls. However, there is also evidence that gender-differentiated parenting behavior is not necessarily caused by gender-specific behaviors of the child. Instead, parents' own gender stereotypes and attitudes may play an important role in the way parents behave towards their children (gender schema theory; Bem, 1981, 1983). Support for this assumption was provided by the classic study of Culp, Cook, and Housley (1983) in which adults treated the same child differently based on the perceived sex of the child. In addition, another study pointed out that parents were harsher with boys than with girls, even though boys and girls did not differ with respect to child temperament (Bezirganian & Cohen, 1992).

To date, there is some evidence that fathers are more likely than mothers to treat sons and daughters differently and that this pattern is most evident in the area of discipline (Feldman & Klein, 2003; Gjerde, Block, & Block, 1991; Lytton & Romney, 1991). Fathers may be more inclined than mothers to socialize their children into the gender roles proposed by society. In general, gender roles and

gender stereotypes are often more restrictive for boys than for girls, which may cause fathers to be more concerned with their sons conforming to gender roles than with their daughters (Eagly, Wood, & Diekman, 2000). However, there is still relatively little support for the assumption that both parent gender and child gender affects parent-child interactions differently (Russel & Saebel, 1997). In addition, there are also studies that suggest that child gender does not play such an important role in parenting practices during early childhood as was previously assumed (Hyde, 2005; Russel & Saebel, 1997). Instead, the child's age and birth order may be important determinants of parental differential treatment (Blakemore et al., 2009).

Child age. Based on the belief that mothers are naturally more suited for taking care of babies than fathers, fathers generally hold mothers responsible for the care of young infants (Craig, 2006; Yeung et al., 2001). In general, the first year is pictured by fathers as a challenge, which is also illustrated by many parenting books for fathers that provide tips and tricks on 'how to survive the first year of your infant'. Fathers become more involved participants in child care activities when their children become older (Bruce & Fox, 1999; Furman & Lanthier, 2002), suggesting that parenting behavior of fathers may change accordingly.

In general, the literature is inconsistent with respect to the effect of child age on parenting behavior during early childhood. There is evidence that mothers and fathers show stable levels of parenting behavior over time, as they adequately adapt their responses to the changing developmental levels of their child (Bornstein, Tamis-LeMonda, Hahn, & Haynes, 2008; Kochanska & Askan, 2004). Certain types of parenting behavior may be more or less appropriate during specific developmental stages of the child. For example, as the child matures, mothers generally respond with fewer descriptions and exploratory prompts, but at the same time increasingly respond with imitations and expansions, questions, and play prompts (Bornstein et al., 2008). However, in contrast to these findings, there is also evidence pointing towards a change in parenting behavior with increasing child age. For example, as a result of the increasing ability of children to communicate with their environment (Berk, 2003; Bornstein, 2002), it might become easier for parents to adjust their parenting behavior in a way that fits their child´s needs. Indeed, mothers and fathers have been found to show more optimal parenting behavior across time (Bergmann et al., 2013; Braungart-Rieker, Hill-Soderlund, & Karras, 2010; Ciciolloa, Crnic, & West, 2013). In contrast, it has also been proposed that the transition to locomotion during infancy may be associated with more challenges for the parent (i.e., potential for safety and norm violations) and evoke more negative parenting behaviors, such as increased parental control (Bornstein et al., 2010; Kochanska & Askan, 2004).

Overall, the literature seems to support the assumption that parenting behavior is affected by child age, but the way child age influences parenting behavior is not quite clear. In addition, one cross-sectional study provides

preliminary evidence that the effect of child age on parenting behavior might be different for mothers and fathers. Fathers with older children were more sensitive towards their child than fathers with younger children, whereas mothers provided almost equal levels of sensitivity regardless of the child's age (Bergmann et al., 2013). However, due to the cross-sectional design of this study, these findings can not solely be attributed to child age but may also be caused by other characteristics of the children.

Birth order. Most families in Western societies consist of at least two children (Volling, 2012). For example, in the Netherlands 60% of the children grow up in a family with at least one other sibling (Aalders, 2003). When a second child is born, family dynamics change as mothers and fathers are no longer responsible for one child but have to divide their attention and affection between two children (Furman & Lanthier, 2002). The learning-from-experience hypothesis proposes that parents' experiences with their firstborn child have important implications for how they approach childrearing the second time around (Shanahan et al., 2007; Whiteman & Buchman, 2002; Whiteman, McHale, & Crouter, 2003). For example, mothers and fathers have gained more knowledge about child behavior that is associated with particular developmental stages and they may have adapted their childrearing strategies through trial-and-error with their firstborn child. As a result, mothers and fathers may feel more competent in the interaction with later-born children, which in turn might lead to an improvement of parent-child interactions with later-born children (Whiteman et al., 2003).

Although it is generally assumed that parents treat their children differently, research generally focuses on only one child within the family. Those few studies that do include both siblings indicate that parents use different parenting strategies with firstborn and later-born children during infancy and early childhood. For example, mothers and fathers use more gentle guidance with their 46-month-old firstborn child than with their later-born toddler (Volling, Blandon, & Gorvine, 2006). In addition, a recent study showed that mothers and fathers were more sensitive towards their firstborn three-year-old children than towards their second-born one-year-old children (Van Berkel et al., 2014). Unfortunately, most studies examined parenting differences towards two children within the family at one time point, when the children differed in age. As a result, differences in parental treatment of siblings can not solely be attributed to birth order, but may also be related to the age of both siblings (Whiteman et al., 2003). To distinguish child age and birth order effects, longitudinal studies are needed that allow for comparisons of parenting behavior towards siblings when they have the same age.

Aim and outline of the dissertation

The overall aim of the studies presented in this dissertation is to provide insight in the differences and similarities between mothers' and fathers' parenting practices. Further, this dissertation examines the effect of biological factors (i.e., parental sex hormones) and child factors (i.e., gender, age, and birth order) on parenting behavior of mothers and fathers. Previous studies on gender-differentiated parenting have often been limited by the use of between-family designs in which parenting practices in families with boys are compared with parenting practices in families with girls. To solve this problem, the current dissertation adopts a within-family design to allow for comparisons of parenting behavior towards boys and girls within the same family. In addition, by using a longitudinal within-family design, the effect of child age and birth order on parenting behavior can be disentangled.

The research questions are illustrated in Figure 1. In Chapter 2 differences between mothers and fathers with respect to parental sensitivity and nonintrusiveness are studied, also examining child gender and birth order. Further, in Chapter 3 the effect of child age and birth order on mothers' and fathers' sensitivity and nonintrusiveness is examined longitudinally. Chapter 4 focuses on the association between sex hormones (i.e., testosterone) and parental sensitivity and nonintrusiveness of mothers and fathers towards their two young children. In Chapter 5 differences between mothers' and fathers' discipline strategies towards their firstborn and second-born children are examined, also taking into account child gender. Finally, in Chapter 6 the main findings and implications of the studies presented in this dissertation are discussed and suggestions for future research are made.

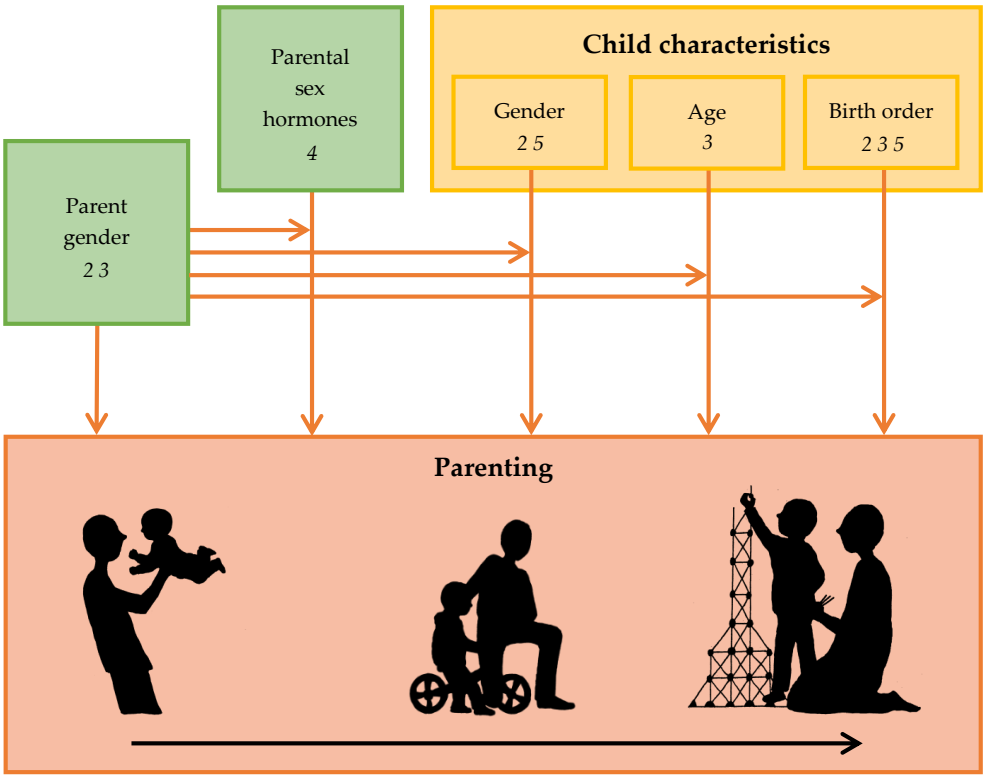


Figure 1. *Illustration of the topics of this dissertation.*
Note. The numbers refer to the chapters focusing on the specific topic.

Mothers, fathers, sons, and daughters: Parental sensitivity in families with two children

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Abstract

Most studies on early childhood parenting include only mothers. Fathers are rarely observed in interaction with their young children, although they play an important role in the socialization of their children. In this study, we observed parenting of mothers and fathers toward their sons and daughters in families with two children, using a within-family approach in a sample with systematically varying family constellations. Participants included 389 families with two children (1 and 3 years of age). Parenting practices were coded during free play using the Emotional Availability Scales (Biringen, 2008). Findings revealed that mothers showed higher levels of sensitivity and lower levels of intrusiveness toward their children than fathers. Furthermore, mothers and fathers were more sensitive and less intrusive toward their oldest child than toward their youngest child. Fathers' higher intrusiveness toward the youngest child was only found in the case of a youngest boy. Child gender was not related to parenting in any of the other analyses. Our results suggest that parent gender is more salient than child gender in the prediction of parenting practices in early childhood.

Keywords: birth order, fathers, gender, mothers, sensitivity

INTRODUCTION

It is now widely acknowledged that both mothers and fathers contribute to their children's development in important ways (Lewis & Lamb, 2003). However, most studies on early childhood parenting include only mothers. Fathers are rarely observed in interaction with their young children, although they play an important role in the socialization of their children (Lamb, 2010). Most observational studies comparing mothers and fathers regarding the quality of their interactions with young children have found that fathers show less sensitivity and more intrusiveness than mothers (e.g., Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Schoppe-Sullivan et al., 2006; Volling, McElwain, Notaro, & Herrera, 2002). In addition to parent gender, child gender appears to play a role in the quality of parent–child interactions, with evidence suggesting higher sensitivity toward girls than toward boys (e.g., Lovas, 2005). The level of parental sensitivity may also depend on specific parent–child gender combinations, but results to date have been inconsistent (e.g., Lovas, 2005; Schoppe-Sullivan et al., 2006). A particularly useful approach to studying parent–child gender combinations is a within-family design including families with both boys and girls, accounting for birth order. To date, such studies are lacking. In the current study, using a within-family design, we explore the assumption that both parent and child gender and their specific combinations are related to parental sensitivity and nonintrusiveness.

Mothers and fathers

In early childhood, parental sensitivity and nonintrusiveness are important aspects of parenting. Sensitivity refers to the adult's ability to perceive child signals, to interpret these signals correctly, and to respond to them promptly and appropriately (Ainsworth, Bell, & Stayton, 1974). Many studies have shown that maternal sensitivity is related to positive child outcomes across developmental domains (e.g., Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003; Eisenberg et al., 2001; Kochanska, 2002; Tamis-LeMonda, Bornstein, & Baumwell, 2001). Intrusiveness refers to a constellation of interfering parenting behaviors that are rooted in the adult's lack of respect for the infant's autonomy. Intrusive parents have their own agenda in mind when interacting with their children and, as a result, may overwhelm them with excessive stimulation or interrupt activities initiated by the child (Ispa et al., 2004). Maternal intrusiveness has been linked to various patterns of maladaptation during childhood (Egeland, Pianta, & O'Brien, 1993; Ispa et al., 2004; Rubin, Burgess, Dwyer, & Hastings, 2003). Although fathers are underrepresented in observational studies of parent–child interactions in early childhood, there is some evidence that paternal sensitivity and intrusiveness predict child developmental outcomes in a similar way as found for mothers (Lewis &

Lamb, 2003; Lucassen et al., 2011; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). Thus, both maternal and paternal sensitivity and nonintrusiveness appear to be important for the promotion of optimal child development. This does not imply that mothers and fathers show equal levels of sensitive and nonintrusive parenting. There are several reasons to believe that they do not.

According to Role Theory, fathers are traditionally viewed as the breadwinners of the family and mothers as the primary caregivers of the children and the ones responsible for household maintenance (Lamb & Lewis, 2010). Role Theory suggests that social roles are shared norms and expectations about how an individual should behave in certain situations (Biddle, 1986). Following this theory, the different roles and responsibilities mothers and fathers have in the family may lead to differences in their interactions with their children. In the last decades a shift in gender role patterns has occurred in Western societies: Mothers' participation in the labor market has increased substantially and fathers take more active roles in their children's socialization (Cabrera, Tamis-LeMonda, Bradley, Hoffert, & Lamb, 2000; Lamb, 2010). However, although paternal involvement in the family has increased, maternal involvement remains substantially higher and mothers spend on average two to three times as much time than fathers in direct one-on-one interaction with their children, especially in early childhood (Sociaal Cultureel Planbureau [SCP], 2011). Thus, consistent with Role Theory, mothers are still generally the primary caregivers of young children. Given that sensitive parenting relies heavily on the correct interpretation of child signals, more time spent with a child is likely to lead to a more accurate understanding of his or her needs, resulting in higher levels of sensitivity for mothers than fathers. In addition, Sex Role Theory proposes that the different characteristics of mothers and fathers may result in differences in parenting between mothers and fathers (Bem, 1974). For example, females are more competent in decoding social and emotional nonverbal information than males (Hall & Matsumoto, 2004), especially in decoding subtle emotional expressions (Hoffmann, Kessler, Eppel, Rukavina, & Traue, 2010). This skill may give mothers an advantage over fathers when it comes to behaving sensitively and nonintrusively toward their children. Fathers, on the other hand, may feel like it is their responsibility to choose the direction for play, which could lead to more intrusive behavior when interacting with their children (Power, 1985). Meta-analytically, fathers were found to use more directive speech, informing speech, and questions and requests for information than mothers, suggesting that fathers are more goal-oriented than mothers (Leaper, Anderson, & Sanders, 1998; Tenenbaum & Leaper, 2003). It may be that fathers' use of instrumental speech interferes with their child's activities in a somewhat intrusive way.

To date, research comparing mothers' and fathers' sensitivity and nonintrusiveness toward young children is scarce, but most studies indeed indicate that fathers show lower levels of sensitivity and higher levels of intrusiveness than

mothers do. In an early study, Power (1985) showed that mothers were more responsive toward their young infants' cues of interest and attention than fathers. Later studies replicated these findings, confirming that mothers were more sensitive and less intrusive toward their young infants (3 to 24 months old) during free play than fathers (Barnett et al., 2008; Lovas, 2005; Roopnarine, Fouts, Lamb, & Lewis-Elligan, 2005; Schoppe-Sullivan et al., 2006; Volling et al., 2002). These differences between mothers and fathers occurred across various contexts, suggesting that differences between mothers and fathers in parenting do not depend on the situation in which the parent interacts with the child (Volling et al., 2002).

In contrast to the above-mentioned studies, other studies concluded that fathers are just as sensitive as mothers and do not display more intrusive behavior toward their young infants (4 to 36 months old) (Braungart-Rieker, Garwood, Notaro, & Powers, 1998; Braungart-Rieker, Garwood, Powers, & Wang, 2001; Goossens & Van IJzendoorn, 1990; John, Halliburton, & Humphrey, 2012; Tamis-LeMonda et al., 2004). Interestingly, there are no evident differences between the studies that do and do not find mother-father differences with respect to sample characteristics, procedures or instruments. For example, the Emotional Availability Scales were used in two studies that reported contrasting findings (John et al., 2012; Lovas, 2005). This means that further research is needed to test the hypothesis that fathers show lower levels of sensitivity and nonintrusiveness toward their young children than mothers.

Parenting sons and daughters

Child gender may affect parenting behavior of mothers and fathers as well. There is ample evidence that parents treat their sons and daughters differently. Differential treatment of sons and daughters can take various forms, but important differences may be observed in the opportunities parents provide or encourage for their children (Leaper, 2002). For example, parents are more likely to prohibit their daughters' aggression than their sons' aggression and are less accepting of deviations from social behavior in daughters than in sons (Martin & Ross, 2005; Mills & Rubin, 1990). In addition, there is evidence that these different parenting behaviors are not caused by the gender-specific behavior of the child (Mills & Rubin, 1990). Instead, parents themselves appear to be an important source of gender-specific interaction patterns, as also shown by the classic study by Culp, Cook, and Housley (1983) in which infants were dressed up as boys or girls (regardless of their actual gender) and then presented to adults to play with. Adults treated the same child differently based on the perceived sex of the child. The way parents behave toward their children may therefore be guided by their gender schemas, as also proposed by Gender Schema Theory (Bem, 1981, 1983). Gender-differentiated parenting can be quite subtle and adults may be unaware of their own

predispositions toward sex stereotyping, or not willing to admit them, indicating that it is important to rely on observational studies rather than parental self-reports (Culp et al., 1983).

The findings that both parent gender and child gender may influence parent–child interactions, suggests that mother-son, mother-daughter, father-son, and father-daughter relationships are distinct (Russell & Saebel, 1997). Results of some recent studies on these relationships are, however, inconclusive. One study examining these four types of dyads found that mothers in mother-daughter dyads displayed the highest levels of parental sensitivity, followed by mother-son, father-daughter, and finally father-son dyads (Lovas, 2005). For nonintrusiveness a slightly different pattern was found, with the father-daughter and father-son dyads scoring similarly and lowest, suggesting that only mothers show different levels of intrusiveness toward sons and daughters, with more intrusiveness toward their sons than toward their daughters (Lovas, 2005). Another study found that mothers and fathers were equally sensitive to sons, but that fathers were less sensitive to daughters than were mothers, and mothers were more sensitive to daughters than to sons (Schoppe-Sullivan et al., 2006). This finding is consistent with the suggestion that the degree of interactive synchrony between parent and child is higher in same-gender parent-infant dyads, perhaps because they share the same inborn modes of emotion regulation (Feldman, 2003). However, according to two other studies, fathers are less sensitive toward sons and display more negative intrusiveness with sons than with daughters (Barnett et al., 2008; Tamis-LeMonda et al., 2004). In line with Lovas (2005), these findings suggest that father-son dyads may be characterized by less optimal parenting than other parent–child dyads. Overall, there seems to be some evidence for parenting differences among the four parent-by-child gender dyads, but the direction of these differences is inconclusive.

A within-family approach

To date, most studies about gender-differentiated parenting have used a between-family design comparing families with boys to families with girls. This approach has some important limitations. Differences between boys and girls in parenting practices do not necessarily reflect only a gender difference, but can also be caused by other underlying group differences in family characteristics or other dyadic interaction patterns. To account for such factors that can influence the differences between parenting boys and girls, it is important to examine differences within families. A crucial question is whether boys and girls are also treated differently when they grow up in the same family. By adopting a within-family approach, variations between boys and girls in how they are parented are unlikely to be caused by other family variables.

When investigating parenting siblings within families, child birth order is a relevant factor. Firstborn children tend to receive more sensitive and higher-quality

care during early childhood than later borns do (Furman & Lanthier, 2002; Van IJzendoorn et al., 2000). These differences in parental treatment are especially pronounced when the second born is a girl or of the same gender as the firstborn, and fathers are more likely to show differential treatment than mothers (Furman & Lanthier, 2002). Research examining gender-differentiated parenting of mothers and fathers should thus also take birth order into account. In addition, child age may be an important factor to consider, as it is confounded with birth order. The developmental gap between siblings may lead to differences in parenting behavior. Older children are better able to (verbally) communicate their needs and interests than young infants (Berk, 2003). It may therefore be easier for parents to react sensitively and nonintrusively toward their older children than toward their younger children. Although there are developmental differences between oldest and youngest children, studies have shown that parental sensitivity and nonintrusiveness are related to child outcomes both in infancy and early childhood (e.g., Eisenberg et al., 2001; Ispa et al., 2004; Lucassen et al., 2011; Rubin et al., 2003; Tamis-LeMonda et al., 2001; Tamis-LeMonda et al., 2004), indicating that sensitive and nonintrusive parenting is equally important for both age groups. To our knowledge, no studies have yet examined differences between mothers and fathers regarding parenting practices toward their sons and daughters *within* families, taking birth order into account. To fully understand the specificity of differential treatment of siblings and boys and girls without interference of between-family variations, a within-family research design is required.

The current study

In the current study differences in sensitivity and nonintrusiveness are investigated in mother-oldest, mother-youngest, father-oldest, and father-youngest dyads, using a within-family approach in a sample with systematically varying family constellations (boy-boy, girl-girl, boy-girl, and girl-boy). The following hypotheses are examined: (1) Mothers show higher levels of sensitive and nonintrusive behavior toward their children than fathers (Barnett et al., 2008; Lovas, 2005; Roopnarine et al., 2005; Schoppe-Sullivan et al., 2006; Volling et al., 2002); (2) Parents show higher levels of sensitive and nonintrusive behavior toward their oldest children than toward their youngest children (Furman & Lanthier, 2002; Van IJzendoorn et al., 2000); (3) Parents show higher levels of sensitive and nonintrusive behavior toward their daughters than toward their sons (Barnett et al., 2008; Bornstein et al., 2008; Hughes, Deater-Deckard, & Cutting, 1999; Lovas, 2005; Tamis-LeMonda et al., 2004); (4) The differences between sensitive and nonintrusive behavior toward oldest and youngest children are larger for families with same-gender siblings than for families with mixed-gender siblings (Furman & Lanthier, 2002). In addition, we examined the assumption that the levels of parental sensitivity and nonintrusiveness vary by specific parent–child gender combinations

(Lovas, 2005). Because results of previous studies are mixed, no specific hypothesis was formulated. Differences between the parent–child gender combinations will be examined in an explorative manner.

METHOD

Sample

This study is part of the longitudinal study '*Boys will be Boys?*' examining the influence of mothers' and fathers' gender-differentiated socialization on the socioemotional development in boys and girls in the first four years of life. Families with two children were selected from municipality records in the Western region of the Netherlands. Families were included if the youngest child was around 12 months of age and the oldest child was between 2.5 and 3.5 years old. Exclusion criteria were single parenthood, severe physical or intellectual handicaps of parent or child, and being born outside the Netherlands and/or not speaking the Dutch language. The current paper reports on data from the first wave of the study.

Between April 2010 and May 2011, eligible families were invited by mail to participate in a study on the unique role of mothers and fathers on socioemotional development with two home visits each year over a period of 3 years. All families received a letter, a brochure with the details of the study, and an answering card to respond to the invitation. Of the 1,249 eligible families 31% were willing to participate. The participating families did not differ from the nonparticipating families in age of mothers (p = .83) or fathers (p = .13), educational level of mothers (p = .27) or fathers (p = .10), or the degree of urbanization of residence (p = .77). For the current study, one family with missing data for the mother was excluded, resulting in a final sample of 389 families. The sample consisted of families with the following sibling gender constellations: 107 boy-boy (28%), 91 girl-girl (23%), 98 boy-girl (25%), and 93 girl-boy (24%).

At the time of the first home visit the youngest siblings were 12 months old (SD = 0.2) and the age of the oldest siblings ranged from 2.5 to 3.6 years (M = 3.0, SD = 0.3). The mothers were aged between 22.6 and 45.6 years (M = 33.9, SD = 4.0) and the fathers were between 23.9 and 62.9 years of age (M = 36.7, SD = 5.1). Most parents were married (79%), 14% of the couples had a cohabitation agreement or registered partnership, and 7% lived together without any kind of registered agreement. With regard to educational level, most mothers finished academic or higher vocational schooling (79%), some obtained a vocational degree (19%), and a few completed only secondary or primary school (2%). Like the mothers, most of the fathers obtained an academic or higher vocational degree (76%) or finished vocational schooling (19%), and a few completed only secondary or primary school (5%). The educational levels of both mothers and fathers were aggregated into two categories, because the groups with low educational levels were very small. A high educational

level was assigned to mothers or fathers who had completed at least higher vocational schooling (mothers: 79%, fathers: 76%). A low educational level was assigned when primary, secondary, or vocational school was finished (mothers: 21%, fathers: 24%). Mothers worked on average 25.6 hours per week (*SD* = 9.3, range 0–60) and fathers worked 37.5 hours per week (*SD* = 7.4, range 0–80), which is comparable to the average working hours of mothers and fathers in the general Dutch population (Sociaal Cultureel Planbureau and Centraal Bureau voor de Statistiek, 2012). Most families lived in urban residences (86%).

Procedure

Each family was visited twice: once with the mother and the two children and once with the father and the two children, separated by a period of about 2 weeks. The order in which mothers and fathers were visited and interacted with the oldest and youngest child was counterbalanced between families. Before the first home visit, both parents were asked to individually complete a set of questionnaires. During the home visits, parent–child interactions and sibling interactions were filmed, and the oldest children and both parents completed computer tests. All home visits were conducted by pairs of trained (under)graduate students. Families received a payment of 30 Euros and small presents for the children. Informed consent was obtained from all participating families. Ethical approval for this study was provided by the Commission Research Ethics Code of the Leiden Institute of Education and Child Studies.

Measures

The fourth edition of the Emotional Availability Scales (EAS; Biringen, 2008) was used to measure parental sensitivity and nonintrusiveness toward their children during free play. Each dyad received a bag with toys and was invited to play for 8 minutes. Sensitivity refers to the parent's ability to be warm and appropriately responsive to the child. Important aspects are the expression and appropriateness of positive affect, and clarity in perception of child signals and the ability and willingness to respond appropriately to such signals. Nonintrusiveness refers to the parent's ability to give the child space to explore and to refrain from intrusions on the child's activities. Important aspects are whether the parent follows the child's lead and finds noninterruptive ports of entry into the interaction. Each dimension is divided into seven subscales; the first two subscales are coded on a 7-point Likert scale and the other subscales are coded using a 3-point Likert scale (potential score range 7–29). For every subscale a global rating was given for the entire free play session. Subscale 7 of the Nonintrusiveness dimension (the adult is made to "feel" or "seem" intrusive) was excluded because it refers to child behavior rather than parental behavior (leading to a potential score range of 7–26).

The second author, who is an experienced coder of parent–child interactions, completed the online training provided by Zeneyp Biringen and then trained a team of coders. During the team training, some subscales led to persistent interpretation problems and some alterations were made to improve intercoder agreement. Three types of alterations were made. First, subjective criteria were removed, for example 'a healthy and secure connection' was removed from the subscale Affect of the Sensitivity dimension. Second, the scoring of some subscales was changed to make them more linear. For example, on the subscale Affect of the Sensitivity dimension the difference in behavioral descriptions between scores 6 (bland, neutral affect most of the time) and 7 (balanced, genuine, congruent, relaxed, low-keyed, gentle, soft spoken OR animated in appropriate ways, clear enjoyment of child) was much bigger than the differences between other scores on this subscale. We changed the descriptions so that score 6 refers to behavior that is similar as for score 7, but somewhat more neutral or less positive. Third, overlap between the dimensions was removed to improve their independence. For example, we dropped the criterion that a high score on Nonintrusiveness could only be given when the adult let the child lead and followed the child, because this suggests both nonintrusiveness *and* sensitivity, whereas a very passive parent can be highly nonintrusive while not very sensitive.

Seven coders rated the videotapes on the EAS dimensions. All dyads within the same family were coded by different coders to guarantee independency among ratings. Coder reliabilities were computed on 15% of the participating families (n = 60). Intercoder reliability was adequate, the mean intraclass correlation coefficient (absolute agreement) for Sensitivity was .81 (range .73 to .92) and for Nonintrusiveness .84 (range .76 to .93). During the coding process, the first 100 videotapes were coded twice by separate coders and regular meetings were organized to prevent coder drift.

Data Analysis

The EA dimensions were inspected for possible outliers, defined as values more than 3.29 *SD* above or below the mean (Tabachnick & Fidell, 1996). Outliers (n = 6) were found on all dimensions, except for sensitivity of father toward the youngest child and nonintrusiveness of father toward both children. The outlying scores were winsorized (Tabachnick & Fidell, 1996). Analyses performed with the nonwinsorized and winsorized data did not show different results. Therefore the results of the winsorized data are presented. All variables were normally distributed.

Before the analysis of within-family differences, correlations were inspected between mothers' and fathers' parenting practices and their educational level and working hours. Paternal educational level was positively associated with his sensitivity toward the youngest child, $r = .10$, $p < .05$. Maternal educational level was

positively related to her sensitivity toward the oldest child, $r = .21$, $p < .01$, and nonintrusiveness toward the oldest child, $r = .19$, $p < .01$, and toward the youngest child, $r = .15$, $p < .01$. Working hours of both parents were marginally related to their sensitivity and nonintrusiveness, but after controlling for educational level these associations were no longer significant ($ps > .06$). Because of this pattern of associations, educational level of father and mother were controlled for in further analyses, whereas working hours was not.

Analyses of parents' sensitivity and nonintrusiveness toward their oldest and youngest children were conducted using GLM Repeated Measures analysis. Two-way interactions between the within-subjects factor (dyad: mother-oldest child, mother-youngest child, father-oldest child, father-youngest child) and the between-subjects variables (sibling gender constellation, educational level mother, education level father) were examined. The analyses were repeated using the between-subjects variable mixed-gender versus same-gender siblings (two groups instead of four groups of sibling gender constellation).

RESULTS

Preliminary analysis

The correlations between mothers' and fathers' sensitivity and nonintrusiveness are presented in Table 1. Mothers and fathers who were more sensitive toward their oldest child were also more sensitive toward their youngest child. Furthermore, maternal and paternal sensitivity were positively associated for both children (correlations ranged from .20 to .25). The same pattern was found for nonintrusiveness. Within all possible dyads (mother-oldest child, mother-youngest child, father-oldest child, father-youngest child) positive correlations between sensitivity and nonintrusiveness were found. These correlations were however significantly higher for interactions with the oldest children than interactions with the youngest children, for both fathers, $z = 3.12$, $p < .01$, and mothers, $z = 4.03$, $p < .01$.

Multivariate regression analyses were conducted to test moderation by child gender. In the first set of analyses, maternal behavior, child gender, and their interaction were added to predict paternal behavior (separately for sensitivity and nonintrusiveness, and separately for oldest and youngest children). In the second set of analyses, maternal behavior toward the oldest, oldest child gender, and their interaction were entered as predictors of maternal behavior toward the youngest (separately for sensitivity and nonintrusiveness and repeated for paternal behavior). None of the associations between mothers and fathers and oldest and youngest children were moderated by the genders of the children or the sibling gender combinations (same vs. mixed gender) ($ps > .20$).

Table 1.
Correlations for sensitivity and nonintrusiveness of mothers and fathers toward their oldest and youngest child (N = 389)

	1	2	3	4	5	6	7
1. Sensitivity mother-oldest							
2. Sensitivity mother-youngest	.31**						
3. Sensitivity father-oldest	.20**	.06					
4. Sensitivity father-youngest	.17**	.25**	.38**				
5. Nonintrusiveness mother-oldest	.56** [a]	.15**	.13*	.11*			
6. Nonintrusiveness mother-youngest	.10*	.33** [a]	.09	.17**	.31**		
7. Nonintrusiveness father-oldest	.12*	.05	.53** [a]	.07	.13*	.10	
8. Nonintrusiveness father-youngest	.10	.17	.15**	.35** [a]	.12*	.21**	.34**

[a] Correlations between Sensitivity and Nonintrusiveness within the same dyad.
* $p < .05$ ** $p < .01$

Differences between mothers' and fathers' sensitivity and nonintrusiveness

Mothers' and fathers' scores on sensitivity and nonintrusiveness are presented in Table 2 separately for the oldest and youngest child and for the various sibling gender constellations. Both parents scored relatively high on both dimensions. Significant main effects were found for both sensitivity, *Pillai's* $F(3, 385) = 26.60$, $p < .01$, $\eta_p^2 = .17$, and nonintrusiveness, *Pillai's* $F(3, 385) = 6.44$, $p < .01$, $\eta_p^2 = .05$. Consistent with our first hypotheses, contrasts revealed that mothers were significantly more sensitive toward their oldest child than fathers toward both children. Mothers were also more sensitive toward their youngest child than fathers were toward their youngest child. Almost the same pattern was found for nonintrusiveness. However, mothers and fathers did not differ in their levels of nonintrusiveness toward the oldest child. In line with our second hypothesis, both mothers and fathers were more sensitive and nonintrusive toward their oldest child than toward their youngest child.

In contrast to our third hypotheses, gender of the children was not related to parental sensitivity. None of the two-way interactions between the within-subjects factor (dyad) and the between-subjects variables (sibling gender constellation, educational level father, educational level mother) were significant (p values ranged from .07 to .34). However, consistent with our third hypotheses, for parental nonintrusiveness a significant interaction was found with sibling gender constellation, *Pillai's* $F(3, 385) = 2.00$, $p = .04$, $\eta_p^2 = .02$. Within-subjects contrasts revealed significant interactions when comparing fathers' nonintrusiveness toward the oldest and youngest child. Follow-up paired t tests revealed higher intrusiveness toward the youngest than toward the oldest child, but only in the case of a youngest boy (ps < .01). No significant interactions were found between the

Table 2.

Means and Standard Deviations on sensitivity and nonintrusiveness for mothers and fathers toward their oldest and youngest children for different sibling gender constellations (N =389)

	Sibling gender constellation							
	Boy-Boy (n = 107)	Girl-Girl (n = 91)	Boy-Girl (n = 98)	Girl-Boy (n = 93)	Total (n = 389)		*Pillai's F*	
Dyad	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	Range	*and contrasts*	η_p^2
Sensitivity							26.60 **	.17
Mother-oldest (MO)	24.64 (2.66)	25.01 (3.05)	25.36 (2.27)	24.71 (3.03)	24.92 (2.76)	15.90-29.00	> MY**; FO*; FY**	
Mother-youngest (MY)	23.52 (3.44)	24.36 (2.66)	24.44 (2.85)	23.62 (3.17)	23.97 (3.08)	14.00-29.00	> FY**	
Father-oldest (FO)	23.83 (2.82)	23.97 (2.76)	24.08 (3.05)	24.46 (3.03)	24.08 (2.91)	15.80-29.00	> FY**	
Father-youngest (FY)	22.03 (3.48)	23.46 (3.31)	22.85 (3.70)	22.05 (3.66)	22.58 (3.58)	11.00-29.00		
Nonintrusiveness							6.44 **	.05
Mother-oldest (MO)	20.36 (3.23)	20.52 (3.56)	20.36 (3.22)	20.24 (3.51)	20.37 (3.36)	11.00-26.00	> MY*; FY**	
Mother-youngest (MY)	19.12 (3.45)	19.56 (3.24)	20.14 (3.30)	19.71 (3.31)	19.62 (3.34)	9.00-26.00	> FY*	
Father-oldest (FO)	19.30 (3.68)[a]	19.49 (3.47)	19.79 (3.43)	20.26 (3.10)[a]	19.70 (3.44)	9.00-26.00	> FY**	
Father-youngest (FY)	18.03 (3.61)[b]	19.79 (3.48)	19.04 (3.31)	18.77 (3.18)[b]	18.87 (3.45)	10.00-26.00		

Note. MO (Mother-Oldest child), MY (Mother-Youngest), FO (Father-Oldest), FY (Father-Youngest). Different superscripts indicate significant differences within columns.

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

within-subjects factor (dyad) and educational level of the father or mother (p values ranged from .18 to .73). When using the between-subjects variable mixed-gender versus same-gender siblings (instead of sibling gender constellation) in the repeated measures analyses, again no significant interactions with the within-subjects factor sensitivity or nonintrusiveness were found. As a result, no support was found for the hypothesis that differences between oldest and youngest children are larger for families with same-gender siblings than for families with mixed-gender siblings (hypothesis four).

To make optimal use of our within-family design, we compared parenting toward the two siblings in boy-girl families (n = 98) and girl-boy families (n = 93) to see whether within-family child gender effects were present above and beyond the birth order and parent gender effects reported above. Findings were consistent with those of the main set of analyses, revealing only one child gender effect, showing that fathers were more intrusive toward the youngest than oldest when the youngest was a boy.

Discussion

In the current study we found that mothers were more sensitive and more nonintrusive toward their children than fathers. Furthermore, mothers and fathers were more sensitive and more nonintrusive toward their oldest child than toward their youngest child. Gender of the children was not related to parental sensitivity, but fathers were more intrusive toward their youngest child than toward their oldest child in the case of a youngest boy.

In line with previous studies (e.g., Barnett et al., 2008; Schoppe-Sullivan et al., 2006; Volling et al., 2002), we found that mothers showed more sensitive and nonintrusive behavior toward both children than fathers. These differences may be explained by the fact that mothers are almost always the primary caregivers of the children and therefore have more experience with their children's behavior (Barnett et al., 2008). As a result, mothers may be more familiar with their children's signals and needs and may therefore react more sensitively to their children than fathers. Although parental working hours were not related to their parenting practices in our study, this may not be an accurate indicator of the time a parent spent with their children because the way in which mothers and fathers spend their off-work time can be very different (Sociaal Cultureel Planbureau and Centraal Bureau voor de Statistiek, 2012). For example, mothers spend more time on child care and household maintenance than fathers (Bittman & Wajcman, 2000). In addition, because mothers work fewer hours than fathers, they tend to spend more time alone (i.e., without father) with the children than fathers do. The differences in sensitivity and nonintrusiveness between mothers and fathers may not only reflect differences

resulting from mothers' greater experience in a play context, but may also reflect differences in parenting ideas (Power, 1985). Fathers may more often choose the direction and content of the play situation, which could lead to more intrusive behavior when interacting with their children. In addition, fathers tend to make more requests for information than mothers when interacting with their children (Leaper et al., 1998; Tenenbaum & Leaper, 2003). This interaction style may interfere with their children's play, and lead to intrusiveness.

Although there are differences between mothers and fathers, it should be noted that both mothers and fathers in our sample score relatively high on sensitivity and nonintrusiveness. Furthermore, the contribution of mothers and fathers to a child's development might be different and complementary depending on the role each parent plays in the socialization of their children. Longitudinal research suggests that fathers might contribute in particular by providing sensitive support during explorative play with their toddlers, whereas providing comfort when the child is in distress seems more of a maternal "responsibility" (Grossmann et al., 2002). This may point to unique contributions of mothers and fathers, although the specific behaviors described for both parents do refer to dimensions of sensitive parenting. Because both maternal and paternal sensitivity and nonintrusiveness have been found to be related to secure attachment relations and positive developmental outcomes in early childhood (e.g., Bakermans-Kranenburg et al., 2003; Ispa et al., 2004; Lucassen et al., 2011; Tamis-LeMonda et al., 2004), it seems that paternal sensitivity is important for fostering positive child development and should be encouraged.

In addition to mean-level differences between mothers and fathers regarding sensitivity and nonintrusiveness, we also found significant correlations within parent dyads, which is in line with previous studies (Braungart-Rieker et al., 1998; Tamis-Lemonda et al., 2004; Volling et al., 2002). This resemblance of the two parents might reflect a more general familial parenting style, which may be the result of assortative mating (Luo & Klohnen, 2005; Watson et al., 2004). In addition, parents may observe each other or discuss the interaction with their infants and may learn from each other and adopt similar styles (Braungart-Rieker et al., 1998).

As expected, both mothers and fathers showed more sensitive and nonintrusive behavior toward the oldest child than toward the youngest child. In addition, the differences between sensitivity and nonintrusiveness toward oldest and youngest children were not different for families with same-gender siblings and mixed-gender siblings. This finding is in line with previous studies that also found that firstborn children tend to receive higher-quality care during early childhood than later borns do (Furman & Lanthier, 2002; Van IJzendoorn et al., 2000). This may be explained by the developmental differences between the children. There is an important developmental gap between 1-year-old and 3-year-old children with respect to social, cognitive and language development (Berk,

2003). For example, 1-year-old children have not yet mastered the ability to express themselves clearly by using language. When they grow older, they become more skilled in verbally communicating their needs and interests to others. This may make it somewhat easier for parents to adjust their behaviors to the specific needs of an older child than those of an infant. In addition, parents have spent more time with their firstborn child in which to learn that child's unique characteristics and needs, which may also contribute to higher levels of sensitive behavior toward the oldest child.

An alternative or complementary explanation for differences in quality of parental interactions with their two children may be that parents have difficulties responding sensitively to two children at the same time (Van IJzendoorn et al., 2000). When the second child is born, family dynamics change. Parents no longer have one child to care for, but have to divide their attention and affection between two children (Furman & Lanthier, 2002). Oldest children, who experienced a period as only children receiving full attention from their parents, may fight back for their parents' attention and care by demanding the same quality of care as before the birth of their younger sibling (Furman & Lanthier, 2002). By definition, youngest children have no other experience than having to share their parents' attention with an older sibling, and might therefore place fewer demands on the quality of parental behavior. In our study, the two children were observed separately, but still a difference in parenting behavior toward the oldest and youngest child was found. Thus, more sensitive interaction patterns with an oldest child are persistent even when the youngest is not present.

Although we found mean-level differences in parenting behavior toward the oldest and youngest child, we also found significant associations between parenting practices toward the two children. Although behaving sensitively is dependent on the unique characteristics of the child, the ability to perceive and recognize a child's signals appears to be a more general ability that is not child-dependent. Parents who are able to adjust their behavior to the specific needs of one child are also better able to do this with their other child, leading to similarities in parental care across siblings. However, the correlations between parenting behavior toward the oldest and youngest child were not very high, indicating that the unique characteristics and needs of the child do affect sensitive parenting.

Contrary to our expectations, we found little evidence for gender-differentiated parenting by mothers and fathers. Although the literature shows that parents treat their sons and daughters differently (Barnett et al., 2008; Lovas, 2005; Schoppe-Sullivan et al., 2006; Tamis-LeMonda et al., 2004), such differences were not found in our study. However, differences in treatment of sons and daughters do not necessarily imply differences in sensitivity. Boys and girls may have different needs, and adjusting parenting behavior to these specific needs is in line with the premise that what is considered sensitive is dependent on the unique characteristics

and needs of the child. It is therefore possible that parents show gender-differentiated treatment, but that these different behaviors toward sons and daughters are equally sensitive. In addition, it could be that the subtle ways in which parents treat their sons and daughters differently are difficult to detect (Raley & Bianchi, 2006). This is also illustrated by the meta-analysis of Lytton and Romney (1991), in which strikingly little evidence for gender-differentiated parenting was found. It must however be noted that this meta-analysis has been criticized for its theoretical and methodological approach (Keenan & Shaw, 1997). The meta-analysis by Leaper and colleagues (1998) showed that the setting also plays a role in detecting gender-differentiated parenting. Gender-differentiated parenting was more likely to occur in a structured setting (e.g., problem-solving task) than in a relatively unstructured setting (e.g., free play) as was used in the current study. In addition, the high educational levels of the parents in our sample may also provide an explanation for the absence of significant child gender differences. Several studies found that mothers with a high educational level hold more egalitarian attitudes about gender roles (Ex & Janssens, 1998; Harris & Firestone, 1998), possibly resulting in less gender-differentiated parenting.

Finally, the gender differences reported in previous studies (e.g., Lovas, 2005; Schoppe-Sullivan et al., 2006) may be limited because they were based on between-family comparisons. In such studies, differences in parenting practices with boys and girls do not necessarily reflect gender differences, but can also be caused by underlying group differences. These limitations may have influenced previous findings regarding gender-differentiated parenting. Our findings extend previous work by adopting a within-family approach, and suggest that whereas parent gender does influence parental sensitivity and nonintrusiveness toward young children, child gender is less salient in early childhood.

In addition, we did find an interaction effect of child gender with birth order for paternal nonintrusiveness. Fathers were more intrusive toward their youngest child than toward their oldest child, but only in the case of a youngest boy. This finding adds to the mixed literature on the effects of child gender on parenting and provides some support for more gendered early parenting of fathers (Barnett et al., 2008; Tamis-LeMonda et al., 2004). Previous research already showed that the father-son dyad may be characterized by less optimal parenting than the other parent–child dyads (Barnett et al., 2008; Lovas, 2005; Tamis-LeMonda et al., 2004). Parents, in particular fathers, generally have higher expectations of sons than of daughters with respect to cognitive, social and physical competence (Blakemore, Berenbaum, & Liben, 2009). High expectations may lead to more parental demanding behavior during father-son interactions, interfering with the activities and interests of the child. There may be a larger gap between the (too high) expectations of fathers with their 1-year-old sons and their actual characteristics and abilities than is the case with older sons. Perhaps fathers find it difficult to adjust

their expectations and interactive behavior in a way that would fit the developmental level of very young children. However, the effect size of this result was small and should therefore be interpreted with caution.

This study has some limitations. The sample consisted of mostly Caucasian families with predominantly high educational levels. This reduces the generalizability of the results to the general population. Because parent–child interactions may vary by ethnicity or social class, it is important to examine gender differences in parenting in more diverse samples. In addition, child characteristics other than child gender and birth order, such as temperament or problem behavior, may influence parenting. Further research should include such child characteristics to examine whether they are differentially related to mothers' and fathers' parenting. Moreover, there are aspects of the parent–child relationship that were not captured by our measure of sensitivity and nonintrusiveness in a free play setting, such as teaching and discipline behaviors. It is important to note that the differences found in this study do not necessarily reflect differences with respect to other aspects of parent–child relationships.

Further, this study relied on observations of parent–child interactions during a free-play session with preselected toys. Although this design allowed us to compare our results with other studies, this setting may have limited the types of interactions parents generally use with their children, especially because they were instructed to play with their child with the toys. The literature shows that there are notable differences between mothers and fathers in the type of interactions with children (Blakemore et al., 2009; Lamb & Lewis, 2010; Paquette, 2004; Volling et al., 2002). For example, fathers use more physical play when interacting with their children. This type of play is probably less likely to occur in a situation in which toys are provided that are best used while sitting down (e.g., a drawing board, a tea set, Lego). Although studies have examined gender differences in parenting in different settings (e.g., competing demand task, teaching task), to our knowledge there are no studies that examined parenting differences between mothers and fathers in a situation that is likely to elicit fathers' preferred style of play. Observing parenting behavior during a physical play situation would therefore be an important direction for further research. It is also recommended to investigate the association between time spent with children and parenting qualities. Given that sensitive parenting relies heavily on the correct interpretation of child signals, more time spent with that child is likely to lead to a more accurate understanding of his or her needs, resulting in higher levels of sensitivity.

In conclusion, parent gender rather than child gender plays an important role in the quality of parent–child interactions in early childhood. Although some studies found that the mother-son, mother-daughter, father-son, and father-daughter interaction patterns are different (Russell & Saebel, 1997), our results question whether gender of the child is a strong factor affecting relationships in

early childhood. Birth order, on the other hand, appears to be more important in identifying distinct interaction patterns. To fully understand developmental patterns in early childhood, future research should include both mothers and fathers and examine their interaction patterns with their young children in various situations. Birth order may be a significant modulator of parental sensitivity, with important practical implications. Because later-born children receive lower-quality care than firstborn children, it may be particularly beneficial for prevention programs to focus on families in which a second child is born. In sum, our findings highlight the importance of parent gender and birth order for the quality of parent–child interactions in early childhood, but failed to find support for the claim that boys and girls are parented differently.

chapter 3

Mothers' and fathers' sensitivity towards two children: A longitudinal study from infancy to early childhood

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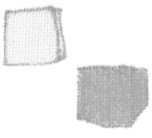

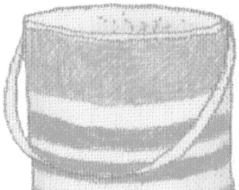

Abstract

For this study on child birth order and parenting, 347 families with two children were visited when the second-born children were 12, 24, and 36 months old, and their older siblings were on average two years older. Mothers showed higher levels of sensitivity than fathers at all assessments. Parental sensitivity increased from infancy to toddlerhood, and decreased into early childhood. Parents' nonintrusiveness increased from infancy to early childhood. Further, parents were more sensitive and less nonintrusive toward their firstborn child than toward their second-born child at the same age. Birth order effects on parenting could not be explained by temperament differences between first- and second-born children, but increases in paternal depression and marital dissatisfaction do appear to play a role.

Keywords: parenting, sensitivity, fathers, mothers, birth order, child age

INTRODUCTION

Most studies on parenting behavior focus on one child in the family, without taking the parents' experiences with other children into account. However, when a second child is born, family dynamics change as parents are no longer responsible for one child but have to divide their attention and affection between two children (Furman & Lanthier, 2002). Further, parents' experiences with their firstborn child have important consequences for the way they approach childrearing with later-born children (Whiteman & Buchanan, 2002). There is evidence that parents interact differently with their firstborn and later-born children within the family (e.g., Hallers-Haalboom et al., 2014; Van IJzendoorn et al., 2000; Volling, Blandon, & Gorvine, 2006), but it remains unclear whether differences in parental treatment of firstborn and second-born children are caused by differences in birth order (implicating differences in parental attention and experience) or developmental status (reflected by child age) of the child. Moreover, although both mothers and fathers are important contributors to their children's development (Lamb & Lewis, 2010), fathers are still underrepresented in studies on parenting. The aim of this study is to examine whether potential differences in mothers' and fathers' parental sensitivity and nonintrusiveness toward siblings within the family are due to birth order effects or child age effects.

Parental sensitivity is an important dimension of early childhood parenting (Mesman & Emmen, 2013). Sensitivity concerns the parent's ability to notice child signals, to interpret these signals correctly, and to respond to these signals in a prompt and adequate manner (Ainsworth, Bell, & Stayton, 1974). Central to this definition is the parent's appropriate adjustment of responses to the specific needs and interests of the child that may change over time. There is a large body of evidence emphasizing the importance of parental sensitivity for positive early child development. Parental sensitivity is related to positive child outcomes across various developmental domains, such as language and cognitive development (e.g., Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004), secure attachment (e.g., Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003; Lucassen et al., 2011), and social-emotional functioning (e.g., Leerkes, Blankson, & O'Brien, 2009; Webster, Low, Siller, & Hacket, 2013). Another important aspect of parenting closely related to sensitivity is nonintrusiveness, which refers to the parent's ability to refrain from behavior that is over-directing, over-stimulating, or interfering with the child's activities (e.g., Bornstein et al., 2010; Lovas, 2005). Parental intrusiveness has been associated with non-optimal child outcomes in early and middle childhood, such as more externalizing behaviors and lower academic achievement (e.g., Cabrera, Shannon, & Tamis-LeMonda, 2007; Egeland, Pianta, & O'Brien, 1993; Ispa et al., 2004).

Unfortunately, most studies on parental sensitivity and nonintrusiveness focus on interactions of one parent (mostly the mother) with one child, implicitly assuming that family processes operate in similar ways for other parent-child dyads within the family (Shanahan, McHale, Crouter, & Osgood, 2007; Shanahan, McHale, Osgood, & Crouter, 2007). However, parents have been found to treat firstborn and later-born children within the family differently (e.g., Hallers-Haalboom et al., 2014; Van IJzendoorn et al., 2000; Volling et al., 2006). Several theories address differences in parental treatment of firstborn and later-born children, with most of them pointing toward higher quality parenting toward firstborn children than toward later-born children.

According to the resource dilution hypothesis parents experience a period in which all their resources (i.e. time and attention) are available for their firstborn child. The birth of a new child results in a decrease of these parental resources for all children in the family (Blake, 1981), but the firstborn child is the only one who experienced full parental attention and availability for a period up until the birth of a younger sibling. Thus, in general parents have spent more time with their firstborn children and are more involved with them than with their later-born children and have had more opportunities to come to know the firstborn child's unique characteristics and needs. This might result in higher levels of sensitive and nonintrusive parenting toward firstborn children than toward later-born children. In addition, from an evolutionary viewpoint parents invest the most in offspring with the greatest chance of survival, thereby increasing the probability of reproductive success (different parental investment hypothesis, Trivers, 1972, 1974). Since firstborn children by definition have survived for a longer period of time than later-born children, they have greater reproductive value for their parents. Results show that firstborn children indeed are preferred over later-born children by their parents in terms of parental presence and face-to-face behavior (Keller & Zach, 2002).

However, neither the resource dilution hypothesis nor the different parental investment hypothesis take into account that experiences with the firstborn child can affect the parents' relationship with later-born children (Shanahan, McHale, Crouter, et al., 2007). The learning-from-experience hypothesis proposes that parents use their experiences with their firstborn child when faced with similar situations with their later-born child (Whiteman, McHale, & Crouter, 2003). As a result, parents are more experienced and may feel more competent in the interaction with later-born children, which in turn might lead to an improvement of parent-child interactions with later-born children. Indeed, parents report less conflict with their second-born than their firstborn children and have greater knowledge of their second-born children's daily activities than of their first-born children's activities during early adolescence (Whiteman et al., 2003). Further, second-born children tend to experience fewer conflicts with their parents during the transition into

adolescence than firstborns, whereas firstborn children report an elevation of parent-offspring conflict frequency during this transition (Shanahan, McHale, Osgood, et al., 2007).

Although most theories suggest that parents interact with their children differently based on birth order (Blake, 1981; Trivers, 1972, 1974; Whiteman et al., 2003), there are also studies that point out that parental differential treatment might be due to characteristics other than birth order itself, such as family stress factors and child temperament. Child temperament is related to a wide range of positive and negative parenting behaviors (Putnam, Sanson, & Rothbart, 2002). There is evidence that firstborn and later-born adolescents and have different personality characteristics (e.g., Beck, Burnet, & Vosper, 2006; Healey & Ellis, 2006; Paulhus, Trapnell, & Chen, 1999). Unfortunately, no previous studies examined temperamental differences between first-born and second-born children during early childhood, so it remains unclear whether differences in parental treatment might be due to differences in child temperament. Moreover, family stress factors (such as marital dissatisfaction and depression) may also interfere with parents' capacity to be attuned to and responsive toward their children (Erel & Burman, 1995; Grych, 2002; Krishnakumar & Buehler, 2000; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Wilson & Durbin, 2010). Since family stress increases with an increasing number of children in the family (e.g., Östberg & Hagekull, 2000; Twenge, Campbell, & Foster, 2003), an increase in marital dissatisfaction and parental depression might result in less optimal parenting behavior toward later-born children.

Surprisingly, only few studies examined differences in parental treatment of firstborn and later-born children during infancy and early childhood. To date, there is evidence that parents use more gentle guidance with their 46-month-old firstborn child than with their later-born toddler (Volling et al., 2006). In addition, a recent study showed that mothers and fathers were more sensitive and nonintrusive toward their firstborn three-year-old children than toward their second-born one-year-old children (Hallers-Haalboom et al., 2014). However, in both studies birth order and child age are confounded because differences in parental treatment were examined at the same time point, when the two siblings differed in age. As a result, it remains unclear whether differences in parental treatment of firstborn and later-born children are due to birth-order effects or child age. Only longitudinal designs allow for comparisons of siblings from the same family at the same age. To our knowledge, no more than two observational studies compared parental treatment of firstborn and second-born children within the family when they had the same age. Dunn, Plomin, and Nettles (1985) observed that mothers behaved very similarly toward their two siblings when each child was 12 months old. This suggests that maternal behavior might primarily reflects characteristics of the mother and is not affected by those of the infants (Dunn et al., 1985). In contrast to

these findings, Van IJzendoorn and colleagues (2000) showed that mothers were less sensitive in their interactions with their later-born child than with their firstborn child when they were both observed at 12-14 months.

So far, the scarce observational studies examining differences in parental behavior toward firstborn and second-born children when they had the same age all focused on mothers' parenting behavior. As a result, it remains unclear to what extent fathers differentiate between firstborn and later-born children within the family. Fathers are often neglected in research on their children's development, whereas there is ample evidence that paternal sensitivity and nonintrusiveness do contribute to positive child development (e.g., Cabrera et al., 2007; Lucassen et al., 2011; Tamis-LeMonda et al., 2004; Webster et al., 2013). However, this does not necessarily mean that mothers and fathers show similar levels of parental sensitivity and nonintrusiveness. Indeed, mothers are generally found to be more sensitive and less intrusive toward their children than fathers (e.g., Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Hallers-Haalboom et al., 2014; Lovas, 2005; Schoppe-Sullivan et al., 2006). One cross-sectional study with children between 7 and 46 months old found an interaction between parent gender and child age. Fathers with older children were more sensitive and nonintrusive in their interaction than fathers with younger children, whereas mothers provided similar levels of sensitivity and nonintrusiveness regardless of child age (Bergmann, Wendt, von Klitzing, & Klein, 2013). The difference in fathers' sensitivity and nonintrusiveness toward younger and older children might be associated with the finding that the time fathers spend on caregiving activities increases when the child becomes older (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). However, Bergmann and colleagues (2013) observed parenting behavior toward children of different ages cross-sectionally instead of using a longitudinal design. As a result, firm conclusions about the role of child age can not be drawn.

When disentangling the effects of birth order and child age on parenting behavior, it is essential to examine the developmental course of parenting behavior toward siblings over time to understand the potential effects of child age. In the transition from infancy to early childhood, parents are challenged to adapt their responses according to the rapid developmental changes of their children, such as the acquisition of upright locomotion and language (Iverson, 2010; Malina, 2004). During the first years of life, infants start to speak their first words and are increasingly able to communicate with their environment. As a result, young children gain more skills to communicate their needs and wishes. This increased use of language might help parents to adjust their responses in a way that fits their children's needs. Several studies provide evidence that levels of maternal sensitivity indeed increase from infancy to early childhood (Braungart-Rieker, Hill-Soderlund, & Karras, 2010; Kemppinen, Kumpulainen, Raita-Hasu, Moilanen, & Ebeling, 2006),

suggesting that mothers might find it more easy to adequately respond to older children than to younger children.

Current study

The current study longitudinally examines the effect of child age and birth order on mothers' and fathers' sensitivity and nonintrusiveness. We tested the following hypotheses: (1) levels of parental sensitivity and nonintrusiveness toward their children increase as the child becomes older (e.g., Braungart-Rieker et al., 2010; Kemppinen et al., 2006); (2) mothers show higher levels of sensitive and nonintrusive parenting behavior toward their children than fathers (e.g., Barnett et al., 2008; Hallers-Haalboom et al., 2014); (3) differences in parental sensitivity and nonintrusiveness between mothers and fathers become smaller as the children become older (Bergmann et al., 2013); and (4) levels of parental sensitivity and nonintrusiveness toward firstborn and second-born children differ when observed at the same child age (Blake, 1981; Trivers, 1972; Whiteman et al., 2003). Since several competing hypotheses with respect to birth order differences exist, we examined whether firstborn or second-born children receive more optimal parenting. Last, if differences in parental sensitivity and nonintrusiveness toward firstborn and second-born children are present, we (5) test whether these differences can be explained by differences in child temperament or changes in parental relationship dissatisfaction and depression. The current study extends previous work by disentangling the effect of birth order, parental well-being, child temperament, and child age on parenting behavior during infancy and early childhood.

METHOD

Sample

This study is part of the longitudinal study '*Boys will be Boys?*' examining the influence of mothers' and fathers' gender-differentiated socialization on the socio-emotional development in boys and girls in the first years of life. The current paper reports on data from the first three waves of the study.

Families with two children were selected from municipality records in the Western region of the Netherlands. Families were included if the second-born child was around 12 months of age and the firstborn child was approximately two years older. Exclusion criteria were single-parenthood, severe physical or intellectual handicaps of parent or child, and being born outside the Netherlands and/or not speaking the Dutch language. Between April 2010 and May 2011, eligible families were invited by mail to participate in a study on the unique role of mothers and fathers on socio-emotional development with two home visits each year over a period of three years. All families received a letter, a brochure with the details of

the study, and an answering card to respond to the invitation. Of the 1,249 eligible families 31% were willing to participate (n = 390). The participating families did not differ from the non-participating families in age of mothers (p = .83) or fathers (p = .13), educational level of mothers (p = .27) or fathers (p = .10), or the degree of urbanization of residence (p = .77). At the end of the third wave, eighteen families did not participate because of problems in the family (n = 3), moving abroad (n = 5), considering the home visits too demanding (n = 7), or because they could not be reached by phone or mail (n = 3).

For the current study, families were excluded if (1) observations of parental sensitivity or nonintrusiveness for one or more waves were missing (n = 9) or (2) if the age difference between the firstborn child at the first wave and the second-born child at the third wave was more than 6 months (n = 16), resulting in a final sample of 347 families. The current sample consisted of families with the following sibling gender constellations: 95 boy-boy (27%), 83 girl-girl (24%), 85 boy-girl (25%), and 84 girl-boy (24%). At the time of the first home visit at wave 1 the age of the firstborn children ranged from 2.5 to 3.6 years (M = 3.0, SD = 0.3) and the second-born children were 12 months old (SD = 0.2). The families were visited again when the second-born children were 24 (SD = 0.3) and 36 months (SD = 0.5) old. At wave 1, mothers were aged between 25.1 and 45.6 years (M = 34.0, SD = 3.9) and fathers were between 25.8 and 53.3 years of age (M = 36.7, SD = 4.9). With regard to educational level, most mothers finished academic or higher vocational schooling (79%), and the same was true for fathers (77%). Mothers worked on average 25.9 hours per week (SD = 8.6, range 0-60) and fathers worked 37.1 hours per week (SD = 7.0, range 0-70), which is comparable to the average working hours of mothers and fathers in the general Dutch population (SCP, 2012). At wave 1, most parents were married (80%), 13% of the couples had a cohabitation agreement or registered partnership, and 7% lived together without any kind of registered agreement. During the study, parents of 8 families got divorced, and in 15% of the families a third child was born (n = 53). Analyses with and without these families yielded similar results, so these families were retained in the current data set.

Procedure

At every wave each family was visited twice; once with the mother and the children and once with the father and the children, separated by a period of about two weeks. The order in which mothers and fathers were visited and interacted with the firstborn and second-born child was counterbalanced between families and waves. Before the first home visit, both parents were asked to individually complete a set of questionnaires. During the home visits, parent-child interactions and sibling interactions were filmed. At the first two waves the firstborn child and both parents completed computer tests, from the third wave the second-born child also completed computer tasks. In case of a third child in the family, this child was not

present during the observations. All home visits were conducted by pairs of trained (under)graduate students. Families received a payment of 30 Euros and small presents for the children. Informed consent was obtained from all participating families. Ethical approval for this study was provided by the Commission Research Ethics Code of the Leiden Institute of Education and Child Studies.

Measures

Parental sensitivity and nonintrusiveness. The fourth edition of the Emotional Availability Scales (EAS; Biringen, 2008) was used to measure parental sensitivity and nonintrusiveness toward their children during free play. Each dyad received a bag with toys and was invited to play for eight minutes. Sensitivity refers to the parent's ability to be warm and appropriately responsive to the child. Important aspects are the expression and appropriateness of positive affect, and clarity in perception of child signals and the ability and willingness to response appropriately to such signals. Nonintrusiveness refers to the parent's ability to give the child space to explore and to refrain from intrusions on the child's activities. Important aspects are whether the parent follows the child's lead and finds non-interruptive ports of entry into the interactions. Each dimension is divided into seven subscales; the first two subscales are coded on 7-point Likert scales and the other subscales are coded using 3-point Likert scales (potential score range 7-29). For every subscale a global rating was given for the entire free play session. Subscale 7 of the Nonintrusiveness dimension (The adult is made to 'feel' or 'seem' intrusive) was excluded because it refers to child behavior rather than parental behavior (leading to a potential score range of 7-26).

The second author, who is an experienced coder of parent-child interactions, completed the online training provided by Zeneyp Biringen and then trained a team of coders. During the team training, some subscales led to persistent interpretation problems and some alterations were made to improve intercoder agreement (for more information see Hallers-Haalboom et al., 2014). Three groups of total thirteen coders rated the videotapes on the EAS dimensions. All groups completed a reliability set (n = 60), with at least 42% overlap between the two sets. Intercoder reliability was adequate, with intraclass correlation coefficients (single measure, absolute agreement) for sensitivity ranging from .71 to .92 and for nonintrusiveness from .72 to .92. For every wave, all dyads within the same family were coded by different coders to guarantee independency among ratings. No coder rated a parent twice. During the coding process, the first 100 videotapes of every coder were coded independently by separate coders and regular meetings were organized to prevent coder drift.

Child temperament. The Child Behavior Questionnaire (CBQ; Rothbart, Ahadi, Hershey, & Fisher, 2001) was used to measure temperament of the firstborn and second-born children when they were both three years old. For the current

study the subscales Activity Level (13 items), Inhibitory Control (13 items), Fear (11 items), and Soothability (13 items) were used. Both mothers and fathers indicated whether they had observed their child in any of the described situations over the last six months on a 7-point Likert scale (1 = *never*, 7 = *always*). The internal consistencies (Cronbach's alpha) of the temperament scale were .87 (mothers) and .80 (fathers) for the firstborn children and .85 (mothers) and .89 (fathers) for the second-born children. The scores of mothers and fathers were significantly correlated (firstborn child: $r(334) = .51$, $p < .01$; second-born child: $r(278) = .29$, $p < .01$) and did not differ significantly (firstborn child: $p = .61$; second-born child: $p = .08$). To obtain a composite measure for child temperament, the scores of mothers and fathers were averaged.

Relationship dissatisfaction. The Maudsley Marital Questionnaire (MMQ; Arrindell, Boelens, & Lambert, 1983) was used to measure the level of relationship dissatisfaction at wave 1 and wave 3. For the current study, the subscale Marital Maladjustment (10 items) was used and was rated by both mothers and fathers on a 9-point scale (0 = *completely satisfied*, 8 = *completely dissatisfied*). The internal consistencies (Cronbach's alpha) of the relationship dissatisfaction scale were .88 (mothers) and .83 (fathers) at wave 1 and .90 (mothers) and .88 (fathers) at wave 3.

Parental depressive symptoms. The subscale Anxious/Depressed of the Adult Self Report (ASR: Achenbach & Rescorla, 2003) was used to measure parental depressive symptoms at wave 1 and wave 3. Bot mothers and fathers indicated whether they had experienced any of the depressive symptoms during the past six months on a 3-point Likert scale (0 = *not true,* 1 = *somewhat or sometimes true,* 2 = *very true or often true*). The internal consistencies (Cronbach's alpha) of the depression scale were .88 (mothers) and .84 (fathers) at wave 1 and .89 (mothers) and .85 (fathers) at wave 3.

Data analysis

Missing values on the temperament scale (firstborn child: $n = 10$, second-born child: $n = 23$), relationship dissatisfaction scale (wave 1: mother $n = 9$, father $n = 9$; wave 3: mother $n = 50$, father $n = 69$), and depression scale (wave 1: mother $n = 11$, father $n = 12$; wave 3: mother $n = 55$, father $n = 72$) were predicted from available scores on wave 2 using linear regression. All variables were inspected for outliers, defined as values more than 3.29 *SD* above or below the mean (Tabachnick & Fidell, 2012). Outliers were found for the EA dimensions in all three waves ($n = 25$) and child temperament ($n = 3$). The outlying scores were winsorized by giving them a marginally higher value than the most extreme not outlying value (Tabachnick & Fidell, 2012). Analyses performed with the non-winsorized and winsorized data did not show different results. Therefore the results of the non-winsorized data are presented. The variables relationship dissatisfaction and parental depressive symptoms were positively skewed and a log transformation was used to normalize

the distribution (Tabachnick & Figell, 2012). All other variables were normally distributed.

To examine the effect of child age on parental sensitivity and nonintrusiveness, growth curve analysis was used with EQS 6.2 for Windows (Bentler, 2001). To account for nonlinear change patterns, quadratic slopes were fitted on top of linear slopes. Since the data did not show significant multivariate kurtosis, regular ML estimation was used. In addition, when there was no variance for the slopes these were set to zero. The χ^2 likelihood ratio statistic, comparative fit index (CFI), and root mean square error of approximation (RMSEA) were taken as indicators for the evaluation of the overall goodness of fit of the model. The χ^2-value provides a test of the overall fit of the model to the data, but is sensitive to sample size (Bentler & Bonett, 1980). Therefore, the fit was judged to be acceptable with a CFI value greater than .95 and an RMSEA of less than .08 (Byrne, 2006). In case of significant heterogeneity in individual growth trajectories (i.e., intercept and/or slope), gender of the parent was added to the model as a time-invariant predictor of change.

In our study, parents are nested within families. This causes dependency among observations, also referred to as the 'design effect', which can create data-analytic problems (e.g., inflated probability of Type I error). As our design is relatively simple, with predictors and outcomes all measured at the level of individual children and parents, the 'design effect' can be dealt with by computing a correction factor for the standard errors estimated in the growth curve models (Hox, 2010; Kish, 1987). The square root of design effect (DEFT) is estimated as $\text{DEFT} = \sqrt{1 + (n_{clus} - 1)\,\rho}$, where n_{clus} is the cluster size (in our case 2) and ρ is the intraclass correlation coefficient of the nested data (e.g., Downer et al., 2011; Hox, 2010). We calculated the DEFT for the standard error of each variable in the growth curve analysis: sensitivity toward firstborn child: $\text{DEFT} = \sqrt{1 + (2 - 1)\,.07} = 1.03$, sensitivity toward second-born: $\text{DEFT} = \sqrt{1 + (2 - 1)\,.09} = 1.04$, nonintrusiveness toward firstborn child: $\text{DEFT} = \sqrt{1 + (2 - 1)\,.08} = 1.04$, and nonintrusiveness toward second-born child: $\text{DEFT} = \sqrt{1 + (2 - 1)\,.13} = 1.06$. We applied these correction factors by multiplying the standard errors of the parameters in the models with the corresponding DEFT values.

Analyses of parents' sensitivity and nonintrusiveness toward their firstborn and second-born children when both children were three years old (firstborn child during the first wave and second-born child during the third wave) were conducted using GLM Repeated Measures analyses. Main effects and the interaction between the within-subjects factor parent gender (mother, father) and child birth order (firstborn, second-born) were examined. In addition, two-way interactions between the two within-subjects factors and the between-subjects variable (sibling gender constellation) were examined. Because the age difference between firstborn children

(measured at the first wave) and second-born children (measured at the third wave) ranged from -6 to 6 months, this variable was included as a covariate in the analyses. To examine whether the differences in parental sensitivity and nonintrusiveness toward firstborn and second-born children could be due to differences between the siblings in child temperament, relationship dissatisfaction, or parental depressive symptoms, paired *t*-tests were conducted.

RESULTS

Preliminary analysis

Descriptive statistics and correlations between mothers' and fathers' sensitivity and nonintrusiveness are presented in Table 1. Parental sensitivity was positively correlated across waves; mothers and fathers who were more sensitive toward their child at one wave were also more sensitive at the following waves. Furthermore, mothers and fathers who were more sensitive toward their firstborn child were also more sensitive toward their second-born child. Maternal and paternal sensitivity were positively associated at all three waves, except toward the firstborn child at wave 2. The same pattern was found for nonintrusiveness.

Growth curve models

Fit indices and parameter estimates for the final growth curve models (including parent gender as predictor for variance in the intercept) are presented in Table 2.

Parental sensitivity. In the model predicting parental sensitivity toward the firstborn child, the quadratic slope did not contribute significantly to the model (unstandardized β = -0.18, cluster corrected p = .13) and was thus removed to obtain a more parsimonious model. Variance for the linear slope was set to zero and parent gender was not included as predictor for the slope in the final model. The final model including linear slope and parent gender as predictor for variance in intercept showed good fit to the data (χ^2 (df = 6) = 7.54, p = .27, CFI = .99, RMSEA = .02). The linear slope was negative and significant, indicating that parental sensitivity toward the firstborn child decreased over time (Figure 1). The variance in intercept was significantly explained by parent gender, with mothers showing higher starting levels than fathers (+ 0.87). The absence of significant variance in slope indicate that mothers and fathers showed similar growth patterns.

Results for the growth curve model predicting parental sensitivity toward the second-born child indicated no significant variance for the linear as well as the quadratic slope. Therefore, slope variances were set to zero and parent gender was not included in the final model as predictor for the slopes. The final model, with parent gender predicting only the variance in intercept, showed acceptable fit to the data (χ^2 (df = 5) = 12.49, p = .03, CFI = .97, RMSEA = .06). For this model, the linear and quadratic slopes were both significant, indicating quadratic growth. The

Table 1.

Descriptives and correlations for sensitivity and nonintrusiveness of mothers and fathers toward their firstborn and second-born child over three waves (N = 363)

	1	2	3	4	5	6	7	8	9	10	11	12	*M*	*SD*
1. W1 mother-firstborn	**.57****	.32**	.15**	.12*	.20**	.25**	.10	.19**	.19**	.27**	.08	.11*	20.36	3.43
2. W1 mother-second-born	.25**	**.36****	.13*	.21**	.17**	.28**	.12*	.19**	.25**	.25**	.05	.17**	19.66	3.31
3. W1 father-firstborn	.22**	.03	**.50****	.38**	.10	.07	.32**	.32**	.06	.15**	.36**	.31**	19.72	3.42
4. W1 father-second-born	.16**	.22**	.40**	**.32****	.14*	.07	.24**	.28**	.18**	.25**	.26**	.23**	18.91	3.44
5. W2 mother-firstborn	.25**	.18**	.11	.14*	**.40****	.26**	.08	.17**	.33**	.32**	.08	.03	21.12	3.11
6. W2 mother-second-born	.19**	.27**	.08	.21**	.25**	**.54****	.04	.13*	.23**	.23**	.00	.00	20.99	3.19
7. W2 father-firstborn	.15**	.16**	.32**	.31**	-.03	.03	**.43****	.35**	.05	.09	.32**	.33**	20.45	3.36
8. W2 father-second-born	.17**	.11	.38**	.39**	.02	.15**	.24**	**.43****	.11*	.12*	.28**	.37**	20.05	3.47
9. W3 mother-firstborn	.20**	.20**	.04	.10	.19**	.26**	.00	.09	**.36****	.38**	.16**	.08	21.34	3.03
10. W3 mother-second-born	.28**	.21**	.19**	.15**	.24**	.26**	.06	.13*	.31**	**.51****	.11*	.16**	20.98	3.16
11. W3 father-firstborn	.15**	.13*	.38**	.36**	.09	.16**	.24**	.32**	.19**	.13*	**.45****	.31**	20.74	3.32
12. W3 father-second-born	.10	.01	.31**	.27**	.02	.03	.19**	.35**	.08	.13*	.29**	**.49****	20.23	3.14
M	25.01	24.02	24.04	22.60	24.59	25.04	23.82	23.82	23.97	24.64	23.10	23.82		
SD	2.63	2.99	3.05	3.60	2.75	2.75	2.96	2.98	2.67	2.63	2.88	2.80		

Note. W1 = wave 1, W2 = wave 2, W3 = wave 3. Correlations below the diagonal refer to associations among parental sensitivity, correlations above the diagonal refer to associations among parental nonintrusiveness, and correlations on the diagonal refer to associations between parental sensitivity and nonintrusiveness.
* $p < .05$ ** $p < .01$

Table 2.

Fit indices and parameter estimates for the final growth curve models with gender predicting variance in intercept

	Fit indices					Parameter estimates			
Dependent variable	χ^2	df	*p*	CFI	RMSEA	Intercept	Parent gender [ab]	Linear slope [a]	Quadratic slope [a]
Sensitivity toward firstborn	7.54	6	.27	.99	.02	25.02**	-0.87**	-0.50**	-
Sensitivity toward second-born	12.49	5	.03	.97	.06	23.86**	-1.11**	1.78**	-0.66**
Nonintrusiveness toward firstborn	3.79	5	.58	1.00	.00	20.45**	-0.64**	0.49**	-
Nonintrusiveness toward second-born	2.57	5	.77	1.00	.00	19.68**	-0.80**	1.82**	-0.58**

[a] Unstandardized *β*.

[b] Parent gender is included in the model as predictor for variance in intercept.

* cluster corrected $p < .05$ ** cluster corrected $p < .01$

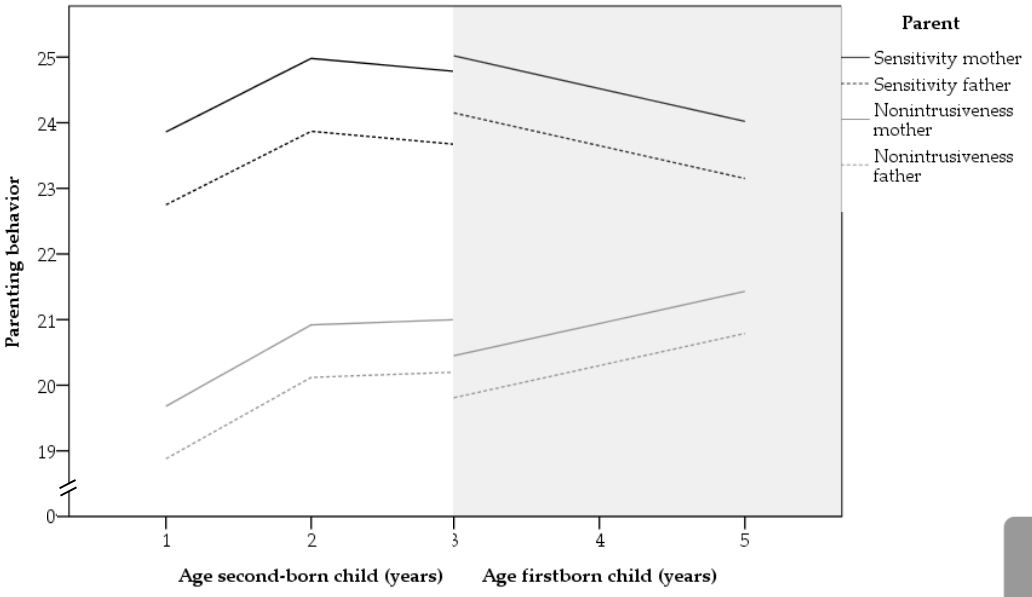

Figure 1. *Growth patterns for sensitivity and nonintrusiveness of mothers and fathers toward their firstborn and second-born children over time (estimated values).*

growth pattern showed that parental sensitivity toward the second-born increased from the first to the second wave but remained relatively stable from the second to the third wave (Figure 1). The variance in intercept was significantly explained by parent gender, with mothers on average showing higher starting levels than fathers (+ 1.11). Mothers and fathers showed similar growth patterns, reflected by the absence of slope variance.

Multiple group analyses for boys and girls separately did not provide evidence to reject the null hypothesis of invariance. In the model of parental sensitivity toward the firstborn child where all parameters were restricted to be equal between boys and girls, the LM test did not give reason to release parameters (*ps* > .11). Further, in the fully constrained model of parental sensitivity toward the second-born child the LM test revealed two parameters (intercept and linear slope) that did not operate equivalently across the two groups for parental sensitivity toward the second-born child (*ps* < .03), but the model in which the intercept and linear slope were freely estimated did not show substantial improvement in model fit compared to the fully constrained model (ΔCFI < .01), indicating that the growth curve models for parental sensitivity were not different for boys and girls.

Parental nonintrusiveness. In the model predicting parental nonintrusiveness toward the firstborn child, the quadratic slope did not contribute significantly to the model (unstandardized β = -0.24, cluster corrected p = .07) and

was removed to make the model more parsimonious. In addition, the model including parent gender as predictor for variance in intercept and linear slope indicated that parent gender was no significant predictor of variance in slope (unstandardized β = 0.02, cluster corrected p = .89). Therefore, parent gender as predictor of variance in linear slope was removed from the model. The final model including linear slope and parent gender as predictor for variance in intercept showed good fit to the data (χ^2 (df = 5) = 3.79, p = .58, CFI = 1.00, RMSEA = .00). The linear slope was significant and showed an increase in parental nonintrusiveness over time (Figure 1). Parent gender significantly explained variance in intercept, indicating that mothers on average show higher starting levels than fathers (+ 0.64). The absence of significant variance in slope for mothers and fathers indicate similar growth patterns.

With respect to the growth curve model for parental nonintrusiveness toward the second-born children, results indicated that there was no variance for the linear and quadratic slope and were set to zero. The final model, with parent gender only as predictor for variance in intercept, showed good fit to the data (χ^2 (df = 5) = 2.57, p = .77, CFI = 1.00, RMSEA = .00). The linear and quadratic slopes were significant, indicating quadratic growth. The growth patterns showed that parental nonintrusiveness toward the second-born child increased from the first to the second wave but remained relatively stable from the second to the third wave (Figure 1). The variance in intercept was significantly explained by parent gender, with mothers showing higher starting levels than fathers (+ 0.80). Mothers and fathers showed similar growth patterns, reflected by the absence of significant slope variance.

In the model of nonintrusiveness toward the firstborn child where all parameters were restricted to be equal between boys and girls, the LM test did not give reason to release parameters (ps > .08). However, in the fully constrained model of parental nonintrusiveness toward the second-born child the LM test revealed one parameter (intercept) that did not operate equivalently across the two groups for parental nonintrusiveness toward the second-born child (p < .01). The model in which the intercept was freely estimated differed not significantly from the fully constrained model (ΔCFI < .01) and indicated that parents did not show different levels of parental nonintrusiveness toward boys and girls.

Parental sensitivity and nonintrusiveness towards siblings at the same age

To examine differences in parental treatment of firstborn and second-born children, parental sensitivity and nonintrusiveness with their two children was compared when both children were three years old (firstborn child during the first wave and second-born during the third wave). With respect to differences between mothers and fathers, significant main effects were found for sensitivity, *Pillai's F* (1, 342) = 36.17, p < .01, η_p^2 = .10, and nonintrusiveness, *Pillai's F* (1, 342) = 14.47, p < .01, η_p^2 =

.04. Mothers were more sensitive and nonintrusive toward their children than fathers. In addition, significant main effects were found for birth order on sensitivity, *Pillai's F* (1, 342) = 5.39, p = .02, η_p^2 = .02, and nonintrusiveness, *Pillai's F* (1, 342) = 12.53, p < .01, η_p^2 = .04. When both children were three years old, parents showed higher levels of sensitive behavior toward their firstborn child than toward their second-born child but they showed higher levels of nonintrusiveness toward their second-born child than toward their firstborn child (Figure 2). No significant interaction between parent gender and child birth order was found (*ps* > .53). Furthermore, none of the two-way interactions between the within-subjects factors (parent gender or child birth order) and the between-subjects variable (sibling gender constellation) were significant (*ps* > .17).

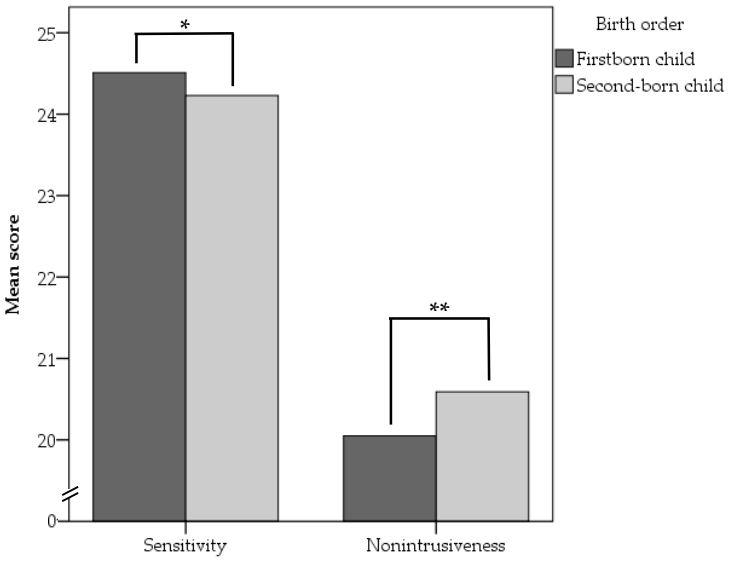

Figure 2. *Main effect of birth order on parental sensitivity and nonintrusiveness, controlling for child age.*

There were no temperamental differences between firstborn and second-born children when they were both three years old, t (336) = 0.60, p = .55, so differences in temperament could not account for differences in parental treatment. Both mothers and fathers reported a decrease in relationship satisfaction from wave 1 to wave 3 (mothers: t (331) = -6.29, p < .01; fathers: t (317) = -2.41, p = .02), but this decrease in relationship satisfaction was not related to differences in parental sensitivity or nonintrusiveness toward firstborn or second-born children (*ps* > .10). Mothers and fathers also reported more depressive symptoms at wave 3 compared to wave 1 (mothers: t (325) = -4.14, p < .01; fathers: t (314) = -5.04, p < .01). For

mothers, the increase in depressive symptoms was not related to differential parental sensitivity or nonintrusiveness toward their firstborn or second-born children (*ps* > .14). However, the increase in paternal depression was related to a larger difference in paternal sensitivity toward the two children, favoring the firstborn child, r (315) = -.14, p = .01. Analyses with the non-imputed data showed similar results, except the relation between the decrease in fathers' relationship satisfaction and higher levels of paternal sensitivity toward the second-born child compared to the firstborn child changed from a non-significant r (318) = .10, p = .09, to a significant r (272) = .15, p = .02.

Discussion

In our longitudinal study from infancy to early childhood, parental sensitivity and nonintrusiveness were found to change with child age and with later-born children. Parental sensitivity increased from infancy to toddlerhood, but showed a decrease when children reached early childhood. Parents' nonintrusiveness increased from infancy to early childhood. The change of parenting behavior with child age was similar for mothers and fathers. Further, our results indicate that parents treat their children differently based on birth order. More specifically, parents showed higher levels of sensitivity toward their firstborn child than toward their second-born child when comparing parenting of the siblings at the same age. In addition, parents were also more intrusive toward their firstborn child than toward their second-born child at the same age. At all three waves mothers showed higher levels of sensitive and nonintrusive behavior than fathers.

In line with our expectations, parental sensitivity and nonintrusiveness increased from infancy to toddlerhood. The developmental changes that are associated with infancy and toddlerhood may provide an explanation for these findings. For example, children develop more skills to communicate their needs and whishes in a verbal manner (e.g., Iverson, 2010). An important aspect of behaving sensitively is the parent's ability to adjust their responses to the specific needs and interests of their child (Mesman & Emmen, 2013). The child's increased language capacities may help parents to modify their parenting behavior in a way that fits their child's needs. However, in contrast to previous work (Braungart-Rieker et al., 2010; Kemppinen et al., 2006) our results suggest that the increase in parental sensitivity and nonintrusiveness levels off over time. Parental sensitivity and nonintrusiveness increased from 12 to 24 months of the child's age, but remained relatively stable between 24 and 36 months. Since children show especially great improvements in their language development during the first two years of life (e.g., Iverson, 2010), this may explain why parental sensitivity and nonintrusiveness increased the most between the first and second year of the child's life.

In contrast to the finding that parental sensitivity increases from infancy to toddlerhood, parents' sensitivity decreased between ages three and five years of the firstborn child. This decrease may be explained by the onset of school attendance at age 4 years (normative in the Netherlands), which may mark a phase transition that leads to a reorganization of the parent-child relationship (Granic, Hollenstein, Dishion, & Patterson, 2003). Phase transitions are characterized by an increase in the variability of dyadic patterns, which in turn may temporarily interfere with parental sensitivity. Surprisingly, parental nonintrusiveness seems to be unaffected by this important phase transition. Instead, our results suggest that parents show higher levels of nonintrusiveness as the child becomes older. It is important to note that high scores on nonintrusiveness do not unequivocally represent positive parenting. Higher scores on parental nonintrusiveness may also reflect parental behavior that is characterized by a lack of involvement, participation, and interference in the child's activities. From this viewpoint, such behaviors can reflect lower levels of parental sensitivity as they are associated with lower responsiveness to the child's signals.

Our results show that mothers were more sensitive and nonintrusive toward their children during infancy and early childhood than fathers. These findings are in line with previous studies (e.g., Barnett et al., 2008; Hallers-Haalboom et al., 2014; Lovas, 2005; Schoppe-Sullivan et al., 2006) and extend the literature by showing that the differences between mothers and fathers are persistent over time during the first years of the child's life. In general, these differences in parenting behavior may be due to the division of childcare responsibilities in the family. Numerous studies have shown that even though father involvement in the home increased over the last decades (Maume, 2011), mothers are often the primary caregiver of the children. For example, mothers are found to spend two to three times as much time with their children than fathers do (Huerta et al., 2013; Sociaal Cultureel Planbureau [SCP], 2011). As a result, mothers might have more knowledge of their children's needs and interests, which makes it easier for them to adjust their responses accordingly. However, since fathers are more involved in childcare when children become older (Furman & Lanthier, 2002; Yeung et al., 2001), we expected the differences between mothers and fathers to become smaller. One study found that the child's age (ranging from 7 to 48 months) was not associated with mothers' levels of sensitivity and nonintrusiveness, but that fathers with older children were more sensitive and nonintrusive than fathers with younger children (Bergmann et al., 2013). The current study does not provide support for this hypothesis and suggest that fathers do not yet catch up in their sensitivity and nonintrusiveness levels during early childhood. However, although fathers on average only spend half of mothers' time on caregiving activities with infants, their participation in personal care activities increases over time toward a more equal share with school-aged children (Yeung et al., 2001). It is possible that differences between mothers and fathers become smaller

when the children reach middle childhood and the division of childcare becomes more equal.

To disentangle the effect of birth order and child age on parenting behavior during infancy and early childhood, we examined differences in parental sensitivity and nonintrusiveness toward firstborn and second-born children when they had the same age. Our finding that mothers and fathers showed higher levels of sensitive behavior toward their firstborn child at age three years than toward their second-born child at the same age provides evidence for the resource dilution hypothesis (Blake, 1981). According to the resource dilution hypothesis (Blake, 1981), parents have had more time for one-on-one attention with their firstborn child, as they experienced a period in which they did not have to divide their attention between two children. This advantage with firstborn children may create more opportunities for parents to become familiar with the signals of their child, which in turn could explain the higher levels of parental sensitivity toward the firstborn child. Although the differential parental investment hypothesis (Trivers, 1972, 1974) also proposes that firstborn children might be preferred in terms of positive parenting, this hypothesis does not explain differences in parental investment when both children have the same age. Because both children survived for a similar period of time when they are three years old, differential involvement with the children when they have the same age can not be explained by differences in reproductive value for parents.

Further, we found that mothers and fathers showed higher levels of nonintrusive behavior toward their second-born child than toward their firstborn child when they had the same age. Although this finding seems contradicting, higher levels of parental nonintrusiveness do not necessarily reflect positive parenting behavior. Instead, high scores on parental nonintrusiveness may also reflect a generally lower level of involvement with the second-born than with the firstborn child, as both lower sensitivity and higher nonintrusiveness may be signs of less involved parenting. From this viewpoint, higher levels of parental nonintrusiveness with their second-born children is consistent with the assumption that firstborn children receive higher quality parenting than second-born children.

Differences in parental sensitivity and nonintrusiveness toward firstborn and second-born children could not be explained by temperamental differences between the children or decreased relationship satisfaction. However, paternal depression partly explained differences in fathers' sensitivity toward their firstborn and second-born child. Increased paternal depressive symptoms were related to lower levels of paternal sensitivity toward the second-born child compared to the firstborn child. This suggests a spillover of fathers' depressive symptoms to the interaction with their children. Analyses on the non-imputed data also showed that increased relationship dissatisfaction of fathers was associated with higher levels of paternal sensitivity toward the second-born child than toward the firstborn child,

which supports other studies suggesting that parents may compensate for lower-quality marital interactions by intensifying positive interactions with their child (Grych, 2002; Nelson, O'Brien, Blankson, Calkins, & Keane, 2009). Thus, family stress factors such as paternal depression and parental relationship quality might partly account for the differential treatment of siblings.

Our study extends previous work on parenting behavior by disentangling birth-order effects from child-age effects, but several limitations of the current study should be mentioned. First, our sample consisted of predominantly highly educated Caucasian parents. Since parenting practices might be different in families with lower socio-economic status or different ethnic backgrounds, our findings can not be generalized to populations with more varying backgrounds. Second, in our study we did not control for maternal and paternal involvement in child caregiving. Because the time mothers and fathers spend with their children may be an important mechanism underlying our results, this would be an important factor to take into account for future research. Third, the effect of child age on parenting behavior may be different for firstborn and second-born children. Since experiences with the firstborn child may affect the way parents interact with their second-born child (Whiteman et al., 2003), we can not simply assume that the development of parental sensitivity and nonintrusiveness toward the second-born child will show the same pattern as found for the firstborn child. Several studies with adolescents have shown that developmental trajectories may indeed be different for firstborn and second-born children (Shanahan, McHale, Crouter, et al., 2007; Shanahan, McHale, Osgood, et al., 2007). More research is needed to examine whether the effect of child age on parental sensitivity and nonintrusiveness toward second-born children is similar or different compared to firstborn children.

To our knowledge, this is one of the first studies that examined birth order effects on fathers' parenting behavior during infancy and early childhood. When comparing firstborn children and second-born children at the same age, our results showed that differences in parental treatment of siblings within the same family can be explained by birth order. More involvement with the firstborn child may explain the higher levels of parental sensitivity toward the firstborn child and lower intrusiveness toward the second-born child. These findings underscore the importance of disentangling child birth order from child age on parenting quality by examining parenting behavior longitudinally. Although parenting behavior is affected by the child's age, the current study suggests that parents also treat their firstborn and second-born children differently irrespective of child age. Differential parental treatment may have important implications for the development of both siblings within the family and emphasize the need of including birth order as an important within-family factor in future research.

Diurnal testosterone variability is differently associated with parenting quality in mothers and fathers

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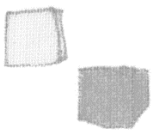

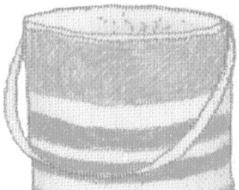

Abstract

Previous studies on the relation between testosterone (T) levels and parenting have found ample evidence for the challenge hypothesis, demonstrating that high T levels inhibit parental involvement and that becoming a parent is related to a decrease in T levels in both mothers and fathers. However, less is known about the relation between T levels and more qualitative aspects of parenting. In the current study we examined basal T levels and diurnal variability in T levels in relation to mothers' and fathers' parenting quality. Participants included 217 fathers and 124 mothers with two children (3 and 5 years of age). Evening and morning salivary T samples were analyzed with radio-immunoassays to determine circulating T levels. Parental sensitivity (i.e., child-centered responsiveness) and respect for children's autonomy were observed during free play in the family home**.** The results showed that diurnal T variability, rather than basal T levels, was associated with parenting behavior toward their children. For fathers, more diurnal variability in T was associated with *more* sensitivity and *more* respect for autonomy with their youngest children. For mothers, more diurnal variability in T was associated with *less* sensitivity to both children and *less* respect for the youngest child's autonomy. These findings suggest that the T system might act differently in relation to parenting behavior in males and females.

Keywords: testosterone levels, diurnal variability, fathers, mothers, parenting quality

INTRODUCTION

The relation between testosterone (T) and behavior is often presented within a trade-off framework that contrasts high T levels accompanied by a focus on competitive challenges and mating with low T levels accompanied by a focus on parenting (Van Anders, Tolman, & Volling, 2012). According to the "challenge hypothesis" the association between T and parenting is reciprocal, with high T levels inhibiting parenting, and cues associated with children, child care, or parenting being related to a decrease T levels in both mothers and fathers. A number of studies have found support for the challenge hypothesis (Gettler, McDade, Feranil, & Kuzawa, 2011; Kuzawa, Gettler, Huang, & McDade, 2010; Wingfield, Hegner, Dufty Jr., & Ball, 1990), but it should be noted that most of these have involved only male participants.

Some studies provide evidence for the proposition that variations in basal T levels can be considered a trait-like feature associated with variations in paternal involvement and quality of involvement. For example, men with lower T levels, compared to men with higher T levels, held test baby dolls longer (Storey, Walsh, Quinton, & Wynne-Edwards, 2000), showed more affectionate touch, gaze, and vocalization during father-child interaction (Weisman, Zagoory-Sharon, & Feldman, 2014), more often had children (Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002), and provided more direct care for their children and more economic support for the family (Alvergne, Faurie, & Raymond, 2009).

Another study has shown that T levels change in response to parenting or child cues, indicating that fatherhood, and more involvement in child care and time spent with children were associated with subsequent lower T levels in fathers (Gettler et al., 2011). To date, only two studies examined the relation between T levels and parenting behavior in women (i.e., comparing T levels of mothers, non-mothers, married, and non-married women). Both studies found – in line with the challenge hypothesis - that marriage and motherhood were associated with lower levels of circulating T in women (Barret et al., 2013; Kuzawa et al., 2010). These studies suggest that circulating T is important for parenting behavior in both mothers and fathers.

However, according to the Steroid/Peptide Theory of Social Bonds the association between T levels and parenting behavior might be more complicated than proposed by the challenge hypothesis. The Steroid/Peptide Theory of Social Bonds assumes that "only those infant/parent contexts that involve nurturance will decrease testosterone; those that involve competitions (real or imagined) will increase testosterone" (Van Anders et al., 2012, p. 31). Several studies have shown that baby cries, that can be considered as a challenge, indeed increase T levels in men (Fleming, Corter, Stallings, & Steiner, 2002; Storey et al., 2000). However, a

recent study has shown that baby cries do not always lead to an increase in T levels (Van Anders et al., 2012). It was demonstrated that baby cries were associated with decreased T levels in men when cries could be terminated by participants' nurturing responses. In contrast, when they were not able to respond with nurturing behaviors, they showed increased T levels. In addition, the administration of T in women enhances, rather than suppresses, neural responsivity to baby cries in women (Bos, Hermans, Montoya, Ramsey, & Van Honk, 2010), probably by increasing oxytocin levels through its metabolite estradiol.

Most studies on levels of circulating T in relation to parenting behavior have focused on basal levels of T and do not capture the diurnal variability in the production and activity of T levels. Just like individual differences in basal T levels, individual differences in T variability over the day can be viewed as trait-like biological predispositions (Granger et al., 2003), possibly explaining individual differences in parenting behavior. In general, the diurnal rhythm of T is characterized by highest T levels in the morning, steeply declining levels before noon, followed by a slower decline in the afternoon and early evening, reaching the lowest levels in the evening (Booth, Granger, Mazur, & Kivlighan, 2006; Cooke, McIntosh, & McIntosh, 1993). There is evidence that the diurnal rhythm of T is more pronounced in males compared to females (Granger, Johnson, Booth, & Shirtcliff, 2002).

To our knowledge, there are only two studies that have examined T variability in relation to behavioral outcomes. A study among Japanese adult men showed that *less* diurnal variation in T was associated with mostly negative outcomes; type A personality, more perfectionism, being a workaholic, excessive self-monitoring, and shorter sleep duration, but also less sensation seeking (Sakaguchi, Oki, Honma, & Hasegawa, 2006). Moreover, a study examining the association between diurnal T rhythm and problem behavior in adolescents provides novel evidence that T variability is differently linked to behavior in males and females (Granger et al., 2003). For females, *more* diurnal variability in T was related to higher levels of disruptive behavior problems, whereas for males *less* diurnal variability in T was associated with higher levels of anxiety, depression, and attention problems. Although this study was conducted with adolescents, it provides first evidence that in males *less* diurnal variability in T might be associated with non-optimal behavior, whereas in females *more* diurnal variability in T might be associated with non-optimal behavior.

No previous studies have examined the relation between diurnal T variability and parenting behavior. In early childhood, parental sensitivity and respect for autonomy are important aspects of parenting. Sensitivity refers to the adult's ability to notice child signals, to interpret these signals correctly, and to respond to them promptly and appropriately (Ainsworth, Bell, & Stayton, 1974). Many studies emphasize the importance of parental sensitivity for positive early

child development across several developmental domains (e.g., Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003; Biringen, Dersheid, Vliegen, Closson, & Easterbrooks, 2014; Lucassen et al., 2011; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). Respect for autonomy refers to the parent's ability to refrain from behavior that is over-directing, over-stimulating, or interfering in the child's activities (Biringen et al., 2014). A lack of respect for the child's autonomy has been associated with non-optimal outcomes during early childhood, such as externalizing behaviors and lower academic achievement (e.g., Cabrera, Shannon, & Tamis-LeMonda, 2007; Egeland, Pianta, & O'Brien, 1993; Ispa et al., 2004). As discussed above, lower T levels have been found to be associated with positive aspects of parenting in fathers (i.e., affectionate touch, mutual gaze; Weisman et al., 2014), but to our knowledge there are no studies relating T levels or T variability to the overall constructs of sensitivity or respect for children's autonomy.

In the current study we examine basal T levels and diurnal variability in T levels, measured in saliva, in relation to mothers' and fathers' sensitivity and respect for autonomy toward their children in early childhood. First, based on the challenge hypothesis, we expect lower basal T levels to be associated with more sensitivity and respect for autonomy in both mothers and fathers. Second, we expect a relation between diurnal variation in T and parenting quality. There is some evidence that T variability is related to personality characteristics and problem behavior in adolescents and adults, but the direction of the association between T variability and behavior is not clear and might be different for males and females (Granger et al., 2003; Sakaguchi et al., 2006). Therefore, the association between T variability and parenting quality in mothers and fathers will be examined in an explorative manner.

METHOD

Sample

This study is part of the longitudinal study *'Boys will be Boys?'* examining the influence of mothers' and fathers' gender-differentiated socialization on the socio-emotional development in boys and girls in the first years of life. The current paper reports on data from the third wave of the study, during which saliva samples were collected.

Families with two children were selected from municipality records in the Western region of the Netherlands. Families were included if the second-born child was around 12 months of age and the firstborn child was approximately two years older. For more information about the selection procedure, see Endendijk and colleagues (2013). Of the 1,249 eligible families 31% were willing to participate (n = 390). At the third wave, 18 families no longer participated because of problems in the family (n = 3), moving abroad (n = 5), considering the home visits too demanding

(n = 7), or because they could not be reached by phone or mail (n = 3). Because a large number of mothers were excluded for the current study due to pregnancy or contraceptive use (n = 109), we chose to report on fathers and mothers separately to maximize the sample sizes.

For the current study, fathers with missing data (n = 141) and use of medication known to affect hormone levels (e.g., antidepressants, antipsychotics, n = 14) were excluded, resulting in a sample of 217 fathers. Excluded fathers were not different from included fathers in terms of age (p = .31), educational level (p = .44), or degree of urbanization of residence (p = .89). Within the final group of fathers, 49% of the oldest children and 53% of the youngest children were boys. At the time of wave 3, the youngest children were 3.1 years old (SD = 0.1) and the age of the oldest children ranged from 4.5 to 5.7 years (M = 5.0, SD = 0.3). The fathers were aged between 28.0 and 55.3 years (M = 38.6, SD = 5.1). With regard to educational level, most fathers finished academic or higher vocational schooling (73%). During the study, five fathers (2%) got divorced, and in 16% of the families a third child was born (n = 35). Analyses with and without these families yielded similar results, so these families were retained in the current data set.

To obtain the sample of mothers for the current study, we excluded mothers with missing data (n = 128) and use of medication that affects hormone levels (n = 11). In addition, mothers who were pregnant (n = 18) or used contraceptives (n = 91) were excluded, resulting in a final sample of 124 mothers. Excluded mothers were not different from included mothers in terms of age (p = .57) or degree of urbanization of residence (p = 1.00), but were slightly higher educated than the included mothers (p < .05). Within the final sample of mothers, 53% of the oldest children and 53% of the youngest children were boys. At the time of wave 3, the youngest children were 3.1 years old (SD = 0.1) and the age of the oldest children ranged from 4.5 to 5.6 years (M = 5.1, SD = 0.3). The mothers were between 27.7 and 47.7 years of age (M = 35.9, SD = 4.2) and most of them had finished academic or higher vocational schooling (72%). In 20% of the families a third child was present (n = 25). Analyses with and without these families yielded similar results, so these families were retained in the current data set. Within the samples of mothers and fathers, 106 were from the same families.

Measures and procedure

Each family was visited twice; once with the mother and the children and once with the father and the children, with an intervening period of about two weeks. The order in which mothers and fathers were visited and interacted with the oldest and youngest child was counterbalanced between families. For more information about the procedure, see Endendijk and colleagues (2013). To measure parental T levels, parents were asked to collect two saliva samples (i.e., passive drool) on a weekday between the mother and father visit, the first sample before going to bed (PM) and

the second sample at waking (AM). Parents also filled out a questionnaire to establish basic background information associated with hormone levels (e.g., weight, pregnancy, and physical activity). Saliva samples were stored in the parent's own freezer until pick-up and were then stored at -80°C until analysis.

Parental T levels. Salivary samples were analyzed at the endocrinology laboratory at Utrecht Medisch Centrum (Utrecht, the Netherlands). T levels in saliva were measured in duplicate using an in-house competitive radio-immunoassay employing a polyclonal anti-testosteron-antibody (Dr. Pratt, AZG 3290). As a tracer following chromatographic verification of its purity, [1,2,6,7-^{3}H]-Testosteron (NET370250UC, PerkinElmer) was used. The lower limit of detection was 20 pmol/L. Inter-assay variation was 10.5-8.3% at 70-480 pmol/L respectively (n = 33). To obtain a measure of T variability in parents, we calculated the ratio of diurnal change as follows: (T evening – T morning) / T evening.

Parental sensitivity and respect for autonomy. The fourth edition of the Emotional Availability Scales (EAS; Biringen, 2008) was used to measure parental sensitivity and respect for autonomy toward their children during an eight-minute free play session. For more information about this measure, see Hallers-Haalboom and colleagues (2014). Two groups of in total nine coders rated the videotapes on the EAS dimensions. All groups completed a reliability set (n = 60), with at least 42% overlap between the two sets. Intercoder reliability was adequate, the intraclass correlation coefficients (single measure, absolute agreement) for sensitivity ranged from .71 to .92 and for respect for autonomy from .71 to .92. All dyads within the same family were coded by different coders to guarantee independency among ratings. During the coding process, the first 100 videotapes of every coder were coded independently by separate coders and regular meetings were organized to prevent coder drift.

Data-analysis

All variables were inspected for possible outliers, defined as values more than 3.29 *SD* above or below the mean (Tabachnick & Fidell, 2012). Outliers were found for parental T levels (n = 6) and paternal respect for autonomy (n = 1). The outlying scores were winsorized to decrease the difference between the outlier and most extreme value that was not yet an outlier (Tabachnick & Fidell, 2012). All variables were normally distributed.

All analyses were done for morning and evening T levels, and diurnal variability in T. Prior to the analyses, correlations were inspected between hours of caring for children on the day before saliva collection and T levels. Hours of caring for children on the day before saliva collection were unrelated to T levels in both mothers (ps > .82) and fathers (ps > .24). To control for the effects of age and weight on parental T levels, residual scores were computed. For those fathers and mothers who were couples, paired sample t-tests were conducted to examine differences

between fathers' and mothers' T levels, and Pearson correlation coefficients were computed to examine associations between fathers' and mothers' T levels, as well as their relations with parenting quality. One bivariate outlier was detected in the sample of fathers and this case was deleted from further analyses.

RESULTS

Preliminary analysis

Tables 1 and 2 display the descriptive statistics and correlations for all study variables for fathers and mothers. Consistent with the diurnal curve of testosterone, morning levels were higher than evening levels in both mothers, $t(123) = 26.04$, $p < .01$, $d = 2.03$, and fathers, $t(215) = 34.14$, $p < .01$, $d = 2.67$. Evening T and morning T were significantly correlated for both mothers, $r(124) = .71$, $p < .01$, and fathers, $r(216) = .36$, $p < .01$. As expected, fathers' T levels were significantly higher than mothers' T levels in the morning, $t(105) = 20.59$, $p < .01$, $d = 2.77$, and in the evening, $t(105) = 18.92$, $p < .01$, $d = 2.42$. There was no difference between mothers and fathers in ratio of diurnal change in T, $t(105) = -0.70$, $p = .48$. In couples, mothers' and fathers' T levels were unrelated for the morning assessment, $r(106) = .06$, $p = .55$, as well as for the evening assessment, $r(106) = .13$, $p = .18$, and the ratio of diurnal change in T: $r(106) = -.02$, $p = .86$.

Associations between T and parenting quality

For fathers, no associations were found between T levels and parenting quality (*ps* > .10). However, positive correlations were found between fathers' diurnal change in T and their sensitivity, $r(216) = .16$, $p = .02$, and respect for autonomy, $r(216) = .14$, $p = .047$, toward the youngest child, indicating that higher diurnal variation of T was associated with *more* optimal parenting in fathers, as can be seen in Figure 1. For mothers, significant correlations between ratio of diurnal change in T and sensitivity and respect for autonomy were also found, but in the opposite direction (Figure 2). Higher diurnal variation in T was associated with *less* sensitivity, $r(124) = -.25$, $p = .01$, and respect for autonomy, $r(124) = -.18$, $p = .045$, to the youngest child and *less* sensitivity, $r(124) = -.29$, $p < .01$, to the oldest child. Higher evening T levels in mothers were associated with more sensitive parenting toward the youngest, $r(124) = .18$, $p = .04$, and oldest child, $r(124) = .30$, $p < .01$. The pattern of results was the same for boys and girls, as well as for analyses controlling for parental educational level.

Table 1. *Descriptive Statistics for Parents' T Levels, Sensitivity, and Respect for Autonomy*

	Mother (*N* = 124)	Father (*N* = 216)
	M (*SD*)	*M* (*SD*)
1. Sensitivity Oldest	24.29 (2.47)	23.20 (2.69)
2. Respect for autonomy Oldest	21.43 (3.03)	21.02 (2.98)
3. Sensitivity Youngest	24.65 (2.73)	23.80 (2.72)
4. Respect for autonomy Youngest	20.98 (3.30)	20.43 (3.07)
5. Morning T	155.13 (48.41)	342.35 (80.10)
6. Evening T	74.81 (28.32)	169.85 (44.00)
7. Diurnal change in T	1.17 (0.54)	1.10 (0.58)

Note. Means and standard deviations for T represent winsorized data.

Table 2. *Correlations Between Parents' T Levels, Sensitivity, and Respect for Autonomy*

	Father						
Mother	1.	2.	3.	4.	5.	6.	7.
1. Sensitivity Oldest	**.05**	.41**	.28**	.16*	-.04	-.07	.03
2. Respect for Autonomy Oldest	.26**	**.11**	.05	.25**	.06	.01	.06
3. Sensitivity Youngest	.37**	.20*	**.10**	.48**	.05	-.11	.16*
4. Respect for Autonomy Youngest	.16†	.41**	.56**	**.26****	.08	-.11	.16*
5. Morning T	.11	.04	.00	-.04	**.06**	.36**	.48**
6. Evening T	.30**	.14	.18*	.08	.71**	**.13**	-.58**
7. Diurnal change in T	-.29**	-.16†	-.25**	-.18*	.20*	-.51**	**-.02**

Note. Correlations with T levels are based on residual scores for T. Correlations below the diagonal refer to associations among maternal behaviors and T levels (*N* = 124), correlations above the diagonal refer to associations among paternal behavior and T levels (*N* = 216), and correlations on the diagonal refer to associations between mothers and fathers (*N* = 106). Shaded area represents correlations related to the studies' hypotheses.

** $p < .01$, * $p < .05$, † $p < .10$

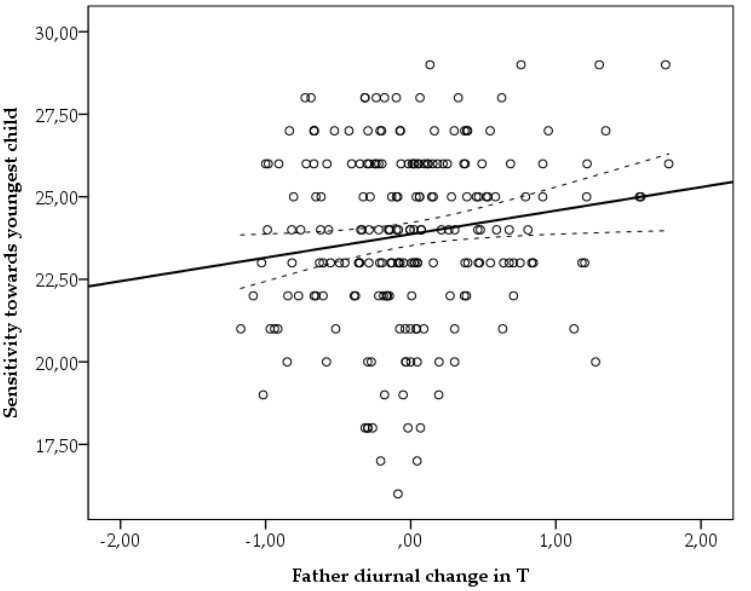

Figure 1. Scatterplot of the association between fathers' diurnal change in T and sensitivity toward the youngest child.

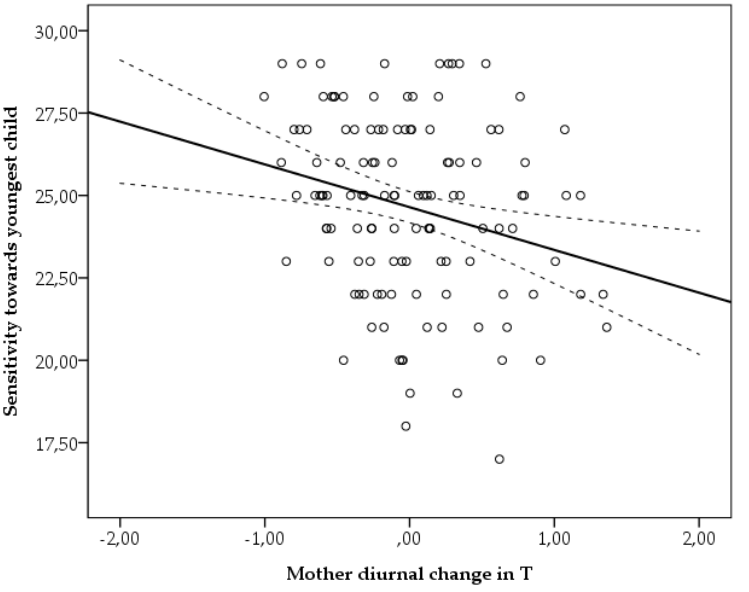

Figure 2. Scatterplot of the association between mothers' diurnal change in T and sensitivity toward the youngest child.

Discussion

To our knowledge, this is the first study that examined T and diurnal variability in T in relation to parenting quality in mothers and fathers. The results show that diurnal T variability, rather than basal T levels, was associated with parents' sensitivity and respect for autonomy toward their children. Interestingly, the direction of effects was different for mothers and fathers. For fathers, more diurnal variability in T was associated with *more* sensitivity and respect of autonomy to their youngest children. For mothers, more diurnal variability in T was associated with *less* sensitivity to both children and *less* respect of the youngest child's autonomy.

It appears that for fathers a flexible or variable T system might be most optimal for parenting, which is in line with the findings of a previous study showing that greater decreases in T in response to father-child interaction were associated with more paternal responsiveness and attentiveness (Storey, Noseworthy, Delahunty, Halfyard, & McKay, 2011). In contrast, in mothers a more flexible T system seems to be less optimal for parenting. Our findings are also consistent with a study that found that diurnal variability in T was differently associated with problem behavior in adolescent boys and girls (Granger et al., 2003), indicating that in males less diurnal variability in T might be associated with non-optimal behavior, whereas in females more diurnal variability in T might be associated with non-optimal behavior.

Our findings suggest that the T system plays a different role in mothers' and fathers' parenting behaviors. From an evolutionary perspective it may be essential for males to have a flexible system, because continuously high T levels would interfere with successful parenting and continuously low T levels would decrease mating success. For mothers, the ability to lower their T levels might be less necessary to achieve optimal parenting, because their T levels are already substantially lower than those of males. In the case of mothers, a flexible T system in response to caregiving might even be less adaptive because a certain level of T might be necessary to respond appropriately to challenging parenting contexts, such as baby cries.

In addition, there is some evidence for subtle quantitative differences between levels of androgen receptors (AR) in certain regions of the male and female rat brain (Simerly, Chang, Maramatsu, & Swanson, 1990). Although no absolute sex differences in the amount of AR in the brain were found, these subtle sex differences in AR distribution may explain the different influence of T on behavior in men and women. However, more research is required to examine whether these findings also apply to humans and how these neurobiological gender differences in the T system are related to parenting behavior.

The relation between T variability and parenting quality in mothers and fathers was most profound for parental sensitivity and respect for autonomy to their youngest child. To date, only two studies examined differences in T levels among mothers in relation to child age and showed that mothers with young offspring had lower T levels in the morning than mothers with older children and non-mothers (Barrett et al., 2013; Kuzawa et al., 2010). The more frequent and demanding activities that are required when caring for infants and young children compared to older children may contribute to the lower T levels in these mothers. Although no previous study examined the effect of child age on T variability in parents, we speculate that diurnal variability in T may also play a larger role in parenting young children than older children, because of the more frequent and demanding care and more close body contact with young children. Indeed, more frequent close body contact between father and child, in the form of co-sleeping, has been associated with larger diurnal T variability (Gettler, McKenna, McDade, Agustin, & Kuzawa, 2012).

In light of the challenge hypothesis (Wingfield et al., 1990) it is somewhat surprising that for fathers we found significant associations with T variability and not with basal T levels. We expected lower basal T levels to be associated with more optimal parenting in fathers, but this was not confirmed in our study. Previous research has linked lower basal T levels to fatherhood (Gettler et al., 2011) and more optimal father-child behaviors (Weisman et al., 2014). However, in these studies the measures of parenting were quantitative rather than qualitative in nature (i.e., fathers versus non-fathers, time spent in childcare, frequency of gaze to infant or infant-directed vocalization). Lower basal T levels might be more related to quantitative aspects of fathering, whereas T variability is more closely linked to qualitative aspects of fathering. Evidence for this proposition can be found in a previous study showing that variations in a quantitative construct, relationship status (i.e., being in a committed relationship or not), was explained by basal T levels, whereas individual differences in qualitative behavioral and personality characteristics (i.e., type A personality, perfectionism, self-monitoring, sensation seeking) were explained by diurnal fluctuation in T (Sakaguchi et al., 2006).

In mothers higher evening T levels were related to more sensitive parenting, which is not in line with the challenge hypothesis or with two previous studies showing that motherhood was related to lower morning T (Barrett et al., 2013; Kuzawa et al., 2010). In both studies a quantitative aspect of mothering was assessed (i.e., being a mother or not), whereas in the current study we focused on qualitative aspects of parenting. Again, T may be differentially related to quantitative and qualitative aspects of parenting. In addition, our results indicate that the challenge hypothesis might not be applicable to females. Especially the prediction that lower T levels might facilitate parenting in mothers might not be applicable, because a previous study showed that lower T levels in adolescent girls

were associated with more externalizing behavior problems (Booth, Johnson, Granger, Crouter, & McHale, 2003). Clearly, more research is needed to examine whether the link between T and maternal behavior is indeed different from what would be predicted by the challenge hypothesis.

Our study has some limitations. First, the sample consisted of predominantly highly educated Caucasian parents. Since parental role division and parenting practices are known to differ as a function of socio-economic status and ethnicity, our findings cannot be generalized to populations from different backgrounds. Second, variability in T was based on only two saliva samples. Since T levels follow a diurnal rhythm (Booth et al., 2006; Cooke et al., 1993), a more comprehensive approach (i.e., collecting saliva in the morning, before noon, and again in the late afternoon and evening) is more optimal to capture the individual variability of T over the day. Third, using saliva samples as a surrogate for serum is likely to substantially underestimate the relations between T and behavior, especially in females (Granger, Shirtcliff, Booth, Kivlighan, & Schwartz, 2004; Shirtcliff, Granger, & Likos, 2002). Females have higher levels of sex hormone-binding globulin (SHBG) in their blood (Cunningham & McKenna, 1988). Since SHBG-bound testosterone is not transported into saliva (Pardridge, 1986), this might affect the validity of salivary testosterone measures in females. Indeed, several studies found only modest correlations between salivary T levels and serum T levels in females (Granger et al., 2004; Shirtcliff et al., 2002). Last, our cross-sectional design does not allow for conclusions on the direction of effects. This is a pertinent problem in the literature on T and parenting. Previous studies have shown that variations in basal testosterone levels can be considered a trait-like feature associated with variations in parental behavior (Weisman et al., 2014), but at the same time cues associated with marriage, children, child care, or parenting can lead to short-term or longer-term fluctuations around this basal level (Gettler et al., 2011; Kuzawa et al., 2010). More longitudinal and experimental research is necessary to disentangle the direction of effects.

To conclude, our results show that parenting quality in mothers and fathers is associated with diurnal variability in T, rather than with basal T levels. Importantly, T variability was differently associated with parenting behavior of mothers and fathers. For fathers, more diurnal variability in T was associated with more optimal parenting, whereas for mothers more diurnal variability in T was associated with less optimal parenting. These findings suggest that the T system might act differently in relation to parenting behavior in men and women, and call for further research of the processes underlying gender differences in the association between T variability and parenting behavior.

Wait until your mother gets home! Mothers' and fathers' discipline strategies

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Social Development

Abstract

From a traditional viewpoint, fathers are seen as the main disciplinarian in the family. However, recent studies suggest that these traditional family role patterns may have changed. In this study, we observed discipline strategies of mothers and fathers toward their sons and daughters. Participants included 242 families with two children (1 and 3 years of age). Findings revealed that parental discipline varied by the age of the children, but that mothers disciplined their children more often than fathers. Fathers, conversely, showed more laxness in response to child noncompliance. Gender of the children was only related to physical interference, with mothers using more physical interference with boys than fathers, irrespective of birth order. Taken together, these findings highlight the importance of parent gender for parent-child interactions in early childhood, but also suggest that child age should be taken into account as important explanatory factors.

Keywords: discipline, fathers, mothers, child gender, birth order

INTRODUCTION

Traditionally, fathers are seen as the main disciplinarian in the family (Blakemore, Berenbaum, & Liben, 2009; Maldonado, 2007). However, over the last few decades Western societies have moved toward more egalitarian social and economic relationships between the genders, resulting in changes in traditional family role patterns (Bornstein, 2013; Maume, 2011). Studies have either found that mothers discipline their children more often than fathers do (e.g., Arnold & O'Leary, 1997; Blandon & Volling, 2008; Webster-Stratton & Hammond, 1999) or that the amount of discipline by mothers and fathers is similar (e.g., Domenech Rodríguez, Donovick, & Crowley, 2009; Eddy, Leve & Fagot, 2001; Feldman & Klein, 2003). However, most studies combine different aspects of parental discipline into one construct, which may hamper the interpretation of the results, as it remains unclear whether and how mothers and fathers differ with respect to specific types of discipline. In addition, there is evidence that parents, and especially fathers, treat boys and girls differently when it comes to discipline (e.g., Das Eiden, Leonard, & Morrisey, 2001; Lytton & Romney, 1991), suggesting that both gender of the parent and gender of the child are important to take into account. In the current study, we used a within-family design to test the hypothesis that both parent and child gender and their specific combinations are related to parental discipline strategies. We examined various aspects of parental discipline, including commanding, physical interference, distraction, and laxness.

Mothers' and fathers' discipline strategies

Parental discipline is an important aspect of parenting and refers to strategies that parents use to discourage inappropriate behavior and to gain compliance from their children (Locke & Prinz, 2002; Smith, 2004). Observational studies within intact two-parent families with young children point to mothers using more discipline than fathers (e.g., Arnold & O'Leary, 1997; Blandon & Volling, 2008; Webster-Stratton & Hammond, 1999). Role theory suggests that these findings could be due to shared norms and expectations about how individuals should behave in certain situations (Biddle, 1986), which also applies to the different roles and responsibilities mothers and fathers have in the family and may lead to differences in their interactions with their children. Although there is a trend for fathers to spend more time taking care of their children over the last few decades (Maume, 2011), this does not necessarily imply that mothers and fathers show similar parenting behavior. Mothers still spend two to three times as much time with their children than fathers (Huerta et al., 2013; Sociaal Cultureel Planbureau [SCP], 2011), they spend more time alone with their children, and spend more time in daily child care activities than fathers (Huerta et al., 2013; Monna & Gauthier, 2008), all of

which is likely to lead to more opportunities for discipline by mothers than by fathers.

The two most often researched types of discipline are verbal interference (e.g., commanding) and physical interference (e.g., grabbing child's arm away from forbidden objects). For young children, redirecting the child's attention away from forbidden objects or activities is also a relevant discipline strategy (Reid, O'Leary, & Wolff, 1994). In contrast, laxness refers to a lack of discipline in response to noncompliance and the absence of interference or directiveness (Arnold & O'Leary, 1997). Studies that examine composites of verbal and physical discipline tend to report no differences between mothers and fathers from intact two-parent families (Brody, Stoneman, & McCoy, 1992; Domenech Rodríguez et al., 2009; Feldman & Klein, 2003; Janssen & Dekovic, 1997), whereas studies focusing specifically on verbal discipline generally find that in intact two-parent families mothers do this more often than fathers (Arnold & O'Leary, 1997; Chen, Wu, Chen, Wang, & Cen, 2001; Power, McGrath, Hughes, Manire, 1994; Tulananda & Roopnarine, 2001; Webster-Stratton & Hammond, 1999). In addition, within the same family mothers use more verbal strategies than fathers to control their child's behavior in a non-power assertive way (i.e. gentle guidance; Blandon & Volling, 2008; Volling, Blandon, & Gorvine, 2006). Most studies on physical interference tend to show the same pattern (Day, Peterson, & McCracken, 1998; Gunnoe & Mariner, 1997; Jackson et al., 1999; Xu, Tung, & Dunaway, 2000), but these results are based on self-report measures rather than on observations and may not directly reflect actual parental behavior (e.g., Holden & Edwards, 1989). In addition, none of these studies compared physical interference between mothers and fathers toward the same child. The scarce observational studies on physical interference involving both parents of intact two-parent families did not show differences between mothers and fathers (Power, 1985; Tulananda & Roopnarine, 2001).

Since most studies suggest that mothers use more verbal and physical discipline strategies than fathers, we hypothesized that in the current study mothers would show more commanding, physical interference, and distraction in response to their children's noncompliance than fathers. Compared to mothers, fathers have also been found to be less involved in the daily administration of discipline (Day et al., 1998), and we therefore expected fathers to show more laxness in response to their children's noncompliance than mothers.

Role of child gender

There is evidence that parents treat boys and girls differently when it comes to discipline, although results have been inconsistent. Some studies found that parents showed similar levels of observed discipline behavior to boys and girls (Bernstein, Harris, Long, Iida, & Hans, 2005; Eddy et al., 2001; Russel & Russel, 1996), whereas others found evidence for differences in parental discipline toward boys and girls,

with more coercion and control toward boys than girls (Das Eiden et al., 2001; Tam & Lam, 2003), but also more demandingness toward girls than boys (Das Eiden et al., 2001; Domenech Rodríguez et al., 2009). These inconsistencies could be due to methodological differences, as studies differed with respect to age and ethnicity of the children and the procedures to code parental discipline. An older meta-analysis showed that boys receive more physical punishment than girls (Lytton & Romney, 1991). The mechanisms underlying potential gender-differentiated differences may be attributed to both child-driven effects, i.e., boys' higher propensity toward disruptive behavior eliciting more negative discipline (McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996), and parent-driven effects, i.e., parents' gender stereotypes guiding their differential treatment of boys and girls (Bem, 1981; Eagly, Wood, & Diekman, 2000). In the current study, we therefore expected that mothers and fathers would show more discipline behavior toward their sons than toward their daughters.

The idea that both parent gender and child gender appear to play a role in discipline practices suggests that discipline practices in mother-son, mother-daughter, father-son, and father-daughter dyads may be distinct. There is evidence that fathers are more likely than mothers to treat sons and daughters differently and that this pattern is most evident in the area of discipline (Feldman & Klein, 2003; Gjerde, Block, & Block, 1991; Lytton & Romney, 1991), but two other studies found that only mothers showed gender-differentiated discipline practices, with one pointing toward more maternal power discipline for boys than for girls (Kochanska, Barry, Stellern, & O'Blennes, 2009), and the other study showing more maternal control attempts with girls than with boys (Power et al., 1994). Overall, based on previous studies we expected differences among the four parent-by-child gender dyads, but the direction of these differences warrants further research.

Within-family comparisons

An important limitation of previous research is that most studies examining gender-differentiated parenting made comparisons between families. However, when comparing families with boys to families with girls apparent gender differences may also be caused by other underlying factors, which may partly explain why the results of previous studies in this field have been mixed, and thus have to be interpreted with caution. A crucial question is whether boys and girls are treated differently when they grow up in the same family. In a within-family approach, variations in parenting boys *versu*s girls are less likely to be caused by other family or parent characteristics (Ball, McKenry, & Price-Bonham, 1983; Rodgers, Cleveland, van den Oord, & Rowe, 2000; Rodgers, 2001).

When examining parenting of siblings within families, birth order and sibling gender constellation are important factors to take into account. It is generally assumed that parents tend to direct more control to the younger child than the older

child (e.g., Brody et al., 1992; McHale, Crouter, McGuire, & Updegraff, 1995), but child age also plays a role. Studies with preschoolers have shown that parents discipline the older sibling more than the younger sibling (Volling, 1997; Volling & Elins, 1998; Volling et al., 2006). This suggest that the amount of discipline directed toward a specific child depends more on the developmental level of that child than on birth order (Volling, 1997; Volling & Ellins, 1998). Therefore, we hypothesized that parents show more discipline behavior toward their oldest child than toward their youngest child.

Current study

In the current study, differences in discipline strategies were examined between all possible parent-child dyads in intact two-parent two-child families: mother-oldest, mother-youngest, father-oldest, and father-youngest dyads. This study adds to the existing literature by including observations of both mothers' and fathers' discipline strategies and by differentiating between various discipline strategies. Observational studies of specific aspects of parental discipline, such as physical interference, distraction, and laxness, are lacking. The few studies that included these strategies used self-report measures, which could be influenced by unknown and possibly biasing third variables (Arnold & O'Leary, 1997) and may not reflect actual parental discipline behavior (e.g., Holden & Edwards, 1989). In addition, our study contributes to the literature by adopting a within-family approach with systematically varying family constellations (boy-boy, girl-girl, boy-girl, and girl-boy).

The following hypotheses were tested: (1) Mothers show more commanding, physical interference, and distraction in response to their children's noncompliance than fathers, and fathers show more laxness in response to their children's noncompliance than mothers; (2) Mothers and fathers show more discipline behavior toward their oldest children than toward their youngest children; (3) Mothers and fathers show more discipline behavior toward their sons than toward their daughters; (4) Parental discipline varies by specific parent-child gender combinations. Since results of previous studies are mixed, no specific hypothesis was formulated with regard to this hypothesis. Differences between the parent-child gender combinations will be examined in an explorative manner.

METHOD

Sample

This study is part of the longitudinal study *'Boys will be Boys?'* examining the influence of mothers' and fathers' gender-differentiated socialization on the socio-emotional development in boys and girls in the first four years of life. Intact families with two children were selected from municipality records in the Western region of

the Netherlands. Families were included if the youngest child was around 12 months of age and the oldest child was between 2.5 and 3.5 years old. Exclusion criteria were single parenthood, severe physical or intellectual handicaps of parent or child, and being born outside the Netherlands (child and parent) or not speaking the Dutch language (parent). The current paper reports on data from the first wave of the study.

Eligible families were invited by mail to participate in a study on the unique role of mothers and fathers on socio-emotional development with two home visits each year over a period of three years. All families received an invitation letter, a brochure with the details of the study, and an answering card to respond to the invitation. Of the 1,249 eligible families 31% were willing to participate (N = 390). The participating families did not differ from the non-participating families in age of mothers or fathers, educational level of mothers or fathers, or the degree of urbanization of residence (ps > .08). For the current study, families with missing data (n = 3) and families with one or more dyads not showing noncompliant behavior during our observation procedure (n = 145; see measures for details) were excluded, resulting in a final sample of 242 intact two-parent families. The 148 excluded families did not differ from the participating families with respect to age of mothers or fathers, educational level of mothers or fathers, or the degree of urbanization of residence (ps > .30). Furthermore, there were no significant differences between the excluded or participating families in terms of gender of the children or sibling gender combinations (ps > .35). In addition, children who showed noncompliant behavior during our observation procedure did not show more externalizing behavior compared to children showing compliant behavior (ps > .11). The current sample consisted of families with the following sibling gender constellations: 70 boy-boy (29%), 56 girl-girl (23%), 56 boy-girl (23%), and 60 girl-boy (25%).

At the time of the first home-visit the youngest siblings were 12 months old (SD = 0.3) and the age of the oldest siblings ranged from 2.5 to 3.6 years (M = 3.0, SD = 0.3). The mothers were aged between 22.6 and 45.6 years (M = 34.0, SD = 3.9) and the fathers were between 25.8 and 63.0 years of age (M = 36.6, SD = 5.1). Most parents were married (79%), 13% of the couples had a cohabitation agreement or registered partnership, and 8% lived together without any kind of registered agreement. Most mothers finished academic or higher vocational schooling (79%), and the same was true for fathers (77%). Average working hours per week were 25.7 for mothers (SD = 9.6, range 0-60) and 37.9 for fathers (SD = 7.0, range 0-80), which is comparable to figures in the Dutch general population (SCP, 2012). Most families lived in urban residences (86%).

Procedure

Each family was visited twice within a period of about two weeks: once with the mother and the two children and once with the father and the two children. The

order in which mothers and fathers were visited was counterbalanced. Before the first home visit, both parents were asked to individually complete a set of questionnaires. During the home visits, parent-child interactions and sibling interactions were filmed, and the oldest children and both parents completed computer tests. All home visits were conducted by pairs of trained graduate or undergraduate students. Families received a payment of 30 Euros and small presents for the children. Informed consent was obtained from all participating families. Ethical approval for this study was provided by the Committee Research Ethics Code of the Leiden Institute of Education and Child Studies.

Measures

Parental discipline. Parental discipline strategies were measured during a *don't-touch-task*. During this task the parent received a card with instructions to put a set of attractive toys on the floor in front of both children and to make sure the children did not touch the toys for two minutes. After two minutes, the experimenter gave the parent a nonverbal sign (e.g., nodding, waving) to let the parent know that he/she could move to the next phase of the task, during which the children were allowed to play only with the least attractive toy (a stuffed animal) for another two minutes. In case the parent did not notice the nonverbal sign, a verbal sign (e.g., "the first two minutes have passed") was given to signal the start of the second phase. After the second phase of the task a sign was given that the task was finished and the children were allowed to play with all the toys. The total duration of the task was four minutes. The setting of the task is assumed to reflect daily situations in which parents have to keep their young children from touching valuable or breakable objects in their own homes or outside the home (e.g., in the store or when visiting someone) and has been used extensively in previous studies with similar age ranges (e.g. Joosen, Mesman, Bakermans-Kranenburg, & Van IJzendoorn, 2012; Kochanska et al., 2009; Van der Mark, Bakermans-Kranenburg, & Van IJzendoorn, 2002).

Coding procedures were based on Kochanska, Coy, and Murray (2001) and have been used in previous studies with comparable samples (e.g., Blandon & Volling, 2008; Kochanska et al., 2009; Volling et al., 2006). Parental discipline was measured by coding the parent's responses to every occurrence of child non-compliant behavior (the child reaching for or touching the toys) within 10 seconds after its onset. Child noncompliance and parental responses were coded in similar ways for oldest and youngest children. Four types of parental responses were coded as present or absent within those 10-second intervals: command, physical interference, distraction, and laxness. More than one category could be coded within a 10-second interval. Command was coded when the parent made verbal comments concerning the rule of the task (e.g., telling the child not to touch the toys). Physical interference was coded when the parent stopped the child from

reaching for or touching the toys by holding or pushing the child back, moving the toys out of reach, taking the toys from the child's hand, or blocking the way toward the toys. Distraction was coded when the parent attempted to move the child's attention away from the toys, verbally (e.g., talking about something else or singing a song) or nonverbally (e.g., holding the stuffed animal in front of the child in a playful way). Laxness was coded when none of the other responses were present. There was no difference in noncompliant behavior of the children in the presence of mothers and fathers ($p = .55$), but the oldest children showed more noncompliant behavior than the youngest children ($p < .01$) during both the mother and the father visit. Therefore, the total number of times each response type occurred was divided by the total number of noncompliance events to create a relative score for each discipline strategy to allow for valid comparisons between siblings.

Twelve coders rated 968 videotapes for parental discipline. Dyads within the same family were coded by different coders to guarantee independence among ratings. The mean intraclass correlation coefficient (absolute agreement) for number of noncompliant events was .97 (range .92 to 1.00), for command .94 (.90 - .99), for physical interference .93 (.83 - .99), for distraction .85 (.70 - .94), and for laxness .94 (.85 - .98) ($n = 56$). Regular meetings with coders were organized to prevent coder drift.

Data-analysis

The four discipline subscales were inspected for outliers, i.e., values larger than 3.29 *SD* above or below the mean. Ten outliers were found for distraction of father toward the youngest child and for laxness of mother toward the oldest child. The outlying scores were winsorized (Tabachnick & Fidell, 2012). The subscales distraction and laxness were positively skewed and an inverse transformation was used to normalize the distribution (Tabachnick & Fidell, 2012). All other subscales were normally distributed. Paternal educational level was not associated with his discipline strategies ($ps > .06$). Maternal educational level was only positively related to her use of command toward the youngest child, $r(242) = .14$, $p < .05$. Working hours of both parents, used as an inverse proxy for time spent with the child, were not related to discipline strategies ($ps > .11$). Because only one out of thirty-two associations between educational level and working hours was significant, these variables were not included in further analyses.

Analyses of parents' discipline strategies toward their oldest and youngest children were conducted using GLM Repeated Measures analysis. Main effects and the interaction between the within-subjects factor parent gender (mother, father) and child birth order (oldest, youngest) were examined. In addition, two-way interactions between the two within-subjects factors and the between-subjects variable (sibling gender constellation) were examined.

RESULTS

Preliminary analysis

The correlations between mothers' and fathers' discipline strategies are presented in Table 1. Mothers and fathers who used more commands in response to noncompliant behavior of their oldest child also used more commands in response to noncompliant behavior of their youngest child. Maternal and paternal use of commands were not associated for either child. The same pattern was found for physical interference and laxness. However, maternal and paternal uses of physical interference were positively correlated for the oldest child. For distraction no significant correlations between the four dyads were found. Within all dyads use of commands was positively correlated with physical interference. Laxness was negatively correlated with both use of commands and physical interference.

Multivariate regression analyses were conducted to test moderation by child gender. In the first set of analyses, maternal discipline, child gender, and their interaction were added to predict paternal discipline (separately for oldest and youngest children). In the second set of analyses, maternal discipline toward the oldest, oldest child gender, and their interaction were entered as predictors of maternal discipline toward the youngest (repeated for paternal behavior). Because of the large number of analyses, conservative *p*-levels ($p < .01$) were used to evaluate the interaction effects. None of the associations between mothers and fathers and oldest and youngest children were moderated by child gender.

Differences between mothers' and fathers' discipline strategies

With respect to differences between mothers and fathers, significant main effects were found for all discipline strategies (Table 2): use of commands, *Pillai's F* (1, 238) = 11.83, $p < .01$, $\eta_p^2 = .05$, physical interference, *Pillai's F* (1, 238) = 7.94, $p = .01$, $\eta_p^2 = .03$, distraction, *Pillai's F* (1, 238) = 16.63, $p < .01$, $\eta_p^2 = .07$, and laxness, *Pillai's F* (1, 238) = 15.66, $p < .01$, $\eta_p^2 = .06$. Consistent with our first hypothesis, mothers used more commands, physical interference, and distraction with their children than fathers, while fathers showed more laxness in response to child noncompliance than mothers. Analyses with working hours of mothers and fathers added as covariates did not show different results (*ps* > .36).

Table 1.

Correlations for discipline strategies of mothers and fathers towards their oldest and youngest child (N = 242)

	Father							
Mother	1	2	3	4	5	6	7	8
1. Command Oldest	**.04**	.33**	.48**	.37**	-.08	-.08	-.81**	-.43**
2. Command Youngest	.29**	**.06**	.11	.46**	-.03	-.06	-.31**	-.54**
3. Physical Interference Oldest	.45**	.06	**.20****	.27**	-.02	-.01	-.49**	-.23**
4. Physical Interference Youngest	.44**	.46**	.29**	**.07**	.06	.03	-.46**	-.90**
5. Distraction Oldest	-.04	-.09	.07	-.02	**-.01**	.07	-.16*	-.07
6. Distraction Youngest	-.02	-.05	-.06	-.06	.13	**.01**	.08	-.06
7. Laxness Oldest	-.78**	-.19**	-.45**	-.40**	-.30**	-.04	**.07**	.50**
8. Laxness Youngest	-.46**	-.54**	-.25**	-.87**	.04	-.12	.40**	**.08**

Note. Correlations below the diagonal refer to associations among maternal behaviors, correlations above the diagonal refer to associations among paternal behaviors, and correlations on the diagonal refer to associations between maternal and paternal behaviors.

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

Table 2.

Means and Standard Deviations on discipline strategies for mothers and fathers towards their oldest and youngest children for different sibling gender constellations

		Sibling gender constellation				Total (n = 242)		*Pillai's F and contrasts*	η_p^2
		Boy-Boy (n = 70)	Girl-Girl (n = 56)	Boy-Girl (n = 56)	Girl-Boy (n = 60)				
Discipline strategy	Dyad	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*Range*		
Command	Parent							11.83**	.05
	Mother (M)	.61 (0.26)	.63 (0.26)	.59 (0.24)	.68 (0.24)	.63 (0.25)	.00 - 1.00	> F**	
	Father (F)	.50 (0.25)	.54 (0.29)	.55 (0.28)	.61 (0.24)	.55 (0.27)	.00 - 1.00		
	Child							191.10**	.45
	Oldest (O)	.70 (0.20)	.70 (0.21)	.70 (0.21)	.74 (0.21)	.71 (0.21)	.00 - 1.00	> Y**	
	Youngest (Y)	.41 (0.22)	.48 (0.26)	.44 (0.27)	.55 (0.27)	.47 (0.26)	.00 - 1.00		
Physical Interference	Parent							7.94*	.03
	Mother (M)	.63 (0.26)	.55 (0.26)	.60 (0.25)	.61 (0.25)	.60 (0.26)	.00 - 1.00	> F**	
	Father (F)	.57 (0.30)	.47 (0.28)	.53 (0.28)	.55 (0.26)	.53 (0.28)	.00 - 1.00		
	Child							151.08**	.39
	Oldest (O)	.51 (0.24)	.36 (0.25)	.45 (0.24)	.44 (0.27)	.45 (0.26)	.00 - 1.00		
	Youngest (Y)	.68 (0.24)	.66 (0.26)	.68 (0.25)	.72 (0.27)	.69 (0.25)	.00 - 1.00	> O**	
Distraction	Parent							16.63**	.07
	Mother (M)	.17 (0.11)	.14 (0.10)	.14 (0.10)	.16 (0.11)	.15 (0.11)	.00 - .48	> F**	
	Father (F)	.11 (0.09)	.12 (0.09)	.11 (0.08)	.13 (0.10)	.12 (0.09)	.00 - .39		
	Child							71.70**	.23
	Oldest (O)	.17 (0.10)	.16 (0.11)	.16 (0.10)	.18 (0.10)	.17 (0.10)	.00 - .46	> Y**	
	Youngest (Y)	.11 (0.08)	.09 (0.09)	.09 (0.09)	.11 (0.10)	.11 (0.09)	.00 - .41		
Laxness	Parent							15.66**	.06
	Mother (M)	.11 (0.12)	.11 (0.13)	.11 (0.13)	.08 (0.11)	.10 (0.12)	.00 - .48		
	Father (F)	.16 (0.16)	.17 (0.14)	.15 (0.15)	.13 (0.13)	.15 (0.15)	.00 - .50	> M**	
	Child							14.24**	.06
	Oldest (O)	.11 (0.11)	.12 (0.11)	.12 (0.11)	.10 (0.11)	.11 (0.11)	.00 - .41		
	Youngest (Y)	.15 (0.12)	.16 (.013)	.15 (0.14)	.11 (0.11)	.14 (0.13)	.00 - .46	> O**	

Note. M (Mother), F (Father), O (Oldest), Y (Youngest).

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

Differences in discipline strategies toward oldest and youngest children

With respect to differences between oldest and youngest children (Table 2), significant main effects were found for use of commands, *Pillai's F* (1, 238) = 191.10, $p < .01$, $\eta_p^2 = .45$, physical interference, *Pillai's F* (1, 238) = 151.08, $p < .01$, $\eta_p^2 = .39$, distraction, *Pillai's F* (1, 238) = 71.70, $p < .01$, $\eta_p^2 = .23$, and laxness, *Pillai's F* (1, 238) = 14.24, $p < .01$, $\eta_p^2 = .06$. In line with our second hypothesis, parents used more commands and distraction with their oldest children than with their youngest children and were more lax toward their youngest child than toward their oldest child. In contrast to our hypothesis, parents used more physical interference with their youngest children than with their oldest children.

A significant interaction between parent gender and child birth order was found for use of commands, *Pillai's F* (1, 238) = 6.24, $p = .01$, $\eta_p^2 = .03$, and physical interference, *Pillai's F* (1, 238) = 7.41, $p = .01$, $\eta_p^2 = .03$. As illustrated in Figure 1, follow-up paired *t*-tests revealed that the difference between mothers and fathers was only significant for the youngest child (*ps* < .01), and not the oldest child (*ps* > .15).

Differences in discipline strategies toward boys and girls

In contrast to our third hypothesis, child gender was not related to parental discipline strategies. None of the two-way interactions between the within-subjects factor (parent or child) and the between-subjects variable (sibling gender constellation) were significant (*p*s > .10).

Discipline strategies within families with boys and girls

To make optimal use of our within-family design, we compared parental discipline practices toward the two siblings in boy-girl families ($n = 56$) and girl-boy families ($n = 60$) to examine whether within-family child gender effects were present above and beyond the birth order and parent gender effects. Findings were mainly consistent with those of the main set of analyses, except for the finding that for physical interference a significant interaction between parent gender and child gender was found beyond birth order, *Pillai's F* (1, 115) = 6.77, $p = .01$, $\eta_p^2 = .06$. Follow-up *t*-tests showed that mothers used more physical interference with boys than fathers ($p < .01$), irrespective of birth order.

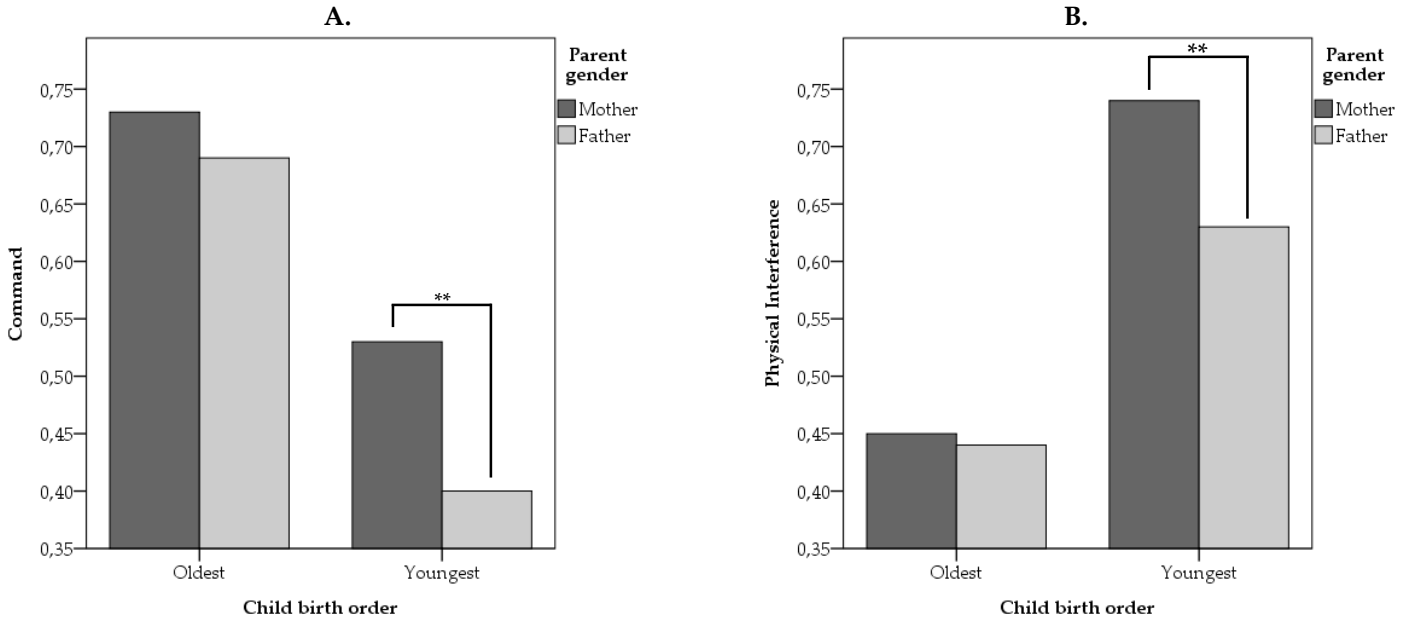

Figure 1. *Interaction between parent gender and child birth order for use of commands (A) and physical interference (B).*
** $p < .01$

DISCUSSION

In our large study using a within-family design, mothers disciplined their children more often than fathers, and fathers showed more laxness in response to children's noncompliance than mothers. Both parents made more use of commands and distraction toward their oldest than toward their youngest children, whereas physical interference and laxness were more often used with youngest than with oldest children. Gender of the children was only related to physical interference, with mothers using more physical interference with boys than fathers, irrespective of birth order.

In line with previous studies (e.g., Arnold & O'Leary, 1997; Blandon & Volling, 2008; Webster-Stratton & Hammond, 1999), we found that mothers used more commands, distraction, and physical discipline than fathers. In addition, fathers showed more laxness in response to their children's noncompliance than mothers. Consistent with role theory, these differences may be explained by the fact that mothers almost always adopt the role of primary caregivers of the children and spend more time with their children than fathers (Huerta et al., 2013; SCP, 2011). As a result, mothers have more opportunities for discipline, whereas fathers are less likely to experience situations in which they have full responsibility for their children and be the active disciplinarian. Although parental working hours were not related to their discipline practices in this study, this may not be an accurate indicator of the time a parent spent with their children. There is evidence that mothers spend two to three times as much time with their children than fathers, even when mothers work full-time (Huerta et al., 2013; SCP, 2011). In addition, fathers' time with children tends to center more around playful interactions, whereas mothers are more often involved in daily child care routines (Huerta et al., 2013; Monna & Gauthier, 2008) that are likely to provoke situations in which they have to discipline their children (e.g., conflicts about eating or bedtime). This is in line with findings that fathers tend to engage more often in parenting behavior that support mothers' efforts, but are less involved in the daily administration of discipline themselves (Day et al., 1998). Fathers might feel that the responsibility of disciplining young children lies with the mother.

With respect to the use of commands and physical interference, mothers used more commands and physical interference than fathers, but only toward the youngest children. It may be that fathers have problems to adjust their discipline behavior in a way fitting the developmental level of 1-year-old children, which may lead to differences in responses to noncompliant behavior for mothers and fathers. In a related vein, previous work suggests that fathers show a later increase in verbal instructions with their maturing children than mothers (Fagot & Hagan, 1991). In addition, the distribution of caregiving between parents is especially skewed

toward mothers with very young children, while fathers become more involved as the child gets older (Bailey, 1994; Furman & Lanthier, 2002), indicating larger differences between mothers and fathers interacting with younger rather than older children.

Our finding that both mothers and fathers used more commands and distraction toward the oldest child than toward the youngest child is in line with results from previous studies (e.g., Volling et al., 2006). Both mothers and fathers used more physical interference with their youngest child than with their oldest child, which is in line with findings that parents are sensitive to the developmental differences between siblings (Dunn, Plomin, & Daniels, 1986; Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998). Since there is an important developmental gap between one-year-old and three-year-old children, it is likely that parents adjust their discipline behavior accordingly. Older children have greater understanding of language and are expected to be better able to comply with parental verbal requests (Berk, 2006), whereas one-year-old children have only limited language understanding, eliciting more physical interference from parents. Furthermore, physical interference may be more socially accepted with infants than with older children (Day et al., 1998; Gershoff, 2002). Parents were also found to show more laxness in response to noncompliant behavior of the youngest child than of the oldest child, which may reflect parents' evaluation of the *don't-touch-task* as too difficult for 1-year-old children. Since inhibitory control starts to develop after 12 months of age (Edwards & Liu, 2002), parents may feel it is not appropriate to expect a 1-year-old to be able to not touch the toys. As a result, they may react with more laxness, but instead expect their 3-year-olds to be able to comply with the task.

Our within-family design allowed for a comparison of parental discipline strategies in families with a boy and a girl. We did not find evidence for gender-differentiated discipline as found in previous studies (e.g., Das Eiden et al., 2001; Domenech Rodríguez et al., 2009; Tam & Lam, 2003). However, these previous studies used between-family comparisons, meaning that between-family differences on third variables cannot be ruled out as alternative explanations for gender differences between groups (Rodgers et al., 2000; Rodgers, 2001). By adopting a within-family approach, our study suggests that whereas parent gender does influence parental discipline strategies toward young children, child gender is less salient in early childhood discipline.

In families with a boy and a girl, we found that mothers used more physical interference than fathers toward boys, but no difference was found between parents toward girls. Consistent with gender stereotypes, parents may feel that punishment is the appropriate strategy to change a boy's behavior (McKee et al., 2007), and physical punishment is also seen as a way to prepare boys for a world in which toughness and the ability to cope with hardship is expected (Day et al., 1998). Since mothers are generally the primary caregivers, they may encounter more situations

in which they have to discipline their children than fathers. As a result, especially mothers may bring this gender stereotypical idea about rearing boys into practice.

Our study has some limitations. First, the sample consisted of mostly Caucasian families with predominantly high educational levels. Because discipline practices may vary by ethnicity or social class (Pinderhughes, Dodge, Zelli, Bates, & Pettit, 2000), it is important to examine gender differences in more diverse samples. Second, child characteristics other than child gender and birth order (e.g., child temperament or problem behavior) may influence discipline practices, and need to be included in future research in this area. Third, in our study we could not control for the time mothers and fathers spend with their children, whereas there is some evidence that differences between mothers and fathers may be partly due to differences in time spent in child rearing (Arnold & O'Leary, 1997). Future research should take this aspect into account. Last, although parental discipline strategies for each dyad were coded independently, both children were present during the don't-touch-task. As a result, parents had to respond to noncompliant behavior of both children at the same time. It is possible that the levels of discipline behavior are higher or lower in a situation in which the parent has to discipline only one child. However, the setting used in this study is thought to resemble daily family life in which parents have to deal with the behavior of both children at the same time, thus increasing the ecological validity of the observations.

To conclude, parental discipline varies by the age and developmental level of the children. We found evidence that mothers discipline their children more often than fathers. However, parents did not show gender-differentiated discipline behavior, suggesting that child gender plays a less prominent role in parental discipline practices than is generally assumed. Our findings provide evidence for the notion that traditional family role patterns have changed over the last decades with respect to parental discipline. Mothers rather than fathers appear to be the main disciplinarian in families with young children. Whether these differences between mothers and fathers in parental discipline have differential impact on young children's development is an important direction for future research, and research into this question should also take the role of child age into account.

chapter 6

General discussion

In the current dissertation, similarities and differences between mothers' and fathers' parenting practices are examined while taking both biological factors (i.e., parental sex hormones) and child characteristics (i.e., gender, age, and birth order) into account. The findings of the studies described in this dissertation are illustrated in Figure 1. Chapter 2 revealed that mothers show higher levels of sensitivity and nonintrusiveness than fathers. In Chapter 3, the effect of birth order and child age on parenting behavior of mothers and fathers were disentangled and the results indicate that parents are more sensitive and intrusive towards their firstborn child than towards their second-born child above and beyond child age. The results in Chapter 4 suggest that more diurnal variability in testosterone is associated with higher parenting quality in fathers, but lower parenting quality in mothers. Finally, in Chapter 5 the results points towards mothers intervening more often in response to non-compliant behavior of their children than fathers, but both mothers and fathers adjust their discipline strategies to the developmental level of their children. Below, the findings of the studies presented in this dissertation are summarized and discussed in more detail. In addition, limitations, suggestions for future research, and implications are described.

Parent gender

The current dissertation suggests that mothers show more optimal parenting practices than fathers. When the children were one and three years old, mothers interfered more often when their children were disobedient than fathers. Fathers, on the other hand, showed more laxness in response to child non-compliance than mothers (Chapter 5). These findings are in line with previous work (e.g., Blandon & Volling, 2008; Day, Peterson, & McCracken, 1998; Power, McGrath, Hughes, & Manire, 1994; Tulananda & Roopnarine, 2001; Volling, Blandon, & Gorvine, 2006), and suggest that fathers are less involved in daily discipline routines in the family than mothers. Further, mothers were more sensitive and nonintrusive towards their two children than fathers (Chapter 2). Several other studies have also reported gender differences with respect to parental sensitivity and nonintrusiveness (e.g., Barnett, Deng, Mills- Koonce, Willoughby, & Cox, 2008; Bergmann, Wendt, Von Klitzin, & Klein, 2013; Schoppe-Sullivan et al., 2006), but the current dissertation extends these findings by showing that the differences between mothers and fathers are persistent over time (Chapter 3).

The differences between mothers' and fathers' parenting practices can perhaps be explained in light of a biosocial perspective proposed by Wood and Eagly (2012) who assume that "sex differences and similarities in behavior emerge from the division of labor in a society, which itself is a product of social and cultural forces in interaction with the biological features characteristic of each sex" (p. 59). Although this theory focused on gender differences in general, the rationale can be applied to the family context in order to explain differences in parenting practices

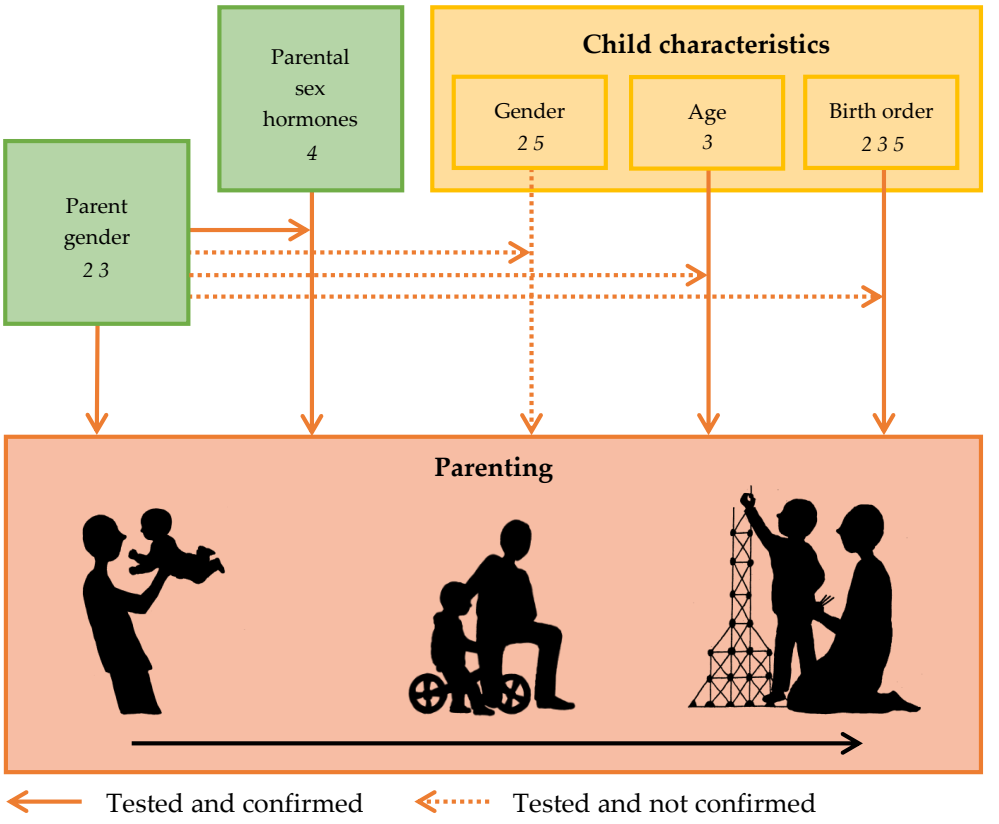

Figure 1. *Illustration of the results of this dissertation.*
Note. The numbers refer to the chapters focusing on the specific topic.

between mothers and fathers. The specific roles of mothers and fathers in a society are primarily dependent on how the physical differences between the sexes enable or constrain the efficient performance of everyday activities. More specifically related to parenting, women's childbearing and nursing facilitate infant care, but at the same time interferes with many other activities, such as activities that require specialized training or extended absence from home. As a result, women tend to perform activities compatible with childcare (e.g., part-time jobs, working at home), and men tend to perform activities less compatible with childcare (e.g., having full-time jobs or jobs that require strength). This division of labor between mothers and fathers activates a variety of psychological and social processes that in turn stabilizes the division (Wood & Eagly, 2012). For example, the observation of the different activities performed by mothers and fathers results in the development of child gender role beliefs about how mothers and fathers should behave in certain situations (i.e., mothers as homemakers and fathers as economic providers). In

general, such gender roles encourage parents to conform to these shared beliefs and to internalize these beliefs regarding mothers and fathers as personal standards for their own behavior (Eagly, Wood, & Diekman, 2000).

The findings of the studies presented in this dissertation fit the assumptions of the biosocial perspective (Wood & Eagly, 2012). Given that sensitive parenting relies heavily on the correct interpretation of child signals (Mesman & Emmen, 2013), more time spent with a child is likely to lead to a more accurate understanding of his or her needs. In the Netherlands, mothers have been found to be more involved in child care than fathers (Sociaal Cultureel Planbureau [SCP], 2011), which in turn might result in higher levels of sensitivity and nonintrusiveness for mothers than fathers. In addition, spending more time with their children gives mothers more opportunities for discipline, whereas fathers are less likely to experience situations in which they have full responsibility for their children and be the active disciplinarian.

An often heard critique of gender theories such as Wood and Eagly's (2012) biosocial model, is that they are no longer applicable to Western societies because of the shift towards more egalitarian gender roles. Over the last few decades a shift in gender role patterns has occurred in Western societies: Mothers' participation in the labor market increased substantially and fathers have taken more active roles in their children's socialization (Cabrera, Tamis-LeMonda, Bradley, Hoffert, & Lamb, 2000; Lamb, 2010). However, although the division of gender roles became less strict in most modern Western societies, there is evidence that maternal involvement still remains substantially higher and that mothers spend on average two to three times as much time in direct one-on-one interaction with their children compared to fathers (Huerta et al., 2013; SCP, 2011). This implies that mothers are still the primary caregivers of young children in most families. In addition, in the Netherlands, 42% of men and 23% of women still believe that women are more competent caregivers than men (SCP, 2014). Furthermore, several studies have shown that men and women become more traditional in their gender-role attitudes following the birth of a child (e.g., Baxter, Buchler, Perales, & Western, 2015; Katz-Wise, Priess, & Hyde, 2010). Both men and women become more likely to support parenthood as women's most important role in life. So even though some aspects of traditional gender roles have become less salient over time, gender role theories are still very relevant to current-day societies (Endendijk, Groeneveld, & Mesman, 2014).

Biological factors

The results from Chapter 4 show that parental testosterone levels are associated with parenting behavior of both mothers and fathers. However, the associations between variability in testosterone and parenting behavior were different for mothers and fathers. For mothers, more variability in testosterone was related to

lower levels of parental sensitivity and nonintrusiveness, whereas for fathers more variability in testosterone was related to more optimal parenting. To the best of our knowledge, no previous study has examined the link between diurnal variability in testosterone and parenting *quality*. Nevertheless, there is some evidence suggesting that variability in testosterone is also differently related to behavior problems in adolescent boys and girls (Granger et al., 2003). These findings suggest that the testosterone system might act differently on behavior in men and women.

Because of the lack of research in this field, we can only speculate about the possible (biological) mechanisms underlying these gender differences. It has been suggested that alterations in testosterone levels in males reflect a shift between conflicting reproductive strategies and that these variations in testosterone levels enable men to change from mating efforts to parenting efforts (Gray & Anderson, 2010). This proposition has already been illustrated in multiple studies in more than 60 bird species that showed that testosterone levels increase when males compete for food and territory and decrease when males need to care for offspring (Wingfield, Hegner, Dufty Jr., & Ball, 1990). In human fathers, a similar pattern has been found. For example, one study found that fathers who show a decrease in testosterone levels in response to fatherhood are more likely to have a positive relationship with their child compared to fathers who show a smaller or no decrease in testosterone levels (Weisman, Zagoory-Sharon, & Feldman, 2014). Because continuously high testosterone levels would interfere with successful parenting and continuously low testosterone levels would decrease mating success, it may thus be essential for fathers to have a flexible testosterone system.

For mothers, on the other hand, the ability to lower their testosterone levels might be less necessary to achieve optimal parenting, because their testosterone levels are already substantially lower than those of fathers. A flexible testosterone system in relation to caregiving might even be less adaptive for mothers, because a certain level of testosterone seems to be necessary to respond appropriately to challenging parenting contexts (e.g., baby cries). There is evidence that the administration of testosterone in women enhances, rather than suppresses, neural responsivity to baby cries in women (Bos, Hermans, Montoya, Ramsey, & Van Honk, 2010). This finding could be the effect of multiple neurobiological mechanisms. For example, aromatase metabolizes testosterone to estradiol in the central nervous system, which in turn is essential for the synthesis of oxytocin (e.g., Cornil, Ball, & Balthazart, 2006). Estradiol and oxytocin both promote mother-infant bonding and stimulate parental behavior (e.g., Insel & Young, 2001; Kendrick, 2000). Animal studies have shown that in mice the conversion of testosterone to estradiol by aromatase stimulates parenting behavior (e.g., Trainor & Marler, 2001). Although the administration of testosterone results in an approximate 10-fold increase in blood levels of testosterone (Tuiten et al., 2000), which is not

representative of general testosterone levels in women, it might be the case that a certain amount of testosterone is essential for parenting behavior.

It is also possible that gender differences in testosterone variability in response to parenting are associated with different neural substrates in the brain. Males have been found to be more responsive than females to the behavioral and neuroendocrine actions of androgens (e.g., Fernández-Guasti, Kruijver, Fodor, & Swaab, 2000; Roselli, 1991). Although the bases of these differences in adult responsiveness to androgen are not fully understood, it has been suggested that structural and functional gender differences in the central nervous system play a role. Several studies have shown gender differences in the concentrations of androgen receptors (AR) in the rat brain (e.g., Simerly, Chang, Maramatsu, & Swanson, 1990; Roselli, 1991). For example, one study showed differences in either the number of AR cells or the relative density of labeling over certain cell groups in several regions in the rat brain (Simerly et al., 1990). Although no absolute sex differences in the amount of AR in the rat brain were found, these subtle sex differences in AR distribution might explain the different relation between testosterone and behavior in males and females. It has already been demonstrated that variation in oxytocin receptor density in the brain of prairie voles and meadow voles can contribute to variation in social attachment behaviors (Ross et al., 2009), suggesting that differences in the distribution of receptors in the brain may indeed contribute to variation in social behavior. However, more research is required to examine whether these findings also apply to humans and how these neurobiological gender differences in the testosterone system are related to parenting behavior.

Child characteristics

Child gender. The results of the studies presented in this dissertation suggest that the child's gender does not play a substantial role in either mothers' or fathers' global parenting practices in early childhood. Mothers and fathers did not differ in their levels of sensitivity and nonintrusiveness towards sons and daughters (Chapter 2). In addition, parents used similar discipline strategies with boys and girls (Chapter 5). These findings contrast the general assumption that parents treat their sons and daughters differently.

It should be noted, though, that evidence regarding gender-differentiated parenting is rather inconclusive. Back in the 1970s and 1980s, a series of now classic experiments were performed in which infants were dressed up as boys or girls (regardless of their actual gender). The results consistently showed that when adults perceive the infant to be a boy, they encourage and initiate more gross motor play and engage in less verbal interaction than when the infant is perceived to be a girl (Culp, Cook, & Housley, 1983; Smith & Loyd, 1978). Since then, a growing body of research has shown that parents tend to treat boys and girls differently (e.g., Das

Eiden, Leonard, & Morrisey, 2001; Domenech Rodríguez, Donovick, & Crowley, 2009; Lovas, 2005; Martin & Ross, 2005; Mills & Rubin, 1990; Tam & Lam, 2003). Nevertheless, several reviews revealed that surprisingly few studies support the idea of gender-differentiated parenting by mothers and fathers (Lytton & Romney, 1991; Maccoby & Jacklin, 1974; Russel & Saebel, 1997). For example, Lytton and Romney (1991) concluded that out of 19 socialization areas, the only area in which North-American mothers and fathers showed significant differences in their treatment of boys and girls was the encouragement of sex-typed activities. In addition, almost all studies on gender-differentiated parenting are limited by making between-family comparisons. By comparing parenting practices between families with boys and families with girls, other family characteristics (e.g., social-economic status, gender role attitudes) can not be ruled out as explanatory factors (Ball, McKenry, & Price-Bonham, 1983; Rodgers, 2001; Rodgers, Cleveland van den Oord, & Rowe, 2000). By adopting a within-family approach, our study suggests that child gender is less salient in early childhood parenting practices than previously assumed.

Although we did not find evidence for the proposition that parents use different global parenting practices with boys and girls during early childhood, our findings can not completely rule out any effect of child gender on parenting practices of mothers and fathers. Different behaviors towards sons and daughters may be difficult to detect (Raley & Bianchi, 2006) and parents may use gender-differentiated parenting in subtle ways. One of the more implicit ways through which parents can express gender concepts towards their children is by using gender talk, which is defined as the way parents talk to their children about gender, for example by contrasting males and females or emphasizing gender categories (Gelman, Taylor, & Nguyen, 2004). A recent study indeed showed that fathers and mothers use indirect ways to communicate the appropriateness of certain behaviors for boys and girls (Endendijk et al., 2014). More specifically, mothers and fathers have been found to refer to gender-neutral characters doing male-typed play activities (e.g., skateboarding) more often as males than as females during picture-book reading. Further, mothers were more positive about stereotype-congruent activities than about stereotype-incongruent activities. Another study also found evidence for the more subtle role of child gender in emotion socialization (Van der Pol et al., 2015). Although no differences in parental emotion talk towards boys and girls were observed, parents associated anger more with boys and associated sadness and happiness more with girls. To conclude, our findings confirm the notion that no gender differences are found when broader categories of parenting (e.g., sensitivity, discipline) are examined, but the literature indicates that gender-differentiated parenting might only be visible in specific situations or in response to specific child behaviors rather than on the level of general parenting styles.

Child age. Chapter 3 shows that the age of the children is an important factor to take into account in parenting research. More specifically, parents' nonintrusiveness increased from infancy to early childhood, while parental sensitivity increased from infancy to toddlerhood, but decreased when children reached early childhood. These findings imply that the developmental status of the child (reflected by child age) affects mothers' and fathers' parenting practices. During the first years of life, infants undergo important changes in the body and brain that contribute to physical, cognitive, and social development (Berk, 2003; Bornstein, 2002). For example, children develop skills to communicate their needs and wishes in a verbal manner. This increased use of language might help parents to adjust their responses in a way that fit their child's needs. However, important phase transitions in the child's life (e.g., onset of school attendance) can lead to a reorganization of the parent-child relationship (Granic, Hollenstein, Dishion, & Patterson, 2003). Phase transitions are characterized by an increase in the variability of dyadic patterns and might temporarily interfere with optimal parenting practices and parental involvement with the child. Following this line of reasoning, we suggest that the increase in parental nonintrusiveness may not unequivocally reflect optimal parenting but may also reflect parental behavior that is characterized by a lack of involvement, participation, and interference in the child's activities. Such behaviors can reflect lower levels of optimal parenting when they are associated with lower responsiveness to the child's signals.

The current findings extend the literature by showing that the change of parenting practices with child age is similar for mothers and fathers (Chapter 3). In contrast to one previous study (Bergmann et al., 2013), our results suggest that fathers do not yet catch up in their sensitivity and nonintrusiveness levels during early childhood. However, although fathers on average only spend 46% of mothers' time on caregiving activities with infants, their participation in personal care activities increases over time towards a more equal share with school-aged children (Yeung, Sandberg, Davis-Kean, & Hoffert, 2001). It is therefore possible that the differences between mothers and fathers with respect to parenting practices become smaller when the children reach middle childhood and the division of childcare between mothers and fathers becomes more equal.

Birth order. Chapter 2 and Chapter 5 show that parents use different parenting practices with their firstborn and second-born children. Both mothers and fathers used more verbal discipline strategies (e.g., commands and distraction) with their firstborn child, whereas physical discipline strategies and laxness were more often observed in response to non-compliant behavior of the second-born child (Chapter 5). In addition, mothers and fathers were more sensitive and nonintrusive towards their firstborn child than towards their second-born child (Chapter 2). However, the studies described in Chapter 2 and Chapter 5 examined parenting practices towards firstborn and second-born children at one time point, when the

two siblings differed in age. As a result, it remains unclear whether the differences in parental treatment of firstborn and second-born children are due to birth order effects or child age. There is some evidence that the differences in parental treatment of firstborn and second-born children might indeed be explained by differences in developmental status. Parents appear to be sensitive to the developmental differences between siblings and adjust their parenting practices accordingly (Dunn, Plomin, & Daniels, 1986; Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998).

To disentangle the effect of child age and birth order on parenting behavior during infancy and early childhood, differences in parental treatment of siblings when they had the same age were examined in Chapter 3. Although parenting practices are affected by the child's age, our results suggest that parents also treat their firstborn and second-born children differently irrespective of child age. Mothers and fathers showed higher levels of sensitivity towards their firstborn child than towards their second-born child when comparing parenting practices of siblings at the same age. In addition, both parents were also more intrusive towards their firstborn child than towards their second-born child at the same age. Although we expected to find support for the learning-from-experience hypothesis (Whiteman, McHale, & Crouter, 2003), the differences in parental treatment of siblings seem to point towards higher parental involvement with firstborn children than with second-born children. This is in line with the resource dilution hypothesis (Blake, 1981), which proposes that parents have had more time for one-on-one attention with their firstborn child, as they experienced a period in which they did not have to divide their attention between two children. This advantage with firstborn children may result in firstborn children receiving higher quality parenting than second-born children. From this viewpoint, our finding that parents showed higher levels of nonintrusive behavior towards their second-born children than towards their firstborn children may seem contradicting. However, higher levels of parental nonintrusiveness do not necessarily reflect positive parenting, they may also reflect a generally lower level of involvement with the second-born child than with the firstborn child. Following this line of reasoning, higher levels of parental nonintrusiveness with their second-born children is consistent with the assumption that firstborn children receive more and more optimal parenting than second-born children.

Conceptualizing dimensions of parenting for fathers and mothers

There is a continuing debate on whether and how parenting by fathers is different from parenting by mothers. Although this debate motivated early research on fathering, it has had the unintended effect of dividing the field into research supporting the view that fathers are just like mothers and research supporting the view that fathers are different from mothers (Cabrera, Fitzgerald, Bradley, &

Roggman, 2014). These two positions represent very contrasting views on parenting by mothers and fathers.

In line with the view that fathers and mothers are similar, Fagan, Day, Lam, and Cabrera (2014) state that they "struggle to find solid evidence for the argument that the dimensions of fathers' and mothers' parenting behaviors are conceptually unique" (p. 390). Instead, they argue that the field should move towards a more general model of parenting rather than a model emphasizing distinct dimensions of mothering and fathering. Fagan and colleagues (2014) base their argument on three sets of findings: (1) there is ample evidence that parenting constructs, such as sensitivity and discipline, are the same for mothers and fathers (e.g., Adamsons & Buehler, 2007; Ashbourne, Daly, & Brown, 2011; Finley, Mira, & Schwartz, 2008; Prinzie, Onghena, & Hellinckx, 2007; Van Leeuwen & Vermulst, 2004), (2) a growing body of research shows that mothers' and fathers' parenting practices affects their children in similar ways (e.g., Lewis & Lamb, 2003; McDowell & Parke, 2009; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004), and (3) mothers and fathers are becoming more similar with respect to their roles, the types of behaviors used during parent-child interaction, and the amount of time they spend with their children (e.g., Gauthier, Smeedeng, & Furstenberg Jr., 2004; Raley, Bianchi, & Wang, 2012).

Although Fagan and colleagues (2014) state that there is no strong evidence of essential differences between mothers and fathers parenting behavior, other researchers argue that differences do exist in the processes and meaning of mothers' and fathers' involvement (Palkovitz, Trask, & Adams, 2014). An often heard critique with respect to research on fathering is that "much of the literature on parenting is framed by a conception of caregiving built around maternal parenting, or what is called the 'maternal template'" (Roggman, Fitzgerald, Bradley, & Raikes, 2002, p. 2). By using parallel measures for mother and father involvement or, e.g., sensitivity, there may be a risk of ignoring fundamentally different meanings and processes of mothering and fathering (Palkovitz et al., 2014). Indeed, some studies provided preliminary evidence that there may be a difference in the essence of mothering and fathering, suggesting that parenting by mothers and fathers is conceptually different. For example, Pedersen (2012) found that mothers and fathers understand and prioritize family and child care needs differently. For mothers, good mothering is distinct from good parenting, whereas for fathers, good fathering and good parenting are one and the same. During interviews, mothers reported three interrelated components of good parenting: reliability, structure, and disciplinary consistency. Fathers, on the other hand, indicated that being a 'good parent' means being a participant in family life and spending time with one's child. They also described their fathering role as helping and supporting mothers rather than viewing parenting as a primary responsibility (Pedersen, 2012). Not only the affective and cognitive perceptions of parenting may be different for mothers and

fathers, a recent study showed that the brain-hormone-behavior pathways underpinning motherhood and fatherhood are also different (Abraham et al., 2014). Although primary-caregiving fathers showed similar amygdala activity in response to infant-related cues as mothers, the neural pathways through which parenting behavior was affected were still different for mothers and primary-caregiving fathers. Furthermore, there is ample evidence that mothers and fathers also engage in different types of interactions with their children from early infancy (e.g., Lamb & Lewis, 2010; Palkovitz, 2013; Parke, 2002). In addition, several studies indicate that parenting behavior of mothers and fathers affects child development differently (e.g., Cabrera, Shannon, & Tamis-LeMonda, 2007; Grossman et al., 2002; Kochanska, Askan, Prisco, & Adams, 2008; LaBounty, Wellman, Olson, Lagattuta, & Liu, 2008; Martin, Ryan, & Brooks-Gunn, 2007), suggesting possible unique influences of mothers and fathers.

To date, the literature does not provide a definite answer whether measurements originally developed for parenting by mothers can also be applied to study fathers. Although the results in the current dissertation point towards differences between mothers and fathers with respect to parental sensitivity and discipline, this does not necessarily imply conceptual differences in parenting behavior by mothers and fathers. Studies examining sensitivity and discipline behavior of fathers have shown meaningful associations with child outcomes in a variety of domains (e.g., Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003; Bernstein, Harris, Long, Iida, & Hans, 2005; Feldman & Klein, 2003; Lucassen et al., 2011; Tamis-LeMonda et al., 2004; Volling et al., 2006). In addition, although several studies suggest that other aspects of father-child interactions are more salient for child development, such as challenging and stimulating play (e.g., Grossmann et al., 2002), this has not been confirmed by recent work. For example, a meta-analysis showed that fathers' sensitive play combined with stimulation was not more strongly associated with attachment security than sensitive interactions without stimulation of play (Lucassen et al., 2011). Following these findings it seems reasonable to use common parenting measures for both mothers and fathers, at least with respect to parental sensitivity and discipline.

Limitations and directions for future research

Several limitations of the current dissertation should be mentioned. First, the sample used in this dissertation consisted of primarily highly educated Caucasian families, which hampers the generalization of the results to the general population. There is ample evidence that parenting practices vary between families with different socioeconomic status (SES) and ethnic backgrounds. For example, lower SES parents tend to be more controlling and more punitive than higher SES parents (Hoff, Laursen, & Tardif, 2002). Further, there may also be cultural variation in parenting practices. In most Western societies there is a trend for more egalitarian

gender roles within the family, whereas in non-Western cultures the roles of females and males are more strict (World Economic Forum, 2014). To date, there is evidence that differences with respect to harsh punishment between mothers and fathers are larger in African American parents than in European American parents (Pinderhughes, Dodge, Zelli, Bates, & Pettit, 2000). To gain more insight in parenting differences between mothers and fathers, future research should include families with different SES and ethnic backgrounds to examine whether the differences between mothers' and fathers' parenting practices also apply to families with low SES and non-Western backgrounds.

Second, in this dissertation we could not control for the time mothers and fathers spent with their children, whereas there is some evidence that differences in parenting practices between mothers and fathers may be partly due to differences in time spent in child rearing. For example, in one study differences between mothers' and fathers' discipline behavior were found, but after controlling for the time mothers and fathers spent with their children (and parental depression) the difference between mothers' and fathers' discipline behavior disappeared (Arnold & O'Leary, 1997). A direction for future research is to examine whether the differences in parenting practices between mothers and fathers can indeed be (partly) explained by the time parents spent with their children.

Third, the interpretation of the results with respect to parental nonintrusiveness in this dissertation were rather complicated. Overall, our interpretation of the results suggest that parental nonintrusiveness can indicate either positive parenting or less optimal parenting, depending on the level of parental involvement with the child. In order to gain more insight in the nature of parental nonintrusiveness, it is important to take parental involvement into account in future research.

Fourth, the setting of the tasks (e.g., free play sessions with preselected toys) used in the studies presented in this dissertation may have limited the types of interactions that mothers and fathers typically use with their children. There is ample evidence that there are notable differences between mothers and fathers in the type of interactions with their children (e.g., Blakemore, Berenbaum, & Liben, 2009; Lamb & Lewis, 2010; Paquette, 2004; Volling, McElwain, Notaro, & Herrera, 2002). For example, mothers tend to be more verbal, didactic, and show more toy-mediated play, whereas fathers use more physical and stimulating play when interacting with their children (Parke, 2002). This latter type of play is probably less likely to occur in a situation in which parents are invited to play with their child with a set of preselected toys (e.g., drawing board, a tea set, Lego) that are more geared towards sitting down and not moving around a lot. To our knowledge, no studies have yet examined parenting differences between mothers and fathers in a situation that is more likely to elicit fathers' preferred style of play. Observing

parenting behavior during a play situation without preselected toys would therefore be an important and interesting direction for future research.

Last, in the current dissertation we did not test whether the differences between mothers' and fathers' parenting practices towards firstborn and second-born children affect child development differentially. Several studies suggest that mothers and fathers influence their children in similar ways (e.g., Lewis & Lamb, 2003; Lucassen et al., 2011; McDowel & Parke, 2009; Tamis-LeMonda et al., 2004), whereas other studies propose that parenting behaviors of mothers and fathers affect child development differently (e.g., Cabrera et al., 2007; Grossman et al., 2002; Kochanska et al., 2008; LaBounty et al., 2008; Martin et al., 2007). In a similar vein, differences in parental treatment of siblings might be associated with variations in child behavior (e.g., Van Berkel et al., 2014; Fearon, Bakermans-Kranenburg, & Van IJzendoorn, 2010; Fearon et al., 2006). For example, a recent study showed that paternal sensitivity was positively associated with prosocial behavior of toddlers, but only when fathers showed low levels of sensitivity towards the toddler's younger sibling (Van Berkel et al., 2014). This finding implies that, in line with family-systems theories, interactions between dyads within the family influence other dyadic interactions within the family, which in turn influence child outcomes (Minuchin, 1985; Volling, Kolak, & Blandon, 2009). It is important to build on the findings of this dissertation when studying similarities and differences in parenting practices between mothers and fathers towards their firstborn and second-born children in relation to child development. Increased knowledge of the effect of parental treatment of siblings on child behavior might contribute to the development of effective parenting programs in the future.

Implications for research

Overall, the current dissertation provides evidence for the assumption that mothers show more optimal parenting practices than fathers. Even though most Western societies, such as the Netherlands, move towards more egalitarian gender roles, differences between mothers and fathers with respect to parenting practices exist. This implies that parenting is undeniably a gendered activity.

Although our results point to differences in parenting practices of mothers and fathers, bioecological theory (Bronfenbrenner, 1995) suggests that sometimes fathers will enact roles played by mothers, and vice versa, in response to environmental conditions that require adaptations (e.g., both parents working, primary-caregiving fathers). A recent study found support for substantial plasticity of the human paternal brain (Abraham et al., 2014). Whereas primary-caregiving mothers showed higher activation in the emotional processing network and secondary-caregiving fathers exhibited greater activation in socio-cognitive circuits, caregiving experience in primary-caregiving fathers involved the co-activation of both networks. To understand the complexities of fathering, it is therefore

important to consider contextual and individual factors that may move fathers to being more similar to or more different from mothers. In some situations and/or domains of development, the differences between mothers' and fathers' parenting practices may be quite large, whereas in other situations they may be very small (Cabrera et al., 2014).

To understand whether and how fathering might be different from mothering, it is also important to include all members of the family and all relations between family members. Most research on parenting practices of mothers and fathers focuses on only one child per family and on dyadic parent-child interactions. However, there is evidence that mothers' and fathers' interactions with their children are different when they are observed in a dyadic or triadic context (e.g., Bingham, Kwon, & Jeon, 2013; Kwon, Jeon, Lewsader, & Elicker, 2012; Lindsey & Caldera, 2006; Scarano de Mendonça, Cossette, Strayer, & Gravel, 2010). In a related vein, parenting towards one child is not necessarily representative of the quality of parenting towards other children within the family. This underscores the urge to study the parenting practices of mothers and fathers towards more than one child per family.

Implications for practice

Both maternal and paternal sensitivity and discipline behavior have found to be related to secure attachment relations and positive developmental outcomes (e.g., Bakermans-Kranenburg et al., 2003; Bernstein et al., 2005; Feldman & Klein, 2003; Lucassen et al., 2011; Tamis-LeMonda et al., 2004; Volling et al., 2006). It is therefore important to promote sensitive parenting and positive discipline in both mothers and fathers. Since fathers show lower levels of sensitivity and discipline strategies, it may be particularly beneficial to focus on fathers in intervention programs. Intervention studies aimed at increasing maternal sensitivity and positive discipline have been found to be effective, and interventions involving fathers appeared to be significantly more effective than interventions focusing on mothers only (Bakermans-Kranenburg et al., 2003). Although little attention has been paid to the role of fathers in interventions, there is some evidence suggesting that it is possible to improve both the quantity (e.g., time spent in interaction with their child) and the quality (e.g., fathers' sensitivity and positive discipline) of fathers' involvement with their children through intervention programs (Doherty, Erickson, & LaRossa, 2006; Fagan & Iglesias, 1999; Magill-Evans, Harrison, Benzies, Gierl, & Kimak, 2007). In addition, a pilot study on the feasibility of the home-based Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD) with fathers also showed encouraging results (Lawrence, Davies, & Ramchandani, 2012).

Conclusion

To conclude, the current dissertation indicates that parent gender plays an important role in the quality of parent-child interactions in early childhood. In line with previous findings that the vast majority of mothers are generally the primary caregivers of young children (Huerta et al., 2013; SCP, 2011), the studies in this dissertation indicated that mothers showed more optimal parenting behavior towards their two children than fathers. Further, biological factors (e.g., diurnal variability in testosterone) and child characteristics (e.g., child age and birth order) were found to affect parenting practices in both mothers and fathers. Although the studies presented in this dissertation point towards differences between mothers' and fathers' parenting practices, it is important to note that the differences are relatively small. Moreover, our findings do not necessarily imply that fathers show low-quality parenting. Instead, the mothers and fathers in our sample score relatively high on sensitivity and nonintrusiveness. We should be careful with respect to the interpretation of the differences between mothers' and fathers' parenting practices, because there may be serious costs of overinflated claims of gender differences (Hyde, 2005). For example, it may strengthen the stereotype of women as caring and nurturing and men as lacking in this area. As a result, men may believe they can not be nurturing in their role as father. It is therefore important to consider and value the contexts in which differences between mothers' and fathers' parenting practices may emerge and when mothers and fathers may be more similar to each other.

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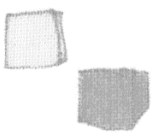
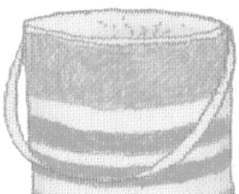
Appendices

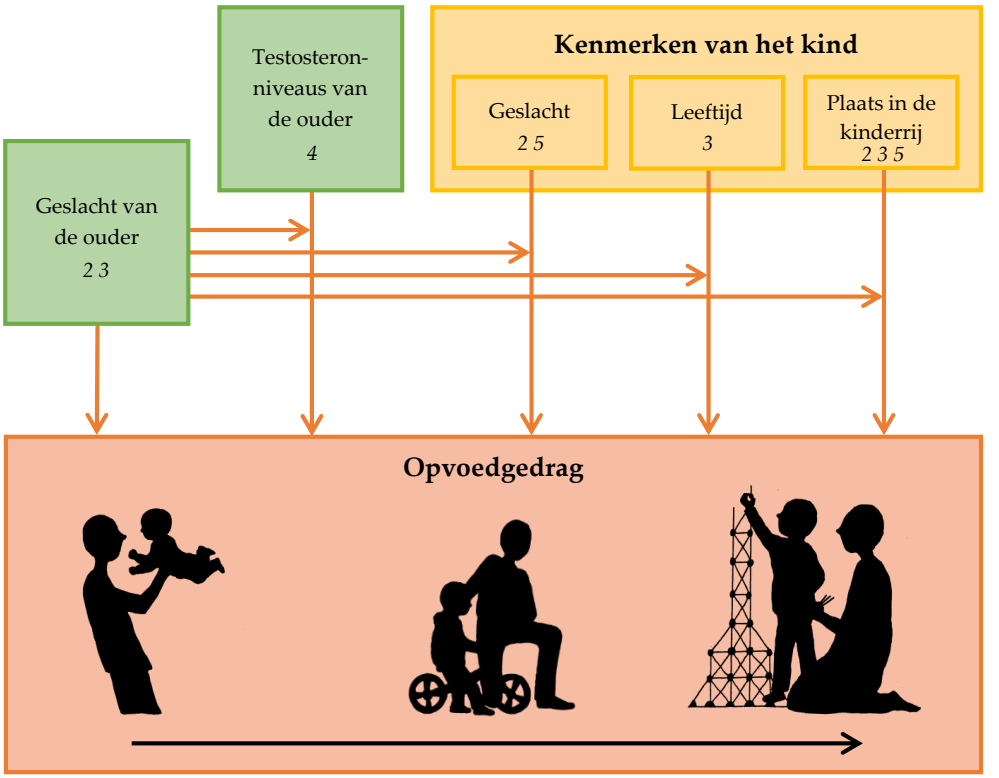




NEDERLANDSE SAMENVATTING (SUMMARY IN DUTCH)

Het klassieke gezin bestaat uit een man die kostwinner is en een vrouw die de zorgtaken en het huishouden op zich neemt (Lamb & Lewis, 2010). Hoewel vaders in de afgelopen decennia meer tijd zijn gaan besteden aan de verzorging van hun kinderen (Sociaal Cultureel Planbureau [SCP], 2011), zijn nog steeds duidelijke verschillen zichtbaar tussen vaders en moeders. Zo besteden moeders gemiddeld twee tot drie keer zoveel tijd aan de verzorging van hun kinderen dan vaders, zelfs de 10% van de Nederlandse moeders die fulltime werken (Craig, 2006; Huerta et al., 2013; SCP, 2011). Dit laat zien dat de meeste moeders tegenwoordig nog steeds de primaire zorg voor de kinderen dragen. Het is echter veel minder duidelijk of vaders en moeders ook verschillen in de manier waarop zij hun kinderen opvoeden. Diverse studies laten een duidelijk onderscheid in opvoedgedrag tussen beide ouders zien (bijv. Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Bergmann, Wendt, Von Klitzin, & Klein, 2013; Blandon & Volling, 2008; Leaper, Anderson, & Sanders, 1998), maar er zijn ook aanwijzingen dat de verschillen tussen vaders en moeders relatief klein zijn (bijv. Lytton & Romney, 1991; Maccoby, 1990; Russel & Saebel, 1997). In onderzoek naar de opvoeding van kinderen is het daarom van belang om het gedrag van zowel vaders als moeders te bestuderen.

Opvoedgedrag kan door verschillende factoren worden beïnvloed, namelijk door kenmerken van de ouder zelf en kenmerken van het kind (zie Figuur 1). Naast het geslacht van de ouder, zijn diverse biologische processen in verband gebracht met sekseverschillen in de manier waarop ouders kunnen kinderen opvoeden (Hines, 2004). Met name het hormoon testosteron blijkt hierin een rol te spelen. Zo zijn lage testosteronniveaus bij vaders gerelateerd aan positief opvoedgedrag (Gettler, McDade, Feranil, & Kuzawa, 2011; Kuzawa, Gettler, Huang, & McDade, 2010; Wingfield, Hegner, Dufty Jr., & Ball, 1990). Er zijn echter voorzichtige aanwijzingen dat dit verband welllicht anders is voor moeders (Steiner, Fleming, Stallings, Corter, & Worthman, 1998). Kenmerken van het kind, zoals het geslacht, de leeftijd van het kind en zijn/haar plaats in de kinderrij, zijn eveneens bepalend voor het opvoedgedrag van ouders (Price, 2008; Raley & Bianchi, 2006; Russel & Saebel, 1997). Diverse studies tonen aan dat deze kenmerken een verschillende invloed kunnen hebben op vaders en moeders (Bergmann et al., 2013; Lytton & Romney, 1991; Shanahan, McHale, Crouter, & Osgood, 2007).



Figuur 1. Illustratie van de onderwerpen in dit proefschrift.
Opmerking. De nummers in het figuur verwijzen naar de hoofdstukken waarin de betreffende onderwerpen zijn onderzocht.

In de studies beschreven in dit proefschrift worden de volgende vragen onderzocht:

1. In hoeverre verschillen vaders en moeders in de manier waarop zij hun kinderen opvoeden?
2. Zijn testosteronniveaus van vaders en moeders gerelateerd aan hun opvoedgedrag?
3. Spelen kenmerken van het kind (geslacht, leeftijd, plaats in de kinderrij) een rol in de manier waarop vaders en moeders hun kinderen opvoeden?

Verschillen in opvoedgedrag van vaders en moeders

In dit proefschrift zijn verschillende facetten van opvoeding bestudeerd: sensitiviteit, respect voor de autonomie van het kind en gedragsregulerende strategieën. Sensitiviteit verwijst naar de mate waarin ouders de signalen van hun kind begrijpen en hier adequaat en prompt op reageren (Ainsworth, Bell, Stayton, 1974). Respect voor de autonomie van het kind refereert aan het vermogen om ruimte te geven voor het eigen initiatief van het kind, zodat het zelf kan exploreren en ontdekken hoe de wereld rond hem/haar in elkaar zit (Biringen, 2008). Meerdere studies hebben aangetoond dat sensitiviteit en respect voor de autonomie van het kind essentieel zijn voor de ontwikkeling van kinderen (bijv. Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003; Leerkes, Blankson, & O'Brien, 2009; Lucassen et al., 2011; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004; Webster, Low, Siller, & Hacket, 2013). De manier waarop ouders grenzen stellen aan het gedrag van hun kinderen is eveneens een belangrijk onderdeel van de opvoeding. Gedragsregulerende strategieën omvatten de strategieën die ouders gebruiken om ongehoorzaam gedrag te corrigeren en om hun kinderen te ondersteunen bij het gehoorzamen van regels (Locke & Prinz, 2002; Smith, 2004). Negatieve gedragsregulerende strategieën (zoals slaan, schelden en commanderen) is gerelateerd aan probleemgedrag bij kinderen (Gershoff, 2002; Russel & Russel, 1996; Webster-Stratton & Hammond, 1999), terwijl positieve gedragsregulerende strategieën (zoals aanmoedigen, uitleg geven en het kind afleiden) juist bijdragen aan gunstige ontwikkelingsuitkomsten (Bernstein, Harris, Long, Iida, & Hans, 2005; Feldman & Klein, 2003; Reid, O'Leary, & Wolff, 1994; Volling, Blandon, & Gorvine, 2006).

De resultaten van de studies in dit proefschrift laten zien dat moeders meer optimaal opvoedgedrag laten zien dan vaders. In de studie beschreven in Hoofstuk 5 werd gevonden dat moeders vaker ingrepen dan vaders als het hun kinderen niet lukte om een aantal minuten van mooi speelgoed af te blijven. Moeders grepen vaker in door iets te zeggen (bijv. zeggen dat ze niet aan het speelgoed mochten komen) of door iets te doen (bijv. het kind tegenhouden of het speelgoed afpakken). Ook probeerden moeders vaker dan vaders hun kinderen af te leiden van het aantrekkelijke speelgoed, door bijvoorbeeld een liedje te zingen of een raadspelletje te doen. Hoofdstuk 2 liet zien dat moeders tevens sensitiever waren en meer respect voor de autonomie van hun kind hadden dan vaders tijdens een spelsituatie. Uit de studie beschreven in Hoofdstuk 3 blijkt dat dit verschil tussen vaders en moeders gelijk blijft als de kinderen ouder worden.

De verschillen in de manier waarop vaders en moeders hun kinderen opvoeden komen overeen met de aannames van het biosociale model van Wood en Eagly (2012). Dit model gaat uit van het idee dat sekseverschillen in gedrag het resultaat zijn van de taakverdeling tussen mannen en vrouwen in de samenleving. In de meeste Nederlandse gezinnen is nog steeds een duidelijk verschil in zorgtaken

te zien tussen mannen en vrouwen: Nederlandse moeders zijn over het algemeen meer betrokken bij de opvoeding van hun kinderen dan vaders (SCP, 2011). Hierdoor hebben moeders meer gelegenheid om de signalen van hun kinderen te leren kennen en begrijpen, en om hun reacties hierop af te stemmen, dan vaders. Ook komen moeders, doordat zij meer tijd besteden aan de zorg voor kinderen, vaker in situaties waarin ze hun kinderen moeten corrigeren dan vaders (Day, Peterson, & McCracken, 1998). Samenvattend laten deze bevindingen zien dat het geslacht van ouders een belangrijke rol speelt in de opvoeding van kinderen.

Relatie tussen testosteron en opvoedgedrag

De uitkomsten van de studie uit Hoofdstuk 4 laten zien dat variatie in testosteronniveaus over de dag heen gerelateerd zijn aan opvoeding en dat deze relatie verschillend is voor vaders en moeders. Voor vaders is een grotere daling van testosteron over de dag heen gerelateerd aan *meer* sensitiviteit en respect voor de autonomie van het kind. Bij moeders is echter een grotere daling in testosteron over de dag heen geassocieerd met *minder* sensitiviteit en respect voor de autonomie van het kind.

Omdat er nog maar weinig bekend is over de relatie tussen testosteron en opvoeding, kunnen we enkel speculeren over de mogelijke oorzaken van deze verschillen tussen vaders en moeders. Vanuit een evolutionair oogpunt kan worden beargumenteerd dat het met name voor vaders belangrijk is om een flexibel testosteronsysteem te hebben. Continu hoge testosteronniveaus zouden namelijk een belemmering kunnen zijn voor optimaal opvoedgedrag, terwijl continu lage testosteronniveaus juist het succes op het vinden van een geschikte partner in de weg kunnen staan. Variatie in testosteronniveaus stelt mannen dus in staat om optimaal toegerust te zijn voor deze twee voortplantingsstrategieën (Gray & Anderson, 2010). Voor moeders is het daarentegen mogelijk minder relevant om te beschikken over en flexibel testosteronsysteem, aangezien hun testosteronniveaus al substantieel lager zijn dan die van vaders. Het lijkt er zelfs op dat een bepaald testosteronniveau bij moeders nodig is om adequaat op lastige opvoedsituaties te reageren (bijvoorbeeld reageren op een huilende baby).

De rol van kenmerken van het kind op opvoedgedrag

Geslacht van het kind. Hoewel doorgaans wordt aangenomen dat ouders hun zoons en dochters verschillend opvoeden, laten de studies in dit proefschrift zien dat het geslacht van jonge kinderen geen substantiële rol speelt in de manier waarop ouders hun kinderen opvoeden. De resultaten in de studies uit Hoofdstuk 2 en 5 tonen aan dat vaders en moeders even sensitief zijn en net zoveel respect hebben voor de autonomie van hun zoon als dochter en dat ze niet verschillen in de manier waarop ze ingrijpen bij ongehoorzaam gedrag van hun zoons en dochters.

Hoewel geen ondersteuning is gevonden voor de hypothese dat ouders hun kinderen op genderspecifieke wijze opvoeden, sluiten de bevindingen van dit proefschrift het effect van het geslacht van kinderen op opvoedgedrag niet geheel uit. Er zijn aanwijzingen dat ouders genderspecifieke opvoedingsstrategieën op een meer subtiele manier hanteren, bijvoorbeeld door de manier waarop zij met hun kinderen praten over gender (Gelman, Taylor, & Nguyen, 2004). Recente studies, die gebruik hebben gemaakt van dezelfde steekproef als dit proefschrift, laten zien dat zowel vaders als moeders inderdaad op een meer indirecte manier met hun kinderen communiceren over de gepastheid van gedrag voor jongens en meisjes (Endendijk et al., 2014; Van der Pol et al., 2015). Dit suggereert dat genderspecifiek opvoedgedrag wellicht alleen zichtbaar is in specifieke situaties of in reactie op specifiek gedrag van kinderen, in plaats van in de meer algemene aspecten van opvoedgedrag (zoals sensitiviteit en disciplineergedrag).

Leeftijd van het kind. De leeftijd van het kind is een belangrijke factor om mee te nemen in onderzoek naar opvoeding door vaders en moeders. De resultaten uit Hoofdstuk 3 laten zien dat beide ouders meer respect voor de autonomie van het hun kind krijgen als hun kinderen ouder worden. Ouders worden ook sensitiever als hun kind opgroeit tot peuter, maar vanaf de schoolleeftijd is een daling in ouderlijke sensitiviteit waarneembaar. Tijdens de eerste levensjaren ontwikkelen kinderen zich in snel tempo (Berk, 2003; Bornstein, 2002). Zo ontwikkelen ze de vaardigheid om hun behoeftes en wensen verbaal uit te drukken, wat ouders vervolgens kan helpen om hun reacties beter af te stemmen op het kind. Belangrijke overgangsperioden in het leven van een kind (bijvoorbeeld voor het eerst naar school gaan) kunnen echter tot een tijdelijke verstoring van de ouder-kind relatie leiden (Granic, Hollenstein, Dishion, & Patterson, 2003). Dit kan een optimale afstemming van de opvoeding op de behoeften van het kind in de weg kan staan.

Plaats in de kinderrij. De studies beschreven in Hoofdstuk 2 en 5 laten zien dat ouders hun eerste en tweede kind verschillend opvoeden. Bij deze studies is echter gekeken naar het opvoedgedrag van ouders ten opzichte van hun twee kinderen op hetzelfde tijdstip. Hierdoor kunnen de verschillen in de manier waarop ouders hun eerste en tweede kind opvoeden niet alleen worden veroorzaakt door de plaats in de kinderrij, maar ook door het verschil in de leeftijd van de kinderen. Er zijn namelijk aanwijzingen dat ouders hun opvoedgedrag afstemmen op het ontwikkelingsniveau van de kinderen, zoals bleek in de studie beschreven in Hoofdstuk 3.

Om de relatie tussen de plaats in de kinderrij en opvoedgedrag van vaders en moeders goed te kunnen onderzoeken, werd in Hoofdstuk 3 het opvoedgedrag van beide ouders ten opzichte van hun eerste en tweede kind onderzocht wanneer de kinderen dezelfde leeftijd hadden. De resultaten laten zien dat vaders en moeders sensitiever zijn in de interactie met hun eerste kind dan met hun tweede

kind. Vergeleken met het tweede kind, hebben beide ouders echter ook minder respect voor de autonomie van hun eerste kind. Deze uitkomsten suggereren dat zowel vaders als moeders meer betrokken zijn bij de opvoeding van hun eerste kind dan bij de opvoeding van hun tweede kind. Doordat ouders met hun eerste kind een periode hebben doorgebracht waarin zij nog niet hun aandacht hoefden te verdelen over meerde kinderen, hebben zij meer gelegenheid gehad om hun gedrag optimaal af te stemmen op de behoeften van hun eerste kind. Daarnaast is het mogelijk dat de sterkere gerichtheid van ouders op het welzijn van hun eerste kind ertoe leidt dat zij eerder de activiteiten van dit kind proberen te sturen of hierin ingrijpen dan bij hun tweede kind.

Conclusie

De resultaten van dit proefschrift laten zien dat het geslacht van de ouder een belangrijke rol speelt in de opvoeding van jonge kinderen. In overeenstemming met het feit dat moeders doorgaans de primaire verzorgers van de kinderen zijn (Huerta et al., 2013; SCP, 2011), tonen de studies in dit proefschrift aan dat moeders meer optimaal opvoedgedrag laten zien dan vaders. Verder blijken zowel kenmerken van de ouder (testosteronniveaus) en kenmerken van het kind (leeftijd en plaats in de kinderrij) een rol te spelen in de manier waarop ouders hun kinderen opvoeden. Hoewel de studies in dit proefschrift laten zien dat er verschillen bestaan in opvoedgedrag van vaders en moeders, betekent dit niet dat vaders minder goede opvoeders zijn. Zowel de vaders als moeders in de steekproef van dit proefschrift laten hoge scores zien op sensitiviteit en respect voor de autonomie van het kind. Het is daarom belangrijk om voorzichtig te zijn met het interpreteren van de verschillen in opvoedgedrag van vaders en moeders. Hierbij is het relevant om te kijken naar situaties waarin verschillen in opvoedgedrag van vaders en moeders ontstaan, maar ook naar die situaties waarin vaders en moeders juist meer gelijke rollen op zich nemen met betrekking tot de opvoeding van hun kinderen.

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CURRICULUM VITAE

Elizabeth Theodora Hallers-Haalboom werd geboren op 9 september 1985 in Veenendaal. In 2002 behaalde zij haar HAVO-diploma aan het Ichthus College te Veenendaal. Na een oriëntatiejaar aan de Evangelische Hogeschool te Amersfoort startte Liesbeth in 2003 met de opleiding tot Leraar Basisonderwijs aan de Christelijke Hogeschool Ede, waar zij tevens haar propedeuse heeft behaald. In 2005 maakte Liesbeth de overstap naar de studie Pedagogische Wetenschappen aan de Universiteit Utrecht, waar zij in 2009 afstudeerde bij de vakgroep Orthopedagogiek in het werkveld Jeugdzorg. In haar laatste studiejaar liep zij stage bij Mulock Houwer (locatie De Tinne) in Amersfoort en behaalde tijdens die stage haar basisaantekening diagnostiek. Na haar afstuderen heeft Liesbeth gewerkt als promovenda bij de afdeling Algemene en Gezinspedagogiek van de Universiteit Leiden, waar zij onderzoek deed naar overeenkomsten en verschillen in de manier waarop vaders en moeders hun kinderen opvoeden. De resultaten van haar onderzoek zijn beschreven in dit proefschrift. Naast haar werkzaamheden bij het onderzoeksproject heeft Liesbeth ook werkgroepen voor de bacheloropleiding Pedagogische Wetenschappen gegeven. Daarnaast is zij getraind en gekwalificeerd in het uitvoeren van de Video-feedback Intervention to promote Positive Parenting and Sensitive Discipline (VIPP-SD).

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