Emerging parenthood: Parental sensitivity from infancy to toddlerhood

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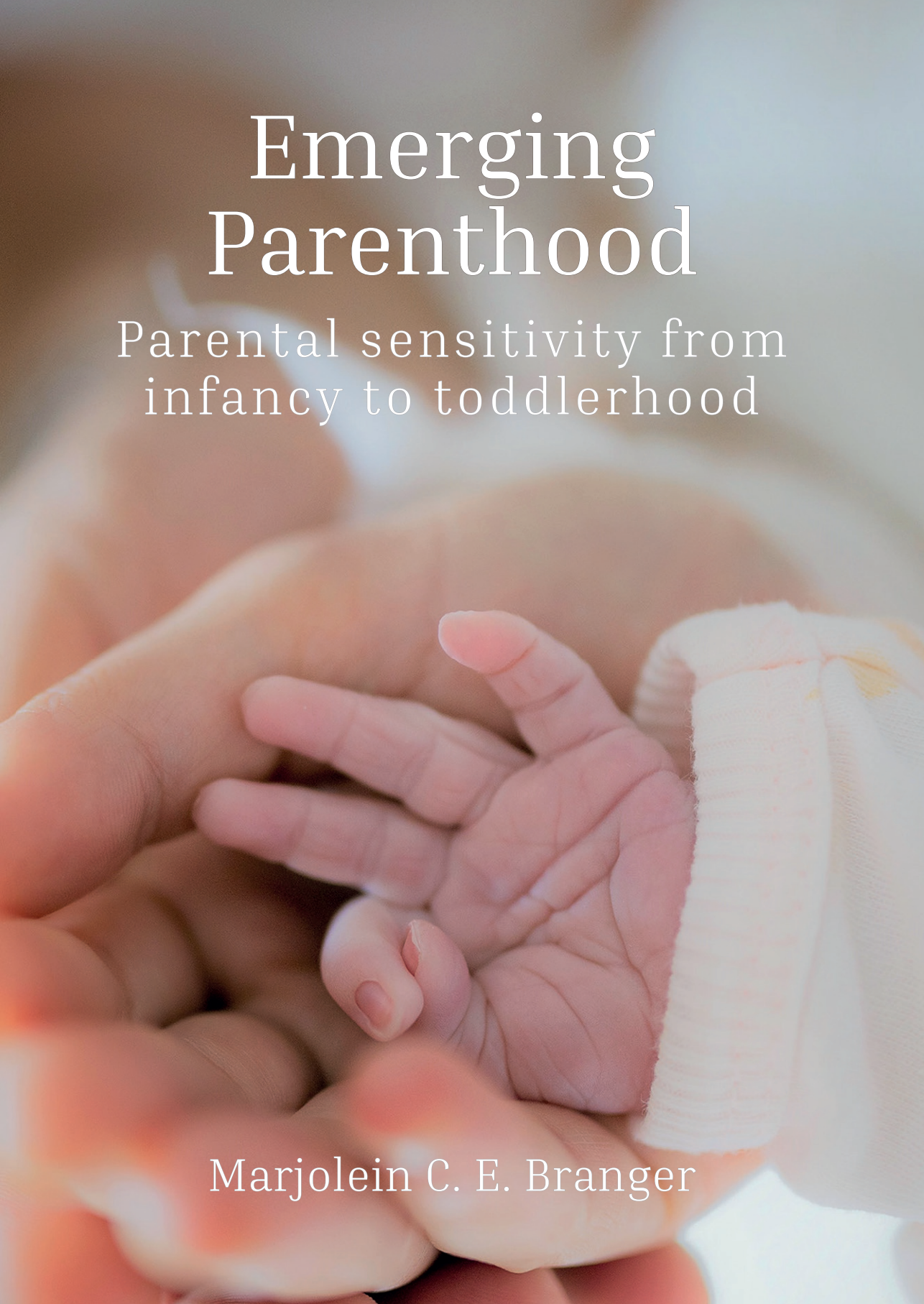

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CHAPTER 1

General introduction

Improving the first 1,000 days of all children's lives has become an important topic for researchers as well as policy makers (e.g., Cusick & Georgieff, 2013; Rijksoverheid, 2018). This specific time period marks an important window of opportunity to create a foundation for optimal health and (neuro)development across the lifespan, as the most rapid brain growth takes place during this period (Cusick & Georgieff, 2013). Furthermore, children build attachment relationships with their caregivers during these first few years. Being securely attached to a caregiver is related to a wide variety of positive child outcomes (e.g., Thompson, 2018), which makes attachment security an important building block in the foundation that children build in their first 1,000 days. Parents influence the mental and physical health of their children already from the time of conception in various ways, and can contribute to their positive development far into adulthood, and even into next generations (e.g., Chen et al., 2019; Cusick & Georgieff, 2013; Whittle et al., 2014).

One important way through which parents can positively impact children's development, and specifically the attachment relationship with their child, is through their sensitive parenting (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). Sensitive parenting represents parents' ability to understand the signals their children are sending and to respond appropriately to them (Ainsworth et al., 1974). This is particularly crucial in the first three years of children's lives, because of its disproportionate impact on positive development across the lifespan, such as better brain development (DePasquale & Gunnar, 2020). Furthermore, research shows that higher parental sensitivity in early childhood also has financial benefits, as it predicts lower societal costs later in life (Bachman et al., 2022).

Parents who are sensitive to their child's signals, demonstrate well-rounded interactions that satisfy the child's needs (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). As a result, children learn that they can rely on their parents in a positive way, which supports the creation of a secure attachment relationship. Surprisingly, even though parental sensitivity plays a vital role in the early stages of children's development, there is limited research on the development of parental sensitivity over time in those first foundational years of children's lives in both mothers and fathers. Therefore, the aim of this dissertation is to provide more insight in the development of sensitive parenting from infancy to toddlerhood in primiparous mothers and fathers.

Transition to Parenthood

Pregnancy and childbirth mark an important transition in (emergent) parents' lives, and this period is often experienced as exciting, joyous, but also stressful (Ketner et al., 2018). Several questions, expectations, and responsibilities arise during this major adjustment phase, and emergent parents have to construct new aspects of their identity. They become mothers and fathers, they have to balance work and home, their partner relationship changes, and they have to build a relationship with their child (e.g., Woudstra et al., 2019).

In the Netherlands, women become a first-time mother on average at 30.1 years, while the average age for men when their first child is born is 32.9 years (CBS, 2021). With regard to work and paid leave, expecting mothers receive in total 16 weeks of paid pregnancy

and birth leave (Rijksoverheid, n.d.). Up until 2019 – the period of the data collection of the studies presented in this dissertation – their partners received only two days of paid leave after the birth of their child, but since 2019 this is increased to once the number of hours they work per week. Additionally, since July 2020, partners can take extra leave up to an extra five weeks (five times the number of hours they work per week) – however, during this time they will only receive up to 70% of their salary. Research demonstrates that about 40% of Dutch primiparous mothers work less than before birth or quit their job after the birth of their child (CBS, 2019). Higher-educated mothers more often return to work than mothers with less education. Furthermore, more mothers returned to work after the birth of their first child in 2019 than in 2005.

Several studies have shown that parents are happier than non-parents (Aassve et al., 2012; Nelson et al., 2013), implying that children make people happy. However, there are also studies showing that parents experience more daily stress and are less happy than non-parents, when correcting for all other positive factors that are associated with having children (for example, being married, richer, better educated; e.g., Deaton & Stone, 2014). In 2016, a study including two datasets with in total 117,535 participants from the USA demonstrated that this so-called "parental happiness gap" is time sensitive, which could be an explanation for these seemingly mixed results: over time, parents become happier than non-parents, while non-parents' happiness levels are decreasing (Herbst & Ifcher, 2016).

All in all, becoming a parent is a major milestone in someone's life. For better or for worse, both mothers and fathers are now responsible for a new human life and they will be confronted with a challenging and exciting new task: actual parenting.

Parenting in Mothers and Fathers

Studies continuously show that both maternal and paternal parenting are important in child development (Lamb & Lewis, 2010). There are similarities and differences between mothers and fathers in specific parenting behaviors and their influence on children. Both mothers and fathers are inclined to care for and protect their infant, help their child emotionally and financially, act as role model, and adjust their language in pitch and speed to their baby (e.g., Lamb & Lewis, 2010; Roberts et al., 2014). Other behaviors are known to be different for mothers and fathers. For example, mothers and fathers have different play styles. During playtime, mothers are more likely to be more verbal, didactic, structuring, and empathic, while fathers are more likely to use rough-and-tumble play or behave more like peers (e.g., John et al., 2013; Parke, 2002). Furthermore, there are differences in the way that mothers and fathers discipline their child and help regulate their child's emotions. Fathers are more likely to set clear limits, while mothers are more likely to use positive coping strategies such as distracting, explaining and encouraging to help children cope with their emotions (Hallers-Haalboom et al., 2015). With regard to the influence of parenting on child outcomes, for both mothers and fathers it has been established that higher parental sensitivity is associated with all kinds of positive child outcomes, such as better language and cognitive development and a secure attachment

relationship (e.g., Lickenbrock, & Braungart-Rieker, 2015; Tamis-Lemonda et al., 2004). It seems that both parents are able to positively influence child development, but some of their parenting behaviors are different. Sociocultural as well as biological (hormonal and neural factors) seem to play a role in these differences between mothers and fathers, specifically in the first 1,000 days of their child (Bakermans-Kranenburg et al., 2019).

Sociocultural factors. Over the last decades sociocultural factors have changed for both mothers and fathers, which lead to a change in the traditional view of family life (Bakermans-Kranenburg et al., 2019). This impacted parents' views on parental task division as well as their parenting behaviors. Whereas fathers were the sole financial providers 50 years ago, leaving them with little time for child-care tasks, now they play a larger role in child care and the socialization of their children whereas mothers spend more time at work than 50 years ago (CBS, 2014; Wood & Repetti, 2004). However, fathers' involvement could still be limited by multiple factors, such as limited paternity leave, financial shortcomings, cultural expectations, and maternal gate-keeping (Heymann & McNeill, 2013; Lansford et al., 2015; Puhlman & Pasley, 2013). It is estimated that mothers still spend about double the time in direct one-on-one contact with their children compared to fathers (Wood & Repetti, 2004). In the Netherlands, research on emancipation demonstrates that even though most Dutch mothers and fathers would like to have an equal work-home distribution, in reality most Dutch fathers still spend more time on paid labor, while Dutch mothers on average spend more time on household and childcare tasks (Van den Brakel et al., 2020). It should be noted, however, that quality of parenting is more important than quantity according to the attachment theory framework of Ainsworth and Bowlby (Bakermans-Kranenburg et al., 2019). Nevertheless, parents need to spend enough time with their child to get to know their unique characteristics and preferences in order to be able to 'read' their signals, which is an important aspect of sensitive parenting.

Hormonal and neural factors. Both mothers and fathers experience hormonal changes during pregnancy and childbirth, for example in two important sex hormones called testosterone and estradiol (Edelstein et al., 2017). In women, testosterone and estradiol levels generally increase during pregnancy to maintain the pregnancy and help start the birthing process, and gradually decline after birth to support parenting behavior and attachment. Men's testosterone levels also decrease during their partner's pregnancy, while the little research present on estradiol points to a decrease, which could inhibit behaviors that are problematic in parenting, such as aggression (Edelstein et al., 2017). Hormone levels are also related to mothers' as well as fathers' parenting. For example, research on diurnal testosterone variability demonstrated that more diurnal variability is related to more sensitivity and respect for the child's autonomy in fathers, but to less sensitivity and respect for the child's autonomy in mothers (Endendijk et al., 2016). A meta-analysis demonstrated that the negative relation between fathers' testosterone levels and their parenting quality is present, but weak (Meijer et al., 2019). Furthermore, fathers who show a larger decline in estradiol prenatally, are more involved in infant care tasks postnatally and are perceived as more helpful during child rearing by their partner, while mothers who show a smaller increase in estradiol prenatally are perceived as more helpful during child rearing by their partner postnatally (Edelstein et al., 2017). Interestingly, there is a bi-directional relation: hormonal levels are affected by the behavior of mothers and

fathers and vice versa (Bakermans-Kranenburg et al., 2019). Lastly, there are neural factors: studies have shown that mothers and fathers have similar and different brain changes in the transition to parenthood. For example, brain areas that are related to theory-of-mind show a decrease in grey matter volume from pre- to post-pregnancy in mothers, but not in fathers (Hoekzema et al., 2016). This indicates that expecting mothers' neural networks probably become more mature or specialized in social cognition, which is important for their parenting.

All in all, it seems that both mothers and fathers are able to stimulate positive child development. Furthermore, impacted by sociocultural and biological factors, their parenting behaviors show differences (e.g., amount of time spent with their child, play and discipline styles) as well as similarities (e.g., protective behaviors, language adjustment, associations between parenting and child development). This suggests that mothers and fathers might complement each other, rather than being interchangeable. When studying parenting, it is therefore important to not just focus on mothers, but also fathers.

Maternal and Paternal Sensitivity Over Time

There has been limited longitudinal research on maternal versus paternal sensitivity during the first years of a child's life, but results indicate that mothers overall seem to be slightly more sensitive than fathers (Hallers-Haalboom et al., 2017; Kochanska & Aksan, 2004; Lovas, 2005). In cross-sectional studies focusing on infancy, however, there are mixed results: in studies involving infants 6 months and older, mothers were generally found to be more sensitive than fathers (e.g., Fuertes et al., 2016), while in studies involving younger infants this difference is mostly absent. Furthermore, these cross-sectional results also differ depending on the context in which sensitivity was measured: studies finding higher sensitivity in mothers than in fathers more often observed sensitivity in a free play setting (e.g., Hallers-Haalboom et al., 2014), while studies finding no difference more often used an experiment called the Still-Face Paradigm to observe sensitivity (e.g., Braungart-Rieker et al., 2001). Overall, it seems that there might be a difference between mothers and fathers in sensitivity, depending on the age of the child. More research is needed to assess these possible differences, both on the role of context in measuring sensitivity and on differences in sensitivity between mothers and fathers over time.

Reading and understanding the signals of your own child is a large part of the operationalization of parental sensitivity. It makes sense that it is easier to be sensitive if your children's signals are clear and high in quantity. During infancy and toddlerhood, there are two milestones that lead to an increase in the range of these signals. First is learning to talk, allowing children to interact with others to an increasing degree. Second, through crawling and eventually walking, children become increasingly independent as they explore their environment. As children's behavior changes, parents need to adjust their responses accordingly. Furthermore, as children become more capable of communicating their needs, being sensitive may become easier, but their signals may also become more complex, making it more difficult for parents to respond sensitively.

Several hypotheses about changes in parental sensitivity over time have been proposed by Hallers-Haalboom et al. (2017). First, the level of parental sensitivity may not change over time, because parents adapt to their children's signals accordingly. This hypothesis is supported by multiple studies on parental sensitivity during the first two years of a child's life, both in mothers and fathers (e.g., Bornstein et al., 2008; Kochanska & Aksan, 2004; Lovas, 2005). Second, the level of parental sensitivity may increase over time, because parents spend more time with their children and become more familiar with their unique preferences and characteristics. In addition, as said before, children are able to communicate better over time. This hypothesis is also supported by multiple studies both for mothers and fathers (e.g., Hallers-Haalboom et al., 2017; Kemppinen et al., 2006). Lastly, parental sensitivity may decrease over time in the first two years of the child. The idea behind this hypothesis is that when children are in their "terrible twos" phase when they display more externalizing behaviors (Alink et al., 2006), their behavior becomes more challenging for parents.

Furthermore, there is little information about the difference between mothers and fathers in their pathways of sensitivity over time. It appears that only two studies have examined and explicitly reported this difference between mothers and fathers of children during infancy and toddlerhood. Both studies did not find different pathways in parental sensitivity for mothers versus fathers (Hallers-Haalboom et al., 2017; Kochanska & Aksan, 2004). Yet, these studies focused on specific age groups (7-15 months and 12-36 months). In sum, these mixed and limited findings indicate there is still a need for additional research on how maternal and paternal sensitivity develop – especially in the first two years of a child's life, during which a foundation for positive development across the lifespan is created and sensitive parenting is particularly crucial.

Intergenerational Transmission of Attachment: the Role of Narrative Coherence and Parental Sensitivity

As previously mentioned, parental sensitivity is an important predictor of attachment security. Research demonstrates that parents' own attachment representations are also related to their child's attachment style, which is called the intergenerational transmission of attachment (Shah et al., 2010). It has been theorized that parents' sensitivity plays a role in this transmission, together with their mental representations of their child (Oppenheim, 2006; Sharp & Fonagy, 2008; Slade et al., 2005). That is, parents´ own attachment styles may shape the way they look at (the relationship with) their child, which influences how they interpret and respond to their child's behaviors. Parents' mental representations of their child may thus shape their parenting, and in particular their parental sensitivity. And as we know, this sensitive parenting plays an important role in children's development of attachment security. Figure 1 visually represents the theoretical framework of this intergenerational transmission of attachment.

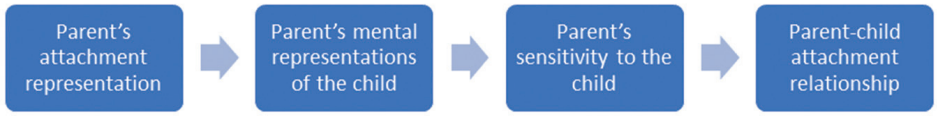

Figure 1. Theoretical framework of the intergenerational transmission of attachment.

As previously mentioned, a few steps of this framework have already been supported by numerous studies: the relation between parental and child attachment, and the relation between parental sensitivity and parent-child attachment (e.g., De Wolff & Van IJzendoorn; Shah et al., 2010). Furthermore, multiple constructs that concentrate on parents' mental representations of their child have indeed proven to be associated with actual parenting (Foley & Hughes, 2018; Zeegers et al., 2017). However, it has been suggested that it is not just parents' mental representations, but in particular the narrative coherence of these representations that could explain why and how intergenerational transmission of attachment takes place (Oppenheim, 2006). Parents who demonstrate high narrative coherence, are able to create a believable, clear and consistent narrative when asked to tell a story about (the relationship with) their child. This indicates that the parent is able to process information about their child in a flexible and open manner. It is exactly this open and flexible information processing, that is so important for sensitive parenting, as Mary Ainsworth mentioned in her sensitivity coding manual: "caregivers who least distort their perceptions of the child have some insight as to their own wishes and moods, and thus can more realistically judge the child's behavior" (Ainsworth et al., 1974, p.4).

Interestingly, parents' mental representations of their child are already formed before birth, as they generally daydream and think about what the future will look like once their child is born during the unique transition phase of pregnancy. Perhaps those prenatal representations already (partly) shape the way they view as well as parent their child postnatally. When studying the theorized link between the narrative coherence of parents' mental representations of their child and their sensitive parenting, it would therefore be valuable to examine narrative coherence already during pregnancy. A recent study demonstrated that the narrative coherence of these representations can indeed already be captured during pregnancy (Foley et al., 2019), however, narrative coherence has yet to be examined in relation to parents' sensitivity both pre- and postnatally. Thus, to fully understand why and how transmission of attachment takes place, it is valuable to specifically examine the suggested relation between parents' narrative coherence and their sensitivity in the first years of their child's life and starting in pregnancy. To date, however, this remains a missing piece of the puzzle, as research has yet to examine this.

Aim and outline of this dissertation

The studies presented in this dissertation have been conducted as part of the New Fathers and Mothers Study (NewFAMS), an international, longitudinal study involving primiparous mothers and fathers of three countries: the United Kingdom, the United States, and the Netherlands. NewFAMS examined the relations between parental wellbeing, parenting

behavior, and child self-regulation in the first two years of life, by performing home visits from pregnancy to two years postpartum. During these home-visits multiple interviews and questionnaires were administered to assess for example narrative coherence, and observations were done of interactions between mother and child and between father and child to study parental sensitivity longitudinally across contexts. The overarching aim of the current dissertation is to provide insight in the development of sensitive parenting in primiparous mothers and fathers across infancy and toddlerhood.

The main framework of the chapters in this dissertation is shown in Figure 2. Chapter 2 describes a study in which we examined whether the context in which parental sensitivity is observed could be a source of variability in sensitivity, by comparing mothers' and fathers' sensitive parenting to their 4-month-old infant in four different contexts. In Chapter 3 we examined the development of mothers' as well as fathers' narrative coherence of their mental representations of their child across the transition to parenthood, and the relation between pre- and postnatal narrative coherence and parental sensitivity. Chapter 4 presents the results of a study on the trajectories of maternal and paternal sensitivity across three time points from infancy to toddlerhood, using a multilevel modeling design and following the implications presented in Chapter 2. Finally, in Chapter 5 the findings of these three studies are integrated in a general discussion, resulting in an overview of important conclusions and limitations of this dissertation as well as implications for future research and practice.

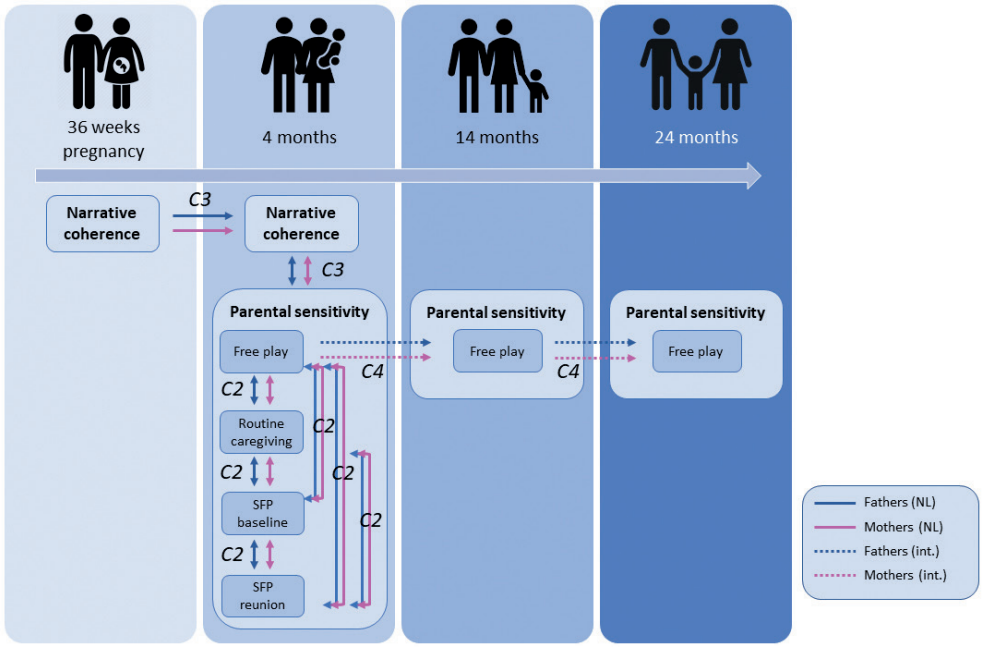

Figure 2. Main framework of the chapters in this dissertation (C2 = Chapter 2; C3 = Chapter 3, C4 = Chapter 4).

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CHAPTER 2

2

Context Matters: Maternal and Paternal Sensitivity to Infants in Four Settings

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Abstract

To date, results have been inconsistent in whether mothers show higher parental sensitivity to their infant than fathers do. The context in which sensitivity is measured may play a role in these inconsistent findings, but this has not been examined yet. The aim of the current study was to test context as a source of variability in parental sensitivity, comparing maternal and paternal sensitivity to infants in four different observational settings. Participants included 109 families with their 4-month-old infants. Parental sensitivity was observed during a routine caregiving session, free play episode, and the baseline and reunion of the Still Face Procedure. Results demonstrated that parental sensitivity showed weak to strong stability (correlations) across the four contexts. Furthermore, overall levels of parental sensitivity were higher in more naturalistic contexts (routine caregiving > free play > Still Face). Lastly, mothers and fathers were overall equally sensitive across contexts. Our findings highlight the importance of taking context into account when observing parental sensitivity in research as well as practice. Furthermore, future research should examine the emergence of possible differences in maternal and paternal sensitivity over time.

Keywords: parental sensitivity, mothers, fathers, context, observation.

Introduction

Parental sensitivity reflects parents' ability to accurately interpret and appropriately respond to their children's signals (Ainsworth et al., 1974), and is related to a host of positive child outcomes, such as attachment security and adaptive cognitive development (e.g., De Wolff & Van IJzendoorn, 1997; Mesman et al., 2012). Mary Ainsworth originally developed this construct based on long, naturalistic observations of mother-infant interactions (Ainsworth, 1967; Ainsworth et al., 1974; Ainsworth et al., 1978). In current research however, parental sensitivity to infants is generally observed for shorter periods and in a broad range of contexts, from less naturalistic settings such as the Still Face Procedure to more naturalistic settings such as a bathing session (e.g., Joosen et al., 2012). Such contextual differences in observational settings may play a role in observing parental sensitivity, but to date little research has examined this issue.

Each observational setting has advantages and limitations. Single routine caregiving situations (e.g., bathing the infant) are closest to the original context in which Ainsworth developed her maternal sensitivity framework and are highly naturalistic, because they reflect regularly performed activities. Play sessions on the other hand are generally more standardized, because parents receive specific instructions to play with their child for a certain amount of time with or without toys, in order to immediately elicit actual parent-child interaction in a relatively short time frame. However, neither setting necessarily elicits parental sensitivity to infant distress specifically. This could be a disadvantage, as sensitivity to distress and sensitivity to nondistress seem to be distinct dimensions of parenting, as they have different predictors and outcomes (Leerkes et al., 2012). Stress-inducing paradigms during which parental sensitivity to infant distress specifically can be measured are the Still-Face Paradigm (SFP; Tronick et al., 1978) and the Strange Situation Procedure (SSP; Ainsworth et al., 1978). A possible disadvantage of these distress-inducing paradigms is however that they are not necessarily naturalistic, as the paradigms are highly standardized and are often executed in a lab (especially the SSP). A second disadvantage is that not all infants get equally distressed by these paradigms (e.g., Mesman et al., 2013).

Even though different observational settings are used in research to observe parental sensitivity, little is known about the extent to which sensitivity is stable (in rank order) and consistent (in mean levels) across these contexts. A small number of studies have already looked at stability and/or consistency in parental sensitivity to infants across different settings, most of these examining mothers only. Regarding stability, studies consistently found positive, moderate to strong correlations between maternal sensitivity in a stress-inducing context and maternal sensitivity to nondistress (e.g., Braungart-Rieker et al., 2014). Regarding consistency in parental sensitivity to infants across contexts, results have been more mixed. Some research suggests that mothers may be more sensitive in more naturalistic settings, as maternal sensitivity has for example been found to be higher during a routine caregiving session than during a more structured free play session (Joosen et al., 2012). However, when examining other contexts, not all studies found a significant difference between more and less naturalistic settings (e.g. Behrens et al., 2014). Thus, more research is needed to examine the extent to which context plays a role in observing parental sensitivity.

In addition to contextual deviations from Ainsworth's original study, in recent research fathers' sensitivity is also increasingly taken into account while Ainsworth's definition of sensitivity was based on observation of mothers only. Some studies suggest that mothers are more sensitive than fathers (e.g., Hallers-Haalboom et al., 2014), but other studies do not find a significant difference between maternal and paternal sensitivity (e.g., Braungart-Rieker et al., 2001). Interestingly, studies that found a mean-level difference between mothers and fathers measured sensitivity often during free play (e.g., Hallers-Haalboom et al., 2014), whereas studies that did not find a difference measured sensitivity often during the SFP baseline (e.g., Braungart-Rieker et al., 2001). Infant age differed as well, with differences between mothers and fathers more often found in parents with older infants (≥6 months; e.g., Fuertes et al., 2016) than in parents with younger infants (e.g., Braungart-Rieker et al., 1998). This could suggest that (the absence of) a difference in sensitivity between mothers and fathers may at least partly depend on context and/or infant age, but to date this has not been examined.

In summary, it is unclear to what extent contextual differences in observational settings play a role in observing and comparing sensitivity in mothers and fathers. More research is needed to disentangle variability in parenting behavior from contextual differences. The present study contributes to the existing literature by examining not just parental similarities and differences in sensitivity to infants, but also contextual differences, and their interplay. Four different contexts are examined: routine caregiving, free play, SFP baseline, and SFP reunion. The following hypotheses are tested: (a) parental sensitivity across contexts is stable (i.e., significantly correlated): parents who are more sensitive in one context, are also more sensitive in other contexts; (b) parents are more sensitive in a routine caregiving context than in a free play context, differences between all other contexts will be explored; (c) overall, mothers and fathers are equally sensitive; (d) a possible parent-by-context interaction effect on parental sensitivity will also be explored.

Method

Participants

Dutch expecting parents were recruited through pregnancy fairs and prenatal exercise classes from September 2014 to March 2015 throughout the Netherlands, and through flyers and posters distributed at pregnancy stores and midwife clinics. Interested couples filled out a screening questionnaire to check eligibility. Primiparous expecting parents were eligible to participate if they were at least 21 years of age, were living together in the Netherlands, and were planning on raising their baby together. Families were not included in the study if either parent did not speak Dutch, had a (self-reported) history of psychotic depression, psychosis, substance misuse or addiction, or was undergoing an extensive medical or therapeutic treatment. A total of 132 couples participated in the prenatal assessment, of which in 119 families both father and mother also completed the 4-month assessment which is the focus of the current study. Attrition between the prenatal and 4-month assessment was due to infant health problems ($n = 4$), parent mental problems ($n = 1$), and lack of time ($n = 8$). Participating families did not differ from non-participating families on age, educational level, working hours, personal income, and family income (*p*s:

.07- .77). In the current study, families with missing data were excluded (n = 10), resulting in a final sample of 109 families (47 boys).

At the 4-month assessment, mothers were between 21 and 39 years old (M = 29.89, SD = 3.58) and fathers between 23 and 48 years (M = 32.12, SD = 4.33). Regarding educational level, 69.8% of the mothers were highly educated, meaning they had at least a Bachelor's degree, 13.2% had a medium educational level, meaning they obtained postsecondary or short-cycle tertiary education, and 17.0% of the mothers had a low educational level, meaning they obtained upper secondary education or less. Regarding the fathers, 59.8% were highly educated, 12.4% had a medium educational level, and 27.8% had a low educational level. Concerning employment, 83.8% of the mothers and 95.3% of the fathers had a paid job, and monthly household income ranged from 1,500 to 10,900 euros (M = 4965.39, SD = 1779.67). Furthermore, mothers worked on average 23.18 hours per week (SD = 11.57), and fathers 38.88 hours per week (SD = 9.96). Lastly, 33.0% of the mothers with a paid job were taking parental leave for an average of 10.31 hours per week (SD = 8.96), and 11.0% of the fathers with a paid job were taking parental leave for an average of 6.36 hours per week (SD = 1.96).

Procedure

Fathers and mothers were visited separately at the 4-month assessment, with a period of approximately one week in between visits. The order of mother and father visits was counterbalanced. If the other parent was present during the home visit (n = 96), he or she was in another room so the assessment with the target parent would not be disturbed. In all other cases, no one else was present during the home visit except for the target parent and the infant. During the home visit, parental sensitivity was videotaped for observation in four contexts: (1) free play on the parent's lap or on the floor, (2) the SFP baseline, (3) the SFP reunion, and (4) a routine caregiving task. During the free play episode parents were instructed to play with their infant for 5 minutes as they would normally do, but without toys or a pacifier. During the SFP the parent sat in front of the infant, while the infant was seated in a car seat. The SFP consisted of three parts: (a) the baseline (2 min), during which parent and infant were allowed to interact like they normally do; (b) the "still-face" episode (1 min), during which the parent kept a neutral facial expression and was not allowed to respond to the infant; (c) the reunion (2 min), during which the parent was allowed to interact with the infant again, and after the first minute the parent was also allowed to pick up the infant from the car seat. The routine caregiving episode consisted of either bathing the infant (N = 85 for mothers, N = 84 for fathers) or changing the infant's diaper (N = 24 for mothers, N = 25 for fathers). Bathing lasted in between 7.58 and 30.07 minutes (M = 17.77, SD = 4.11), while changing the infant's diaper lasted in between 2.09 and 15.36 minutes (M = 5.08, SD = 2.76). Episode duration differed significantly between bathing and changing the infant's diaper in both mothers and fathers, $t(107) = 15.79$, $p < .001$ and $t(56.20) = 15.89$, $p < .001$, respectively. However, both maternal and paternal sensitivity did not differ significantly between bathing and changing the infant's diaper. All visits were conducted by trained graduate and undergraduate students. Informed consent was obtained from both parents. Parents received a gift voucher and a small present for their infant after every home visit. The study was approved by the Ethics Review Board of the Institute of Education and Child Studies of Leiden University, the Netherlands.

Measures

Parental sensitivity during the free play and routine caregiving contexts was coded using the Ainsworth Sensitivity Scale (Ainsworth et al., 1974), a 9-point Likert scale ranging from 1 = highly insensitive to 9 = highly sensitive, by assigning one single global rating to the parent per context. Ten coders were trained to reliability by the last author. The reliability set contained 30 videotapes of free play sessions; intraclass correlation coefficients (absolute agreement) for the different pairs of coders ranged from .73 to .92 (M = .83). After successfully completing the reliability set on free play sessions, coders received two extra training sessions on the coding of routine caregiving episodes. The free play and routine caregiving episode were coded independently by separate coders for most mothers and fathers (N = 90 for mothers, N = 95 for fathers). Due to constraints in coder availability, for the other parents the two episodes were coded by the same coder, resulting in coder overlap for 19 mothers and 14 fathers. However, correlations across contexts for the subgroup with coder overlap were not significantly higher than in the group without coder overlap. Furthermore, mothers and fathers of the same family were coded by separate coders.

Parental sensitivity during both the SFP baseline and reunion was coded by a different set of coders using the SFP Sensitivity scale, an adapted version of the Mother-Infant Coding System (MICS; Miller, 2000). This coding system consisted of a 4-point Likert scale ranging from 0 = no sensitivity to 3 = predominantly high sensitivity. The reliability set contained 40 videotapes of SFPs (both baseline and reunion). Four coders were trained to reliability by the last author. Intraclass correlation coefficient (absolute agreement) for the SFP across baseline and reunion and in a set that included both mothers and fathers was .71. Due to constraints in coder availability, the coders trained to code mothers' versus fathers' SFP videotapes were different. The same coder coded both baseline and reunion for one parent.

To be able to compare parents' sensitivity scores during all contexts in one model, the Ainsworth scores of parental sensitivity (9-point scale) during free play and routine caregiving were recoded into a 4-point Likert scale to have the same range as the SFP Sensitivity scale (see supplemental material). Scale points 1 and 2 were recoded into 0 (*no sensitivity*), scale points 3 and 4 were recoded into 1 (*minimal or low sensitivity*), scale points 5 and 6 were recoded into 2 (*mixed or moderate sensitivity*), and scale points 7, 8, and 9 were recoded into 3 (*predominantly high sensitivity*).

Analyses

Data analyses were performed using IBM SPSS Statistics 23. Data on parental sensitivity as well as potential covariates were explored (i.e., parents' age, educational level, working hours, household income, routine caregiving session duration, and coder overlap between routine caregiving and free play). There were five outliers, defined as scores at least 3.29 *SD* below or above the mean. These were winsorized according to the method of Tabachnick and Fidell (2012): scores were changed in such way that they fell in the accepted *SD* range but were still most deviant. All variables approached normal distribution, except for mothers' educational level. Therefore, a square root transformation of this variable was used in the preliminary analyses, which were done to examine whether the possible

covariates were significantly related to parental sensitivity in one or more contexts. If they were significantly related, they were included in further analyses as covariate.

To examine stability in parental sensitivity between the four different contexts, Pearson correlation coefficients were calculated. To examine differences between parents, differences between contexts, and parent by context interaction effects, a GLM Repeated Measures analysis was performed. First, the main effects of the within-subjects factors context (free play, routine caregiving, SFP baseline, SFP reunion) and parent gender (mother, father) on parental sensitivity were examined. Second, the effect of the interaction between these two within-subjects factors on parental sensitivity was examined. To check if the results regarding differences between free play and caregiving context would differ using original instead of recoded data, two additional GLMs were run and compared: one in which only the routine caregiving and free play context were examined using the original Ainsworth Sensitivity Scale scores, and one in which the same two contexts were examined using the recoded scores. Because the two models showed the same results, demonstrating that recoding did not influence the results, only the full model with the recoded data is reported.

Results

Preliminary Analyses

None of the potential covariates were related to paternal or maternal sensitivity, except for parents' educational level. Mothers with a higher educational level were more sensitive during free play (r = .19, p =.046) and the SFP reunion (r = .19, p =.047), but not during routine caregiving and the SFP baseline. Additionally, fathers' educational level was related to maternal and paternal sensitivity during free play (r = .22, p =.021 and r = .23, p =.017, respectively), and to paternal sensitivity only during routine caregiving, the SFP baseline, and the SFP reunion (r = .26, p =.007, r = .21, p =.028, and r = .24, p =.014, respectively). Because maternal and paternal educational level were related to parental sensitivity, the GLM Repeated Measures analysis was performed with these variables as covariate. Even though duration of the routine caregiving episode was not significantly related to paternal or maternal sensitivity, it has been suggested that longer observations may capture a more ecologically valid and reliable sensitivity score (Mesman, 2018). Therefore, duration of the routine caregiving episode was included as a covariate in the GLM Repeated Measures analysis as well. Descriptive statistics for all parental sensitivity measures are shown in Table 1.

Stability in Parental Sensitivity Across Contexts

Correlations between mothers' and fathers' sensitivity in all four contexts are presented in Table 1. Parental sensitivity was related between contexts: that is, parents who were more sensitive in one context, were also more sensitive in the other three contexts, with weak to strong correlations for both mothers (rs = .22 - .53) and fathers (rs = .21 - .64). Correlations were highest for the two contexts that were part of the SFP (baseline and reunion). The strength of the correlations between sensitivity in the four contexts did not differ significantly for mothers versus fathers (zs = -1.22 ~ 0.56, ps >.22).

Table 1. Descriptive Statistics and Correlations for Maternal and Paternal Sensitivity to Infants at 4 Months in Four Contexts.

		1.	2.	3.	4.	5.	6.	7.	M	SD	Range
Mothers	1. Sensitivity free play								1.83	0.96	0-3
	2. Sensitivity routine caregiving	.25**							2.70	0.48	1-3
	3. Sensitivity SFP baseline	.26**	.33**						1.90	0.80	0-3
	4. Sensitivity SFP reunion	.22*	.24*	.53**					1.87	0.77	0-3
Fathers	5. Sensitivity free play	.18	.15	.14	.01				2.00	1.00	0-3
	6. Sensitivity routine caregiving	.20*	.29**	.10	.11	.27**			2.50	0.65	1-3
	7. Sensitivity SFP baseline	.02	.30**	.19*	.05	.23*	.26**		1.39	0.87	0-3
	8. Sensitivity SFP reunion	.10	.30**	.10	.06	.22*	.21*	.64**	1.40	0.72	0-3

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

Differences between Mothers' and Fathers' Sensitivity in all Four Contexts

Regarding the GLM Repeated Measures analysis, Mauchly's test indicated that the assumption of sphericity had been violated for the main effect of context, $\chi^2(5) = 31.53$, $p < .001$, and the interaction effect between parent and context, $\chi^2(5) = 26.26$, $p < .001$. Therefore, the degrees of freedom were corrected using Huynh–Feldt estimates of sphericity ($\varepsilon = .87$ for the main effect of context and $\varepsilon = .92$ for the interaction effect between parent and context). First, there was a significant main effect of context on parental sensitivity, $F(2.61, 265.82) = 3.71$, $p = .016$, $\eta_p^2 = .04$. Post hoc analyses revealed that parental sensitivity during routine caregiving ($M = 2.60$; $SE = 0.04$) was significantly higher than during free play ($M = 1.90$; $SE = 0.07$), the SFP baseline ($M = 1.66$; $SE = 0.06$), and the SFP reunion ($M = 1.65$; $SE = 0.05$). Additionally, parental sensitivity was significantly higher during free play than during the SFP baseline and reunion, and there was no significant difference between parental sensitivity during the SFP baseline and reunion. Second, there was no significant main effect of parent on parental sensitivity, $F(1, 102) = 3.70$, $p = .057$, $\eta_p^2 = .04$. Third, there was no significant interaction effect between parent and context, $F(2.74, 279.87) = 2.35$, $p = .079$, $\eta_p^2 = .02$, indicating that the lack of mother-father differences in sensitivity was consistent across contexts. Figure 1 shows the results regarding the GLM Repeated Measures analysis.

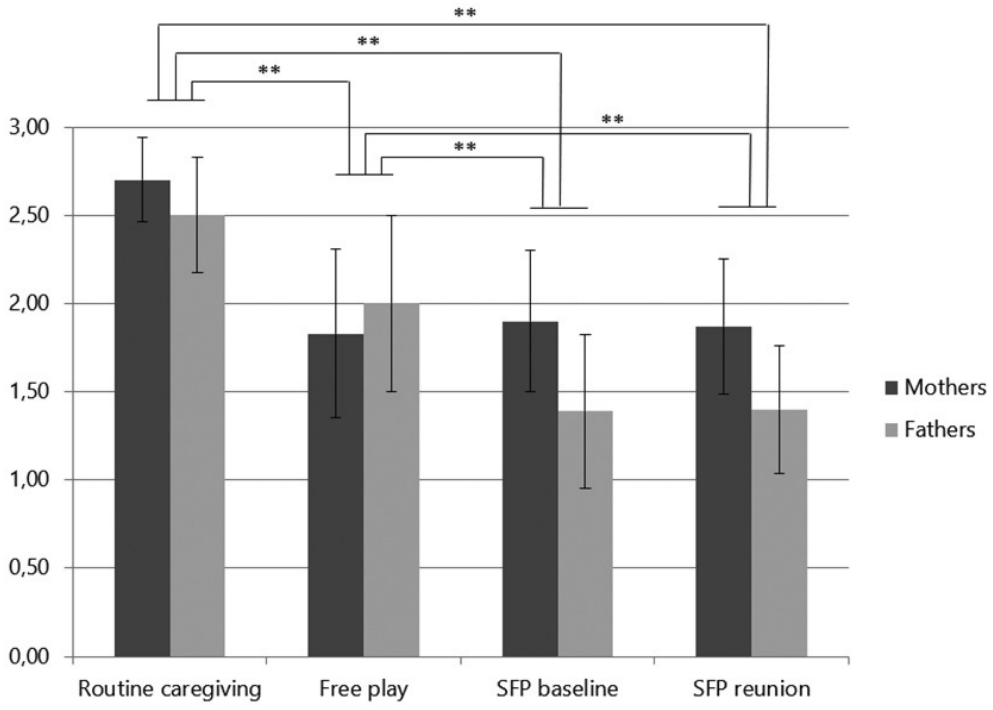

Figure 1. Maternal and paternal sensitivity to infants at 4 months during routine caregiving, free play, SFP baseline, and SFP reunion.

Discussion

The aim of this study was to examine variability in maternal and paternal sensitivity towards their infants by observing sensitivity in four different contexts: routine caregiving, free play, SFP baseline, and SFP reunion. Parental sensitivity was moderately stable across contexts: parents who were more sensitive in one context, were also more sensitive in the other three contexts. Overall, mean levels of parental sensitivity varied across contexts: parents were more sensitive during a routine caregiving task than during free play, the SFP baseline, and the SFP reunion, and more sensitive during free play than during the SFP baseline and reunion. Mothers and fathers were equally sensitive across contexts, and the lack of mother-father differences in sensitivity was consistent across contexts.

As expected based on previous studies (e.g., Braungart-Rieker et al., 2014), parents who showed higher sensitivity in one context also demonstrated higher sensitivity in other contexts. However, it should be noted that the correlations for mothers as well as fathers were relatively low except for those between the SFP baseline and reunion. This indicates that even though there is an element of correlational stability in parental sensitivity

across contexts, there is also variability. It may be that the amount of experience with a certain setting plays a role in whether parental sensitivity is stable across contexts. Less experience with a specific context may make it more difficult to pick up and correctly interpret the infant's signals and respond appropriately in that context. Further, research demonstrated that maternal sensitivity is lower in situations where infants show high levels of negative affect compared to situations in which infants show low levels of negative affect (Mills-Koonce et al., 2007). Some of the infants in the current study may have shown more negative affect in one of the contexts, which could have resulted in less parental sensitivity towards the infant in that context specifically and thus in lower correlations between contexts. Future studies should therefore examine moderators such as familiarity with the context and infant affect that could explain why parental sensitivity is not highly stable across all contexts.

In line with our hypothesis, we also found mean-level differences. Parental sensitivity was overall lowest during the SFP baseline and reunion, somewhat higher during free play, and highest during a routine caregiving task, which is in line with a previous study on mothers (Joosen et al., 2012). Thus, it seems that more naturalistic observational contexts result in higher levels of parental sensitivity. Parents may be more used to performing routine caregiving tasks than playing with their infant on their lap for 5 uninterrupted minutes, thus making it easier to accurately pick up on their infant's signals and respond to them appropriately. Furthermore, given that the SFP is a highly structured standardized experiment, this setting is probably equally unfamiliar to all parents, making it even less naturalistic than either lap play or routine caregiving. This could be the reason why parents in general were least sensitive in both the SFP baseline and reunion. Yet, Behrens and colleagues (2014) did not find a significant difference in levels of maternal sensitivity between the SSP - a stress-inducing experiment similar to the SFP - and a more naturalistic home setting. However, their home setting did include several structured tasks, there was a 2.5 year gap between the two assessments, and the contexts were not coded independently. Furthermore, as infants play an active role in the interaction with their parents and may respond differently to each context as well, future research should include infant behavior to examine a potential infant effect on parental sensitivity in each context. All in all, even though the current research indicates that parents are more sensitive in more ecologically valid observational contexts, more research is needed to further examine how and why parental sensitivity differs across multiple contexts.

Taking into account possible contextual differences, the hypothesis that mothers and fathers would be equally sensitive to their 4-month-old infant was confirmed. As mentioned previously, the literature shows mixed results with regard to a possible difference between maternal and paternal sensitivity. However, both contexts and infant age differed across these studies, which could explain the mixed results. The current study indicates that differences in sensitivity between mothers and fathers are not present yet when the infant is only 4 months old. However, they may develop over time as most research that did find a significant difference was done with infants older than 4 months (e.g., Hallers-Haalboom et al., 2014).

While this study extends the literature on contextual differences in parental sensitivity, there are some important limitations. First, sensitivity was measured with two instruments. Even though they strongly overlap in their conceptualization of parental sensitivity, a minor part of the SFP scale includes warmth, whereas the Ainsworth scale does not. Because there is evidence that warmth and sensitivity are related but different concepts, different sensitivity measures are not necessarily interchangeable and small differences in conceptualization could thus influence research results (Bohr et al., 2018; Mesman & Emmen, 2013). However, in the current study sensitivity during the routine caregiving session and free play (measured with the same scale) were not more strongly related to each other than to the SFP baseline and reunion (measured with another scale), suggesting that the difference in instruments was not a determining factor. Nevertheless, future research on contextual differences in parental sensitivity would benefit from using one measurement instrument. Second, it could be questioned whether the SFP is a reliable stress-inducing procedure to measure parental sensitivity, as not all infants are equally distressed during the SFP (Mesman et al., 2013). In future studies it would be better to use a stress-inducing experiment that relies less heavily on the parent's performance and is more universally stressful for infants. Third, due to practical reasons (e.g., most babies fall asleep after bathing) the order of the contexts during the home visit was initially fixed, which could have resulted in order effects. Eventually, in 85 out of the 218 home visits the order was however different than planned, for instance because the infant was already very tired when the researcher arrived, or the infant became fussy during a certain task. In those cases the order was changed in such a way that data collection was still possible. Furthermore, in all four contexts there were no differences in both maternal and paternal sensitivity between the fixed-order group and the mixed-order group, *t*s (107) ≤ 1.53, *p*s ≥ .13. Thus, it is unlikely that the context effect can be explained by an order effect.

In conclusion, the current study demonstrated that mothers and fathers were equally sensitive towards their 4-month-old infants across multiple contexts. Longitudinal research is needed to determine when and how differences in maternal and paternal sensitivity arise over time, given that the studies that do find differences tend to involve older infants. Furthermore, the current study also demonstrated that both mothers and fathers show lower sensitivity in less naturalistic contexts. It is important to take this into account for research as well as practice. Research has already demonstrated that parental predictors and infant outcomes of general sensitivity are different from those of sensitivity to distress (e.g., Leerkes et al., 2012). It could therefore be possible that other contrasting research results on (predictors and outcomes of) parental sensitivity are also explained by differences in the contexts in which sensitivity is measured, emphasizing the importance of the choices researchers make regarding the context in which to observe parental sensitivity. Our results also highlight the importance of using the same observational context when examining sensitivity longitudinally, to avoid confounding effects. For the evaluation of parenting skills in (clinical) practice, it is important to realize that parents seem to show their capacities best in more ecologically valid settings, whereas they are more challenged in settings that are less naturalistic. Both ends of their sensitive capabilities would be valuable to test in clinical assessments. In sum, our research highlights that context matters when mothers and fathers are observed and scored on their sensitivity towards their infants.

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Supplement: Overlap Between Scale points of the Ainsworth Sensitivity Scale and SFP Sensitivity Scale.

Ainsworth Sensitivity Scale	SFP Sensitivity Scale
1 = Highly insensitive. Responds insensitively almost all of the time, sensitive responses are extremely rare or absent.	**0 = No sensitivity.** Mother shows virtually no sensitivity in her interactions with the infant.
2 = Very insensitive. Responds insensitively almost all of the time, but some small instances of sensitivity can be observed.	
3 = Insensitive. Responds insensitively most of the time, but some instances of sensitivity can be observed.	**1 = Minimal or low sensitivity.** Mother shows a few instances of sensitive behavior, which shows she is able to respond sensitively to the infant.
4 = Quite insensitive. Responds insensitively more often than not, but does clearly show the capacity for sensitivity several times.	
5 = Inconsistently sensitive. Responds sensitively more often than not, but lapses occur often as well, and some of them are conspicuous.	**2 = Mixed or moderate sensitivity.** Mother is moderately sensitive, or not consistently sensitive throughout the segment.
6 = Adequately sensitive. Most often responds sensitively, but lapses occur several times, and a few of them are conspicuous.	
7 = Sensitive. Very often responds sensitively, and lapses are small and infrequent.	**3 = Predominantly high sensitivity.** Mother is consistently infant-centered in her interactions with the infant and responds to the infant's cues (also the more subtle cues).
8 = Very sensitive. Virtually always responds sensitively, and any lapses are small and rare.	
9 = Highly sensitive. Virtually always responds sensitively, and any lapses are small and extremely rare.	

Note. The Ainsworth Sensitivity Scale was developed by Ainsworth, Stayton, and Bell (1974). The SFP Sensitivity Scale is an adapted version of the MICS developed by Miller (2000).

CHAPTER 3

3

Narrative Coherence Across the Transition to Parenthood: Primiparous Parents' Representations of Their Child in Relation to Parental Sensitivity

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Abstract

Narrative coherence reflects parents' ability to provide a believable, clear, relevant, and internally consistent story about their child. Parents demonstrating more narrative coherence have been theorized to show higher parental sensitivity, but this has not been examined in a normative sample, nor across the transition to parenthood, and only once in fathers. The aim of this study was to examine stability and change in narrative coherence across the transition to parenthood in mothers and fathers, as well as the relation between pre- and postnatal narrative coherence and postnatal parental sensitivity. The sample consisted of 105 primiparous expecting parents. Narrative coherence was measured at 36-weeks pregnancy and when the child was 4 months old, using the Five Minute Speech Sample procedure. Parental sensitivity was observed in three episodes. Results demonstrated that narrative coherence was moderately stable (correlations) across the transition to parenthood in fathers only. Both mothers' and fathers' narrative coherence improved over time. Furthermore, mothers and fathers were overall equally coherent, and maternal and paternal narrative coherence were positively interrelated during pregnancy only. Lastly, our findings showed weak evidence for the theorized link between narrative coherence and parental sensitivity: only postnatal narrative coherence predicted paternal sensitivity, only during free play. Our findings give new insight in the development of narrative coherence across the transition to parenthood, and how it relates to actual parenting. More research is needed to confirm our findings and further explore this topic.

Keywords: Five minute speech sample, narrative coherence, pregnancy, representation, parental sensitivity.

Introduction

Parents' mental representations of their child consist of the thoughts and feelings they have about (the relationship with) their child, and reflect how they interpret the child's personality and behavior. The construction of these representations are facilitated by complex, higher-order constructs that have been conceptualized in various ways, such as mind-mindedness, reflective functioning, insightfulness, and narrative coherence (see for a meta-analysis on some of these concepts: Zeegers et al., 2017). Because parental representations are related to infant attachment quality as well as parents' own attachment representations, it has been suggested that these representations partially explain the intergenerational transmission of attachment quality (Sharp & Fonagy, 2008; Slade et al., 2005). Actual parenting behaviors may also play a role in this transmission (Oppenheim, 2006). That is, parents' own attachment representations may influence the views they have on (the relationship with) their child, which guides how they interpret and respond to their child's behavior, creating a parenting style which in turn is related to (child) outcomes such as attachment. Indeed, two meta-analyses have demonstrated that parents' representations of their child are related to their actual parenting, with more positive representations being related to higher parental sensitivity (Foley & Hughes, 2018; Zeegers et al., 2017).

Following attachment theory (Bowlby, 1969/1982) and Mary Main´s work on the Adult Attachment Interview which revealed coherence to be a crucial dimension for classifying adults´ narratives about their own childhoods into secure and insecure groups (Main, 2000), the concept of narrative coherence as a measure of parental representations could be particularly important for the quality of attachment relationships (Oppenheim, 2006). Narrative coherence reflects parents' ability to provide a believable, clear, relevant, and internally consistent story about (the relationship with) their child (Oppenheim, 2006; Sher-Censor, 2015). Parents who create a coherent narrative about their child, demonstrate that they are able to process information about their child in a flexible and open way. Attachment theory suggests that this flexible information processing shapes sensitive parenting – i.e., parents' ability to pick up and accurately interpret their child's signals and respond to these signals in an appropriate and timely manner – as written in Ainsworth's sensitivity scale coding manual: "caregivers who least distort their perceptions of the child have some insight as to their own wishes and moods, and thus can more realistically judge the child's behavior" (Ainsworth et al., 1974, p.4). In turn, sensitive parenting is an important predictor of infant attachment quality (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). However, even though narrative coherence has been shown to be related to child outcomes such as behavior problems and school adjustment (Sher-Censor et al., 2016; Sher-Censor et al., 2018; Sher-Censor & Yates, 2015), to date only one study examined and found evidence for the theorized link between narrative coherence and parental sensitivity, in a sample of Arab-Israeli mothers of boys with Autism Spectrum Disorder (Sher-Censor et al., 2017). In addition, no studies have examined narrative coherence in fathers. To broaden the limited body of knowledge on narrative coherence and its theorized relation to parental sensitivity, more research is needed in normative samples consisting of both mothers and fathers to further elucidate this possible relation with parental sensitivity.

Importantly, parents already form mental representations about their child during pregnancy (Glover & Capron, 2017), that may shape their views of their child once they are born and possibly change over time as they gain experience with their child. A recent meta-analysis demonstrated that parents' prenatal representations of their child are related to their postnatal sensitivity (Foley & Hughes, 2018). However, parents' narrative coherence as a specific form of parental representations relevant to attachment theory has only been examined once prenatally (Foley et al., 2019) – and even though this study demonstrated that it is possible to capture individual differences in both mothers' and fathers' narrative coherence during pregnancy, it remains unclear how it develops across the transition to parenthood and to what extent prenatal narrative coherence is related to postnatal narrative coherence as well as parental sensitivity. Therefore, the aim of the current study is to examine stability and change of the narrative coherence of parents' mental representations of their child across the transition to parenthood in both mothers and fathers, as well as the relation between both pre- and postnatal narrative coherence and postnatal parental sensitivity.

Assessing Parents' Representations of Their Child across the Transition to Parenthood

The transition to parenthood forms a particularly interesting period to study narrative coherence: couples become parents for the first time and have to adapt to their new role. During this period of change, parents often think about questions such as how their child will be, what kind of parent they would like to be for their child, and what their bond with their own parents was like. Research indeed demonstrates that most parents already form mental representations of their child during pregnancy (Glover & Capron, 2017). This raises the question whether these mental representations formed during pregnancy are a static construct, or change over time – perhaps because parents gain experience with their child after it is born, that may shape their representations in several ways. Unfortunately, much is still unclear about narrative coherence specifically across this transition to parenthood. Even though Foley et al. (2019) did demonstrate that narrative coherence can be captured prenatally via a short 5-minute interview called the Five Minute Speech Sample (FMSS), to date no studies have looked at narrative coherence both pre- and postnatally.

As previously mentioned, researchers interested in parents' mental representations of their child have assessed these representations in several ways. This led to the development of constructs that are in some ways similar to narrative coherence, as they all focus on parents' thoughts and feelings regarding (the bond with) their (unborn) child, and require parents to flexibly process information about the child. Importantly, Fonagy et al. (2002; 2012) mentioned that these constructs should not be seen as conflicting but rather as complementary to each other. First, mind-mindedness reflects parents' ability to perceive their child as an individual mental agent with own thoughts and feelings – mind-minded parents are able to 'read' their infant's likely internal states (Arnott & Meins, 2008; Meins et al., 2001). Second, parental reflective functioning (PRF) also refers to parents' ability to realize that their child has his/her own mental states, but differs from mind-mindedness in the sense that parents also need to demonstrate that they understand that these mental states are a reflection of the child's actual behavior (Fonagy et al., 1998; Slade, 2005). Third, similar to mind-mindedness and PRF, insightfulness requires parents to take their

child's perspective into consideration: positively insightful parents demonstrate that they understand the motives behind their child's behavior and emotions, and they do so in a child-focused, complete, positive, and coherent manner (Koren-Karie et al., 2002). Not surprisingly, coding procedures of narrative coherence and insightfulness show striking similarities, as the coding procedures for narrative coherence were adapted from Koren-Karie and Oppenheim's (2004) Insightfulness Assessment Coding Manual. Fourth, parents' mental representations of their (unborn) child have been researched in a more general way using the Working Model of the Child Interview: parents' representations during this interview are classified as either balanced, disengaged, or distorted (WMCI; Zeanah et al., 1986). Finally, to assess parents' thoughts and feelings regarding the closeness of the bond with their (unborn) child in general, questionnaires focusing on prenatal attachment or bonding have been used, such as the Attachment Scale (i.e., MAAS, PAAS, MPAS, and PPAS; Condon, 1993; Condon & Corkindale, 1998; Condon et al., 2008).

In contrast to narrative coherence (as well as insightfulness), the four constructs outlined above have been examined both pre- and postnatally. For example, in a small sample, Arnott and Meins (2008) found a positive relation between pre- and postnatal mind-mindedness in mothers as well as fathers. Furthermore, a positive relation was found between pre- and postnatal maternal reflective functioning, as well as a significant improvement in maternal reflective functioning over time across the transition to parenthood (Pajulo et al., 2015; Smaling et al., 2016). Additionally, multiple studies demonstrated that both mothers and fathers who have balanced representations prenatally often have these same balanced representations after the birth of their child, and more often have balanced representations of their child after birth than during pregnancy (Benoit et al., 1997; Theran et al., 2005; Vreeswijk et al., 2014; Vreeswijk et al., 2015). Lastly, studies focusing on parents' feelings about the closeness of their bond with their child that was conceived through IVF found a positive relation between parents' pre- and postnatal feelings of bonding, as well as a significant improvement in mean levels of bonding after the birth of their child compared to during pregnancy (Cairo et al., 2012; De Cock et al., 2016; Maas et al., 2016). Thus, several other conceptualizations of parents' mental representations of their child seem to show stability as well as improvement over time.

Mothers' versus Fathers' Representations of Their Child

Besides studying narrative coherence across the transition to parenthood, it is important to examine how mothers' and fathers' narrative coherence might be similar or different in level, and how they are interrelated, both pre- and postnatally. Before birth, the bond that fathers have with their child is of course different from the bond that mothers have, as fathers lack the physical connection with their child during pregnancy (Ives, 2014). It is therefore possible that fathers' coherence develops differently over time compared to mothers' coherence. In the only study on prenatal narrative coherence no relation was found between mothers and fathers, and their mean levels did not differ significantly (Foley et al., 2019). No studies have examined narrative coherence in fathers postnatally. It is thus unclear whether mothers' and fathers' narrative coherence indeed develop differently across the transition to parenthood.

Literature on associations and mean level differences between mothers' and fathers' representations of their child is limited, both pre- and postnatally. Regarding differences in representations specifically in the prenatal period, the literature is mixed. In accordance with the results of the study on prenatal narrative coherence a study on mind-mindedness also found no difference between mothers and fathers (Arnott & Meins, 2008), whereas research on other constructs did find differences between expecting mothers and fathers, with expecting mothers having higher reflective functioning, more balanced representations, and higher levels of feelings of bonding with the child than expecting fathers (e.g., Cairo et al., 2012; Pajulo et al., 2015; Vreeswijk et al., 2015). Regarding associations between fathers' and mothers' representations specifically in the prenatal period, in accordance with the results of the study on prenatal narrative coherence no relation was found between expecting mothers' and fathers' reflective functioning (Pajulo et al., 2015). However, De Cock et al. (2016) did find a significant weak to moderate positive relation between mothers' and fathers' prenatal feelings of bonding with the child. To the best of our knowledge, there have been no studies on relations and/or mean level differences between mothers and fathers on other constructs.

Regarding mean level differences and associations between mothers and fathers in their representations in the postnatal period, literature is scarce and mixed as well. Looking at differences, some studies found no difference between mothers' and fathers' postnatal mental representations (e.g., Marcu et al., 2016), whereas other studies demonstrated that mothers more often have balanced postnatal representations about their child and higher mean levels of feelings of bonding with the child than fathers (Cairo et al., 2012; Vreeswijk et al., 2015). Two studies reported on similarities between mothers and fathers in representations in the postnatal period, and found significant, positive relations (De Cock et al., 2016; Marcu et al., 2016).

In conclusion, based on the scarce literature present it is unclear whether similarities and differences should be expected between mothers' and fathers' narrative coherence, either pre- or postnatally.

Narrative Coherence and (parenting) behavior

As previously mentioned, no studies have examined narrative coherence specifically in relation to parental sensitivity in normative samples and in mothers as well as fathers, which could be an important missing puzzle piece in the question as to why and how intergenerational transmission of attachment takes place. Coherence of mothers' mental representations has been examined in relation to maternal sensitivity in a high risk-sample consisting of mothers living in areas with extreme poverty and community violence, but no significant relation was found (Sokolowski et al., 2007). Interestingly, two meta-analyses on related concepts did find a relation with parental sensitivity, with more positive representations being related to higher parental sensitivity (Foley & Hughes, 2018; Zeegers et al., 2017).

Even though no studies have examined narrative coherence in relation to parental sensitivity in normative samples, previous research on narrative coherence in mothers has focused on child outcomes. For instance, a large study on parental representations and self-

regulation demonstrated that mothers who show higher postnatal narrative coherence have preschoolers with a more positive view on the relationship with their mother (Sher-Censor et al., 2013). Furthermore, the same study showed that higher postnatal maternal narrative coherence is related to fewer behavioral problems in toddlers and preschoolers, and to better school adjustment in children with self-regulation difficulties (Sher-Censor et al., 2016; Sher-Censor et al., 2018; Sher-Censor & Yates, 2015).

Current Study

In summary, the development of parents' narrative coherence as a measure of their mental representations of their child across the transition to parenthood, and the possible relation between pre- and postnatal narrative coherence and actual sensitive parenting, remain open for further investigation in mothers as well as fathers. Yet, this information may be especially useful in closing the gap of knowledge regarding the intergenerational transmission of attachment. Therefore, the current study adds to the existing literature by examining parents' narrative coherence in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between narrative coherence and parental sensitivity. As previous research demonstrated that context matters and that both more and less naturalistic contexts could be valuable when studying parental sensitivity (Branger et al., 2019), the current study will use video observations of parental sensitivity in three contexts, from more to less naturalistic: routine caregiving, free play, and the Still Face Procedure.

The following hypotheses are tested: (1) narrative coherence is stable over time from pregnancy to parenthood in both mothers and fathers; (2) mean levels of narrative coherence increase from pregnancy to parenthood in both mothers and fathers; (3) both prenatal and postnatal narrative coherence predict parental sensitivity in mothers as well as fathers. Furthermore, as studies to date have found inconsistent results, similarities and differences between mothers' and fathers' narrative coherence both during pregnancy and after birth of their first child are explored.

Method

Sample and Procedure

To examine parents' narrative coherence in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between narrative coherence and parental sensitivity, we executed a longitudinal study. This study was part of the New Fathers and Mothers Study, a larger longitudinal research project on parental wellbeing, parent-child interactions, and child outcomes in families with their firstborn child in the UK, the USA, and the Netherlands. The current paper reports on Dutch data from the first and second wave (see also Branger et al., 2019). Recruitment took place from September 2014 to March 2015 throughout the Netherlands. Primiparous expecting parents were recruited at pregnancy fairs and prenatal exercise classes, and through distribution of study promotion materials at pregnancy stores and midwife clinics. Interested couples were included in the study if they were at least 21 years old, living together in the Netherlands, both expecting their first child, and planning on raising their baby together.

Exclusion criteria for participating in the study were not speaking the Dutch language, having a self-reported history of severe mental illness or substance abuse, and current participation in extensive therapeutic or medical treatment. Furthermore, families were excluded from the postnatal assessment if the mother did not give birth to a healthy baby.

In total, 132 families participated in the prenatal assessment at 36 weeks of pregnancy, which consisted of one home visit for both expecting parents. During the home visit, one parent was interviewed and performed computer tasks while the other parent filled out a questionnaire in a separate room, after which they rotated. The order in which the expecting mothers and fathers were interviewed was counterbalanced. At the postnatal assessment, which took place when the infant was 4-months old, 3 families were excluded due to child health problems while 10 families dropped out of the study because of infant sleeping problems (n = 1), parent mental problems (n = 1), and lack of time (n = 8). Participating families were not different from non-participating families on age, educational level, working hours, personal income, and family income (ps: .07- .77). During the postnatal assessment parents also filled out questionnaires and were visited at home. This time they were visited separately, with a period of approximately one week in between visits. The order of mother and father visits was counterbalanced. Initially, the order of the contexts during the home visit was fixed for practical reasons (e.g., babies typically fall asleep after bathing). Eventually, 85 of the 210 home visits followed a different order to suit the infant's needs and still make data collection possible (e.g., the infant was already very tired when the researcher arrived). During the home visit, the parent was interviewed and performed computer tasks, parent-infant interactions were videotaped, and the infant was tested on their cognitive development. To prevent disturbances during the assessment with the target parent, the other parent was not present or in another room. All pre- and postnatal home visits were conducted by trained (under)graduate students. At each home visit informed consent was obtained from both parents, and parents received a gift voucher and a small present for their infant. Ethical approval of the study was provided by the Ethics Review Board of the host institute.

In the current study, families with missing data were excluded (n = 14). Families with missing data were not different from families without missing data on age, educational level, working hours, personal income, and family income (ps: .07- .97). Thus, the final sample consisted of 105 families (45.1% boys, all but three parents were of Dutch ethnicity), of which both parents completed the prenatal as well as the postnatal assessment. Assuming a power of at least 90% and an alpha of .05, our sample size (N = 105) was sufficient to detect a medium effect (i.e., f^2 = 0.25-0.4) using correlations (required N = 92), t-tests (required N = 68), repeated measures ANOVA to test within-, between-, and within-between interaction-effects (required N = 40-105) and Multiple Regression Analyses to test two main effects (required N = 88). Most mothers (81.0%) and fathers (99.0%) were employed, with employed mothers working an average of 32.52 hours per week before their pregnancy leave (SD = 9.65), and employed fathers on average 39.95 hours per week (SD = 9.27). Furthermore, at the 4-month assessment 34.1% of the employed mothers were taking parental leave for an average of 10.03 hours per week (SD = 9.16), while 9.8% of the employed fathers were taking parental leave for 6.36 hours per week on average

(*SD* = 1.96). All other relevant descriptive statistics of the study sample are presented in Table 1.

Table 1. Descriptive Statistics of the Study Sample and Variables of Interest.

		M	*SD*	Min.	Max.
Mothers	1. Prenatal narrative coherence	4.62	1.23	2	7
	2. Postnatal narrative coherence	5.41	1.00	3	7
	3. Sensitivity: Free play	5.17	1.90	1	9
	4. Sensitivity: Routine caregiving	7.07	1.07	4	9
	5. Sensitivity: SFP	1.90	0.69	0	3
	6. Age	29.46	3.67	21	39
	7. Educational level – high (%)	69.5			
	8. Educational level – low (%)	17.1			
	9. Duration routine caregiving (min.)	15.27	6.37	2.09	29.44
Fathers	10. Prenatal narrative coherence	4.61	1.32	1	7
	11. Postnatal narrative coherence	4.97	1.06	2	7
	12. Sensitivity: Free play	5.50	1.93	1	9
	13. Sensitivity: Routine caregiving	6.59	1.32	3	9
	14. Sensitivity: SFP	1.41	0.73	0	3
	15. Age	31.68	4.33	22	48
	16. Educational level – high (%)	60.4			
	17. Educational level – low (%)	27.1			
	18. Duration routine caregiving (min.)	14.83	6.80	2.32	30.07
Family	19. Household income	63,856.93	20,935.62	16,000	120,000
	20. SES	-0.05	0.77	-1.60	1.39

Note. High educational level refers to having at least a Bachelor's degree, low educational level refers to having obtained upper secondary education or less. For reference, the average household income in the Netherlands was 35,000 Euros (Statista, 2018)).

Measures

Narrative coherence. The FMSS procedure (Magaña et al., 1986) was used to measure narrative coherence in parents during both the pre- and postnatal interview, which were audio-recorded. Parents were asked to speak for five uninterrupted minutes about what they think their (unborn) baby will be or is like and how the two of them (will) get along. Audio files of the interviews were transcribed, after which all transcripts were checked. Transcripts were then coded for narrative coherence using the FMSS Narrative Coherence coding manual (Sher-Censor & Yates, 2010) as adapted from the Insightful Assessment scales (Koren-Karie & Oppenheim, 2004). With approval from the original authors, the manual was adapted for prenatal assessment (see also Foley et al., 2019). First, each transcript was rated on six 7-point subscales, i.e. focus, elaboration, separateness, concern/worry, acceptance/rejection, and complexity (for details see Sher-Censor & Yates, 2015). Second, a global narrative coherence score was given based on the subscale ratings, reflecting the extent to which the transcript conveyed a consistent, elaborated, complex, and believable picture of the baby/relationship, without overwhelming concern

or substantial problems in separateness. Coherence was coded on a 7-point Likert scale ranging from 1 = no coherent picture to 7 = very coherent picture of the baby.

Pre- and postnatal interviews were coded by separate groups of coders. The reliability set for the prenatal interviews as well as the reliability set for the postnatal interviews consisted of 30 transcripts of both (expecting) mothers and fathers. The first and fourth author coded the prenatal interviews; their intraclass correlation coefficient (absolute agreement) for Coherence was .75. Regarding the postnatal interviews, four coders were trained to reliability by the first author; their intraclass correlation coefficients (absolute agreement) for Coherence ranged from .72 to .89 for all separate pairs of coders (M = .78). All coders coded mothers' as well as fathers' narratives, but mothers and fathers of the same family were coded by separate coders to guarantee independency among ratings.

Parental sensitivity. Parental sensitivity was measured in three contexts: during a free play session, a routine caregiving episode, and during the Still Face Procedure. As previous research demonstrated that levels of parental sensitivity differ in various context, we did not aggregate the scores to form one sensitivity measure (for more information on differences and similarities in parental sensitivity between these contexts, see Branger et al., 2019). The Ainsworth Sensitivity Scale (Ainsworth et al., 1974) was used to code parental sensitivity during the free play session, in which parents were instructed to play with their infant for five minutes as they would normally do but without the use of toys or a pacifier, as well as the routine caregiving episode, in which parents were asked to bathe their infant (N = 82 for mothers, N = 81 for fathers) or change the infant's diaper (N = 23 for mothers, N = 24 for fathers). Because episode duration differed significantly between bathing and changing the infant's diaper in both mothers and fathers, $t(103) = 15.52$, $p < .001$ and $t(52.35) = 15.57$, $p < .001$, duration of the routine caregiving episode was taken into account as a possible covariate in the preliminary analyses.

The Ainsworth Sensitivity Scale consisted of 9 points, ranging from 1 = highly insensitive to 9 = highly sensitive. One global rating was given to each parent for the full episode, and even though all coders coded mothers as well as fathers, mothers and fathers of the same family were coded by separate coders. Ten coders, not trained to code narrative coherence, were trained to reliability by the third and last author, using video tapes of families within the study. The reliability set contained 30 videotapes of free play sessions of fathers and mothers. Intercoder reliability was adequate, with intraclass correlation coefficients (absolute agreement) ranging from .73 to .92 for all separate pairs of coders (M = .83). Reliable coders received two additional training sessions focused on coding of the routine caregiving episodes.

Parental sensitivity during the Still Face Procedure (SFP; Tronick et al., 1978) was coded using the SFP Sensitivity scale. This is an adapted version of the Mother-Infant Coding System (MICS; Miller, 2000), consisting of a 4-point Likert scale ranging from 0 = no sensitivity to 3 = predominantly high sensitivity. Four coders, not trained to code narrative coherence and parental sensitivity during free play and routine caregiving, were trained to reliability by the last author, using video tapes of families within the study (for a more detailed description of the coding scale and process, see Branger et al., 2019).

The reliability set consisted of 40 videotapes of SFPs (baseline as well as reunion, and mothers as well as fathers). Intraclass correlation coefficients (absolute agreement) for the SFP across baseline and reunion ranged from .69 to .73 between coders. Constraints in coder availability resulted in different coders for mothers' versus fathers' SFP videotapes. Because previous research has demonstrated that there was no significant difference in parental sensitivity between baseline and reunion and that these contexts were highly related (Branger et al., 2019), in the current study the mean score of the SFP baseline and reunion was used for each parent to represent parental sensitivity during the SFP.

Analyses

Data analyses were performed using IBM SPSS Statistics 25. Descriptive statistics are shown in Table 1. Data exploration revealed that all variables approached a normal distribution. Furthermore, no outliers were present (i.e., z-score ≥ |3.29|) except for one outlier on maternal sensitivity during routine caregiving and one outlier on father's age, which were winsorized using the method of Tabachnick & Fidell (2012). Preliminary analyses on possible covariates (i.e., parents' age, family SES at the first assessment, which was a composite score based on the standardized scores of mothers' and fathers' educational level and their household income, and duration of the routine caregiving episode) were performed to check whether they were related to the variables of interest. Variables were included as covariates in relevant analyses in case of significant associations with the outcome variable (narrative coherence or parental sensitivity).

First, Pearson correlation coefficients were calculated to examine whether maternal and paternal narrative coherence were significantly related, as well as to examine stability in narrative coherence over time from pregnancy to parenthood. Second, to examine whether mean levels of narrative coherence were different between mothers and fathers and changed over time from pregnancy to parenthood, *t*-tests were performed, after which a GLM Repeated Measures analysis including relevant covariates was performed with time of assessment (pre- and postnatal) and parent gender (mother and father) as within-subjects factors. Third, hierarchical multiple regression analyses (HMRA) were performed for mothers and fathers separately to step-by-step explore the associations between the covariates and prenatal as well as postnatal narrative coherence on the one hand and parental sensitivity in three different contexts on the other hand.

Results

Preliminary Analyses

Mothers' and fathers' age were both positively related to maternal prenatal narrative coherence, with $r(103) = .20$, $p = .044$ and $r(103) = .24$, $p = .013$ respectively, indicating that mothers in families with older parents had more coherent prenatal narratives. Because maternal and paternal age were strongly correlated ($r(103) = .68$, $p < .001$), only mothers' age was used as a covariate in the GLM Repeated Measures analysis. Furthermore, family SES was positively related to both maternal and paternal prenatal narrative coherence, with $r(103) = .30$, $p = .002$ and $r(103) = .28$, $p = .004$ respectively, indicating that in families with a higher SES both mothers and fathers had more coherent prenatal narratives.

Moreover, family SES was positively related to maternal sensitivity during free play and routine caregiving, with $r(103) = .22$, $p = .021$ and $r(103) = .22$, $p = .022$. respectively, and paternal sensitivity during the SFP, $r(103) = .21$, $p = .030$. Thus, in families with a higher SES, mothers demonstrated more sensitivity during free play and routine caregiving, while fathers demonstrated more sensitivity during the SFP. Because family SES was related to the variables of interest, the GLM Repeated Measures analysis and the HMRAs were performed with these variables included as covariate. Additionally, duration of the routine caregiving episode was significantly positively related to sensitivity during routine caregiving in fathers, $r(103) = .26$, $p = .007$: fathers with a longer routine caregiving episode had a higher score on sensitivity regarding this episode. Duration of the routine caregiving episode was therefore used as a covariate in the HMRAs that were performed to predict parental sensitivity during routine caregiving.

Relations Between Pre- and Postnatal Maternal and Paternal Narrative Coherence

Correlations between pre- and postnatal maternal and paternal narrative coherence are presented in Table 2. Maternal and paternal narrative coherence were significantly positively related at the prenatal assessment, but not at the postnatal assessment (although the strength of these pre- and postnatal correlations did not differ significantly, $z = 1.33$, $p = .184$). Additionally, prenatal and postnatal narrative coherence were significantly positively related in fathers, but not in mothers (although the strength of the correlations for fathers and mothers did not differ significantly, $z = 1.75$, $p = .080$).

Table 2. Correlations for Pre- and Postnatal Narrative Coherence and Parental Sensitivity.

	1.	2.	3.	4.	5.
1. Prenatal narrative coherence	**.26****	.35**	-.01	.16	.12
2. Postnatal narrative coherence	.12	**.08**	.27**	.13	.18
3. Sensitivity: Free play	.18	-.03	**.21***	.25**	.27**
4. Sensitivity: Routine caregiving	-.10	-.02	.37**	**.26****	.28**
5. Sensitivity: SFP	-.04	.07	.33**	.36**	**.11**

Note. Correlations for fathers are presented above the diagonal, correlations for mothers below the diagonal, and correlations between mothers and fathers on the diagonal.
* $p < .05$. ** $p < .01$.

Differences in Mean Levels of Narrative Coherence

Paired *t*-tests demonstrated that mean levels of prenatal narrative coherence were not significantly different for mothers versus fathers, $t(104) = 0.06$, $p = .950$. However, at the postnatal assessment narrative coherence was significantly higher in mothers than in fathers, $t(104) = 3.22$, $p = .002$, Cohen's $d = 0.315$. Furthermore, mean levels of postnatal narrative coherence were significantly higher than mean levels of prenatal narrative coherence in both mothers, $t(104) = -5.45$, $p < .000$, Cohen's $d = 0.530$, and fathers, $t(104) = -2.70$, $p = .008$, Cohen's $d = 0.262$.

Additionally, a GLM Repeated Measures analysis was performed including maternal age and family SES as covariates. First, there was a significant main effect of time of assessment

on narrative coherence, $F(1,102) = 5.05$, $p = .027$, $\eta_p^2 = .05$. Narrative coherence was significantly higher postnatally ($M = 5.19$; $SD = 1.03$) than prenatally ($M = 4.62$; $SD = 1.28$). Second, there was no significant main effect of parent gender on narrative coherence, $F(1, 102) = 0.70$, $p = .405$, $\eta_p^2 = .01$. Narrative coherence was not significantly higher in mothers ($M = 5.02$; $SE = 1.12$) than in fathers ($M = 4.79$; $SE = 1.19$). Third, there was no significant interaction effect between time of assessment and parent gender, $F(1, 102) = 0.45$, $p = .503$, $\eta_p^2 = .00$, indicating that the increase in narrative coherence across the transition to parenthood is similar for mothers and fathers. Figure 1 shows the results regarding the GLM Repeated Measures analysis.

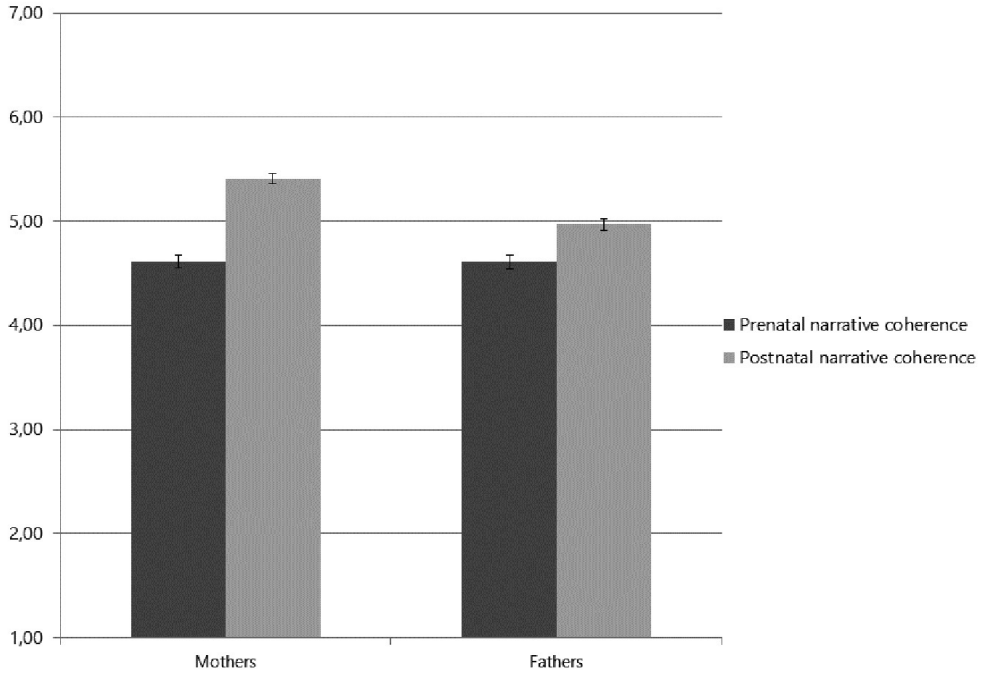

Figure 1. Mean levels of mothers' and fathers' prenatal and postnatal narrative coherence. Standard errors are represented in the figure by the error bars.

Narrative Coherence in Relation to Parental Sensitivity

Associations between mothers' and fathers' pre- and postnatal narrative coherence and their sensitivity levels in three contexts were investigated in six HMRAs. Both with and without controlling for covariates, mothers' sensitivity levels during free play and mothers' as well as fathers' sensitivity levels during routine caregiving and the SFP were not significantly predicted by prenatal and/or postnatal narrative coherence. However, narrative coherence was a significant predictor of parental sensitivity during free play in fathers. Specifically, paternal postnatal narrative coherence, but not paternal prenatal narrative coherence, was significantly related to paternal sensitivity during free play without controlling for family SES: fathers with a more coherent narrative postnatally were

more sensitive to their infant in a free play situation. This model, consisting of paternal prenatal (β = -.11, *SE* = .15, *p* = .268) and postnatal narrative coherence (β = .31, *SE* = .19, *p* = .003), predicted 8.1% of the variance in paternal sensitivity during free play, $F(2, 102) = 4.52$, $p = .013$. Furthermore, this effect did not disappear when controlling for family SES: paternal postnatal narrative coherence was still positively related to paternal sensitivity during free play. This model, consisting of family SES (β = .12, *SE* = .25, *p* = .226) and paternal prenatal (β = -.14, *SE* = .15, *p* = .171) and postnatal narrative coherence (β = .30, *SE* = .18, *p* = .004), predicted 9.5% of the variance in paternal sensitivity during free play, $F(3, 101) = 3.53$, $p = .018$.

Discussion

To our knowledge, this study is the first to examine narrative coherence as a measure of parents' mental representations of their child in both mothers and fathers over time from pregnancy to parenthood, as well as the relation between pre- and postnatal narrative coherence and parental sensitivity. Results demonstrated that narrative coherence was moderately stable (correlated) across the transition to parenthood in fathers, but not in mothers, although the strength of the association was not significantly lower for mothers compared to fathers. Both mothers' and fathers' mean level of narrative coherence improved over time across this transition. Furthermore, mothers and fathers did not differ in their overall levels of narrative coherence, and maternal and paternal narrative coherence were significantly, positively interrelated prenatally but not postnatally. Lastly, postnatal narrative coherence was a significant predictor of parental sensitivity during free play in fathers, but not in mothers. Neither mothers' nor fathers' narrative coherence (prenatal or postnatal) related to their sensitivity in other contexts.

Partly in line with our hypothesis, narrative coherence was moderately stable across the transition to parenthood in fathers but not in mothers. Thus, fathers who created a more coherent narrative during pregnancy were also more coherent after the birth of their first child, whereas mothers showed more instability. An explanation for the relative instability in narrative coherence in mothers compared to fathers could be found in hormonal fluctuations related to pregnancy and postpartum. Even though fathers experience hormonal changes across the transition to parenthood as well, mothers experience drastic hormonal changes and fluctuations specifically driven by pregnancy, childbirth, and lactation, that fathers do not have (Leuner et al., 2010), and that are known to be related to variability in cognitive processes (Workman et al., 2012). This may be why only fathers', but not mothers' prenatal narrative coherence is predictive of their postnatal narrative coherence. Alternatively, as mothers are more often the primary caregiver than fathers and more often have extensive daily interactions with their infant, mothers' instability may also indicate that their representations change more rapidly from prenatal fantasies towards more realistic and complex representations compared to fathers. Additionally, in some mothers their subjective birth experiences could have impacted their narrative coherence at the postnatal assessment. Previous research indeed demonstrated that mothers with more negative birth experiences more often experience negative violation of expectations – i.e., their representations of the parent-child relationship are more

negative postnatally than prenatally – whereas this relation was not found in fathers (Flykt et al., 2014). Thus, hormonal fluctuations, the number of daily interactions with the infant, and/or negative birth experiences may temporarily impact some mothers more than others in their ability to create a (relatively) coherent narrative about their child postnatally, which could explain the instability in mothers' narrative coherence across the transition to parenthood.

It is however important to note that, even though the correlation between prenatal and postnatal narrative coherence was significant in fathers but not in mothers (i.e, their correlations differed), this difference between these correlations was not significant. Therefore, more longitudinal research with mothers as well as fathers is needed to determine whether narrative coherence is indeed stable across the transition to parenthood in fathers only. Furthermore, it would be interesting to examine hormonal fluctuations and subjective birth experiences as possible moderators of the relation between pre- and postnatal narrative coherence in both mothers and fathers, to examine whether this impacts the stability in narrative coherence across the transition to parenthood.

Next, as expected based on the literature on related parental representation concepts (e.g., Cairo et al., 2012; Vreeswijk et al., 2015), mean levels of narrative coherence improved over time across the transition to parenthood in both mothers and fathers. Even though parents already form ideas about the relationship with their child during pregnancy (e.g., Foley et al., 2019), the observed increase in the present study demonstrates that creating a coherent narrative becomes easier when parents have actually met their child and built up concrete experiences – which makes sense, as an important aspect of coherence is the ability to create a believable story with vivid examples that give an impression of who the child is (Sher-Censor, 2015). Because this is the first study to examine narrative coherence longitudinally, future research examining narrative coherence over a longer time period is needed to confirm the increase found in the current study, and to determine whether the increase is only present across the transition to parenthood or continues over time.

Additionally, there were no differences in mean levels of narrative coherence within couples, which is consistent with a study on parental insightfulness – a construct on which the narrative coherence coding manual was based (Marcu et al., 2016). Thus, even though fathers lack the physical bonding with their child during pregnancy that mothers do experience (Ives, 2014), they are equally able as mothers to produce a coherent story about their (unborn) child. We also found that maternal and paternal narrative coherence were significantly, positively related at the prenatal but not at the postnatal assessment. As previously mentioned, specific and personal birth and parenting experiences can shape parents in different ways. Furthermore, research has consistently demonstrated that partner relationship satisfaction decreases across the transition to parenthood (Mitnick et al., 2009). Perhaps the combination of having actual and personal (parenting) experiences and a less close partner connection makes that mothers' and fathers' narrative coherence are not related after the birth of their child. Prenatally however, parents have no such experiences yet, and perhaps their stories are more based on ideas created when they fantasize together about their child and their new roles as parents. However, it should be noted that these prenatal and postnatal correlations were not significantly different.

More research is needed, examining narrative coherence at later time points as well, to determine whether mothers' and fathers' narrative coherence are indeed related during pregnancy but not after the birth of their child, and to explore whether they will become better attuned to each other again at a later stage.

Lastly, we unexpectedly found only weak evidence for narrative coherence as an explanation of the intergenerational transmission of attachment quality by its theorized link with parental sensitivity. Postnatal, but not prenatal narrative coherence was positively related to parental sensitivity during free play in fathers only. In all other contexts, both prenatal and postnatal narrative coherence did not significantly predict parental sensitivity. This shows that context seems to play a role when observing sensitivity, which is in line with previous research (Branger et al., 2019). However, this is in contrast to theory that suggests that narrative coherence may be important for sensitive parenting, by reflecting the flexibility in parents' information processing that is needed in order to respond in a sensitive way to the child's signals (Sher-Censor, 2015). A possible explanation for our unexpected finding may lie in the fact that previous research that measured prenatal and/or postnatal representations focused on older infants. Given that a previous study pointed towards evidence that the stability of maternal sensitivity across the infants' first year of life may be low (Lohaus et al., 2004), it is plausible that a time point closer to infants' age of 12 months will show a different pattern of results. Alternatively, the relative instability of narrative coherence across the transition to parenthood may have played a role.

Narrative coherence was unstable in mothers and only moderately stable in fathers, while there were only five months in between the two time points and the same construct was measured twice using the same instrument. This shows that parents' narrative coherence in such an early stage of emerging parenthood is not necessarily highly representative of later narrative coherence. Experiencing hormonal fluctuations, changes in partner relationship satisfaction, and the reality of new family dynamics likely play a role in this relative instability, and could explain why we did not find a significant relation with parental sensitivity both prenatally and just four months after birth. Perhaps narrative coherence during emerging parenthood is not representative of parents' flexibility in information processing during actual parenting, and more time is needed for narrative coherence to become more crystallized before it is related to parental sensitivity. Therefore, more and longer longitudinal research is needed to confirm our results, to test whether parents' narrative coherence becomes more crystallized over time, and to test whether and when a (stronger) relation with parental sensitivity emerges.

This study provides more insight in the development of narrative coherence across the transition to parenthood in relation to parental sensitivity, but also has some limitations. First, our non-diverse sample limits the generalizability of our results, because more than half of the participants were highly educated, which is not fully representative of the Dutch population It has been theorized that narrative coherence is robust and not influenced by cultural differences, because coherence of discourse seems to be a universal feature of communication in human language (Bakermans-Kranenburg & Van IJzendoorn, 2009; Sher-Censor, 2015). Furthermore, we did control for family SES (which was partly based on parents' educational level) in our analyses. However, in future research it would

be interesting to explore ways in which educational level and cultural differences play a role in the development of narrative coherence in a more diverse sample. Second, even though the longitudinal measurement using the same instrument is a strong point of this study, this may partly explain the improvement in narrative coherence over time. Parents likely have gotten a clearer, more coherent view on their child postnatally because they have had some time to actually get to know their child, but they may have also been expecting and recognizing the interview question at the second home visit, which could have made it slightly easier for them to respond. Third, it was not possible to guarantee coder blindness regarding parent gender, because parents understandably mentioned their own or their partner's pregnancy during the FMSS interview, as well as regularly mentioned the other parent in their role as father or mother. Coder bias could arise as a consequence of this lack of coder blindness. To diminish this coder bias as much as possible, we gave coders an extensive training – as previous research on race-related bias demonstrated that coder bias decreased with more training (Melby et al., 2003) – and we blinded the subject IDs in such way that coders did not know the parent's gender unless the parent mentioned something in the interview that revealed their gender.

In conclusion, the current study was the first to give important insight in the development of narrative coherence across the transition to parenthood in expecting mothers as well as fathers, and in the theorized relation between narrative coherence and parental sensitivity. Before practical implications can be inferred, more research is needed to confirm our findings, examine this topic across a longer time span, and explore possible moderating factors. With the current study, an important step has been made towards closing the attachment transmission gap (Van IJzendoorn, 1995), by examining how narrative coherence develops over time in both mothers and fathers and relates to their actual sensitive parenting.

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CHAPTER 4

Maternal and Paternal Sensitivity from Infancy to Toddlerhood: A Longitudinal Study in Three Countries

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Abstract

To date, research results are mixed on whether and how mothers' as well as fathers' levels of sensitivity change over time in the first two years of the child's life, reflecting the need for more studies to discern robust patterns. Therefore, the aim of the current study was to longitudinally examine trajectories of parental sensitivity in mothers and fathers, using Ainsworth's definition of sensitivity observed in similar settings across infancy and toddlerhood, in three countries: the UK, the USA, and the Netherlands. Participants included 428 families, consisting of primiparous mothers and fathers and their child. Parental sensitivity was observed at three time points (4 months, 14 months, 24 months) and coded using the Ainsworth sensitivity scale. Using a three-level multilevel modeling (MLM) approach, results demonstrated that parental sensitivity increased from infancy to toddlerhood. Furthermore, whereas mothers and fathers did not differ in their overall levels of sensitivity during this period, their trajectories did differ: mothers showed a slightly steeper increase in sensitivity than fathers. Lastly, no overall country differences were found, but trajectories did differ: parental sensitivity improved more over time in the Netherlands than in the UK. In conclusion, the robust results of the current study gave valuable insight in trajectories of maternal as well as paternal sensitivity from infancy to toddlerhood.

Keywords: parental sensitivity, infancy, toddlerhood, longitudinal, family socioeconomic status, parental age.

Introduction

Sensitive parenting refers to parents' ability to notice and accurately interpret their child's signals and appropriately respond to them (Ainsworth et al., 1974). It is an important predictor of positive child outcomes across several developmental domains, such as cognitive and language development (e.g., Tamis-LeMonda et al., 2004). During infancy as well as toddlerhood, children's developmental levels change rapidly, with two major milestones leading to a large increase in their range of signals and behaviors: children learn to speak, which makes them increasingly able to communicate with others (Iverson, 2010), and children learn how to crawl and eventually walk, which makes them increasingly able to explore their environment independently (Malina, 2004). To be sensitive, parents need to adjust their responses to their children's changing behaviors. Being sensitive may become easier over time as children are more able to communicate their needs, but their signals could also be perceived as more complex, making it more difficult for parents to respond in a sensitive way. To date however, research results are mixed on whether and how parents' levels of sensitivity change over time in the first two years of the child's life, reflecting the need for more studies to discern robust patterns. Therefore, the aim of the current study is to longitudinally examine trajectories of parental sensitivity from infancy to toddlerhood in both mothers and fathers.

As described by Hallers-Haalboom et al. (2017), three hypotheses can be put forward regarding change in parental sensitivity across this time period. First, parents may generally be able to adjust their responses to their child's changing signals, which would result in an absence of change in their level of sensitivity over time. Several studies provide evidence for this continuity in parental sensitivity across the first two years of the child's life, both in mothers and fathers (e.g., Bornstein et al., 2008; Kochanska & Aksan, 2004; Lovas, 2005). Second, it may also become easier for parents to respond sensitively to their child over time, as children become more active partners in communication which makes them increasingly able to signal their needs explicitly. In addition, parents gradually build up experience with their child's unique characteristics, which could also make it easier for them to respond sensitively to their child. Indeed, multiple studies have shown that parental sensitivity increases in the first two years in mothers as well as fathers (e.g., Hallers-Haalboom et al., 2017; Kemppinen et al., 2006). In contrast, one international study found a small overall decrease in maternal sensitivity (Bornstein et al., 2010), which points to evidence for the third hypothesis that sensitive parenting may also become more challenging over time in the first two years of the child's life. This could be explained by the so-called 'terrible twos', a phase generally starting in the second year of life, during which children show an increase in externalizing behaviors such as physical aggression (Alink et al., 2006). During this time parental discipline becomes more important to teach the child practical and social rules, which could make it more challenging for a parent to also sensitively attend to the child's needs and signals. Overall, these mixed results indicate that more research is needed to determine how trajectories of maternal and paternal sensitivity develop in the first two years of the child's life.

One reason for the varying results regarding these trajectories could be the way parental sensitivity was measured in each of the aforementioned studies. First, different coding

systems and conceptualizations of parental sensitivity were used. These include a combination of multiple scales regarding maternal responsiveness by Ainsworth et al. (1974), the Emotional Availability Scales by Biringen et al. (1998), the CARE-Index by Crittenden (2001), and an event based coding system by Bornstein et al. (2008). Even though all of these measures include important aspects of Ainsworth's original definition of sensitivity, both the EAS and CARE-index also include positive affect whereas Ainsworth's original conceptualization as well as the event-based coding system by Bornstein et al. (2008) does not. Because there is evidence that positive affect and sensitivity are different constructs (Mesman & Emmen, 2013), this could be a reason for the mixed results regarding the trajectories of parental sensitivity. Indeed, the two longitudinal studies with a conceptualization of sensitivity that was more closely related to Ainsworth's original conceptualization found evidence for continuity, whereas the four studies that included positive affect in their conceptualization of sensitivity demonstrated mixed results regarding sensitivity trajectories (i.e., increase, decrease, and continuity).

A second reason for the mixed results could be that both within and across these studies, different settings were used to observe parental sensitivity. In Kemppinen et al. (2006), for example, an increase in sensitivity was found, but sensitivity was measured in a less naturalistic outpatient clinic setting at the first time point (6-8 weeks) whereas the second assessment (24 months) took place in a more naturalistic home setting. Because both mothers and fathers are more sensitive in more naturalistic settings (Branger et al., 2019), this methodological factor may have unduly influenced the results. Similarly, the only study that found a decrease in parental sensitivity over time, also measured sensitivity in two different settings. At the first assessment (5 months), a natural interaction was observed during which parents could do what they would normally do, while at the second assessment (20 months) parental sensitivity was observed during a free play session with a standardized toy set (Bornstein et al., 2010). Thus, to fully understand whether parents' level of sensitivity changes over time in the first two years of the child's life, research on the trajectories of parental sensitivity is needed, using a narrow conceptualization of parental sensitivity that excludes positive affect (preferably Ainsworth's original definition) as well as using the same type of setting across time points.

In addition, it is important to examine potential differences between mothers and fathers more closely. To date, the few longitudinal studies that have been done on maternal versus paternal sensitivity during the first years of the child's life point to evidence that mothers are overall slightly more sensitive than fathers (Hallers-Haalboom et al., 2017; Kochanska & Aksan, 2004; Lovas, 2005). However, cross-sectional studies that examined differences between maternal and paternal sensitivity at various time points in infancy found mixed results. Studies that included infants aged six months and older more often found that mothers were more sensitive than fathers (e.g., Fuertes et al., 2016), compared to studies that included infants younger than six months (e.g., Braungart-Rieker et al., 1998). Thus, at least during infancy it seems that differences between mothers and fathers vary over time. This would suggest that the trajectories of maternal and paternal sensitivity would also differ. However, very little is known about potential differences in these pathways. To our knowledge only Kochanska and Aksan (2004), who examined parental sensitivity towards children from 7 to 15 months old, and Hallers-Haalboom et al. (2017), who examined

parental sensitivity to children from 12 to 36 months old, explicitly reported on mother-father differences in sensitivity pathways. Both studies found no difference between the pathways of mothers and fathers.

Lastly, out of the six previously mentioned longitudinal studies on trajectories of parental sensitivity in the first two years of the child's life, the three studies that found evidence for continuity were all done in the USA, whereas the two studies that found an increase were executed in Northern-European countries (Finland and the Netherlands), and the study that found a decrease was done in multiple countries (Argentina, Italy, USA; Bornstein et al., 2010). Even though the last study found similar sensitivity pathways over time across countries, the differences between the other studies raise the question whether there could be country differences in trajectories of parental sensitivity – especially since Northern-European countries generally have more generous family policies than the USA. Research demonstrated that more generous country-level family policies – in particular paid parental leave and financial aid for childcare – play a positive role in parents' wellbeing, for instance by reducing their (financial) stress (Glass, Simon, & Andersson, 2016). As it is widely known that parents' wellbeing is positively related to parental sensitivity (e.g., Bernard et al., 2018), these family policies probably also (indirectly) impact parenting. Additionally, paid parental leave in particular gives parents more opportunities to spend time with their infant, which in turn may aid them in learning how to accurately recognize and attune to their child's signals. As there is great diversity in family policies between countries, trajectories of parental sensitivity may also differ between countries especially in the first years of the child's life, depending on how generous these policies are. To our knowledge however, to date only one study examined trajectories of parental sensitivity in countries with diverse country-level family policies, and found no differences (Bornstein et al., 2010).

Addressing gaps and inconsistencies in the literature, the current study aims to examine trajectories of parental sensitivity in mothers and fathers, using Ainsworth's definition of sensitivity observed in similar settings across infancy and toddlerhood. The current study is part of a larger, international study in the Netherlands, the United Kingdom, and the United States. This provides a unique opportunity to explore possible differences in (trajectories of) both maternal and paternal sensitivity between these countries as their family policies are not equal, especially regarding paid parental leave (OECD, 2019): the UK offers partially paid maternity leave for 39 weeks and fathers receive up to two weeks paid leave, the Netherlands offers 16 weeks of fully paid maternity leave and fathers receive one week fully paid leave (starting July 1st 2020 Dutch fathers receive an additional five weeks for 70% of their income; Rijksoverheid, 2020), whereas in the USA it depends on the employer whether a mother or father receives paid leave.

We used a multilevel modeling approach to account for the fact that the mothers and fathers in our study were nested in families. First, we explored whether parental sensitivity shows and increase, decrease, or absence of change across three observed time points: when the child was 4-, 14-, and 24-months old. Second, we tested the hypothesis that mothers are overall more sensitive than fathers, and we explored whether this effect differs across the three time points. Third, we tested the hypothesis that overall levels of

parental sensitivity differ between the three countries, with the UK and the Netherlands as countries with more generous family policies showing higher parental sensitivity than the USA, and explored whether trajectories of sensitivity do differ between these countries.

Method

Participants

This study is part of the international, longitudinal New Fathers and Mothers Study examining the relations between parental wellbeing, parenting behavior, and children's self-regulation in the first two years of life (see also Woudstra et al.). The current paper reports on data from all four waves and all three countries: the UK, the USA, and the Netherlands. In the UK (Cambridge) and the USA (New York State), expecting parents were recruited at antenatal clinics and ultrasound scans. In the Netherlands, recruitment took place throughout the country at pregnancy fairs and prenatal exercise classes, and through flyers and posters distributed at pregnancy stores and midwife clinics. Interested couples filled out a screening questionnaire to check eligibility to participate. Primiparous expecting parents had to (1) be at least 21 years of age, (2) expect delivery of a healthy, singleton baby, (3) be living together at the time of birth, (4) be planning on raising their baby together, (5) be planning to speak English in the UK and USA or Dutch in the Netherlands as a main language to their child, and (6) have no self-reported history of severe mental illness or substance misuse.

Power analysis indicated that, allowing for 10% overall attrition, a sample of 325 participants was required to detect small effects ($f^2 = 0.10$) at the 0.01 level of significance with 95% power in regression analyses with up to 10 predictors (Faul et al., 2007). For a flowchart of the participants at each wave, see Appendix A. A total of 484 couples participated in the first assessment, which took place around 36-weeks pregnancy. Ten families were not eligible to participate at the 4-month wave due to either birth complications or emigration, 23 families withdrew from the whole study mostly due to lack of time, and 6 families declined participation only at this time point (also mostly due to lack of time). Thus, a total of 445 families participated in the 4-month assessment. At the 14-month wave, 13 families became ineligible to participate due to emigration, 6 families withdrew from the study, while 10 families declined participation only at this time point and the 6 families who declined participation at the previous wave took part again. Thus, a total of 422 families participated in the 14-month assessment. Lastly, at the 24-month wave, 12 families became ineligible due to emigration, while 16 families declined to take part in this final assessment and the 10 families who declined at the previous wave took part again. Thus, a total of 404 families participated in the final 24-month assessment.

For the current study, eligibility for inclusion in data analysis was based on the remaining families at the final assessment ($n = 432$). Furthermore, when both parents had missing data on parental sensitivity for two out of three time points, the family was excluded from data analysis ($n = 4$ families), resulting in a final sample of 428 families (UK $n = 195$, USA $n = 110$, NL $n = 123$). The sample consisted of 218 boys and 210 girls. At the time of birth, mothers were between 21 and 43 years old ($M = 32.22$, $SD = 3.92$) and fathers between

23 and 50 years (M = 33.95, SD = 4.50). Children's age ranged from 2 to 6 months (M = 4.25, SD = 0.46) at the 4-month assessment, from 9 to 18 months (M = 14.42, SD = 0.57) at the 14-month assessment, and from 19 to 26 months (M = 24.47, SD = 0.79) at the 24-month assessment. Regarding educational level, 84.2% of the mothers and 77.3% of the fathers were highly educated, meaning they had at least a Bachelor's degree, while, 4.8% of the mothers and 9.1% of the fathers had a low educational level (i.e., obtained upper secondary education or less).

Procedure

Mothers and fathers filled out questionnaires at every time point. At the 36-weeks assessment, both expectant parents were visited at home in one appointment, during which they were interviewed and performed several computer tasks. The order in which they were interviewed and performed the tasks was counterbalanced. At the 4-, 14-, and 24-month assessments, mother and child as well as father and child were visited separately with a period of approximately one week in between the visits. The order in which they were visited was counterbalanced. To avoid disruption of the assessment with the target parent, the other parent was either not present or in another room. During these postnatal home visits the parent was interviewed and performed several computer tasks again, child executive functioning was examined with multiple tasks, and parent-child interaction was videotaped which is the focus of this study.

At all three postnatal time points, parental sensitivity was videotaped for observation during free play. At the 4-month assessment, parents were instructed to play for 5 minutes with their child as they would normally do, on their lap or on the floor without toys or a pacifier. At the 14- and 24-month assessments, parents were instructed to play with their child for 5 minutes with a set of toys given to them by the researcher. There were two different, but comparable sets of toys at each of these two time points, suitable for the child's age, to prevent a learning effect for the child at the home visit with the other parent.

All visits were conducted by either trained graduate and undergraduate students or by researchers of the study team. Informed consent was obtained at every assessment from both parents. After each home visit, the child received a small present and the parent received (a gift voucher of) 30 British Pounds (UK), 50 US Dollars (USA), or 20 Euros (NL). The study was approved by the National Health Service Research Ethics Committee (UK), the University Committee on Activities Involving Human Subjects at New York University (USA), and the Ethics Review Board of the Institute of Education and Child Studies of Leiden University (NL).

Measures

Parental sensitivity. Parental sensitivity at all three postnatal assessments was coded using the Ainsworth Sensitivity Scale (Ainsworth et al., 1974). One single global rating was given per assessment for each parent, based on a 9-point Likert scale ranging from 1 = highly insensitive to 9 = highly sensitive. Dutch coders were trained to reliability by the third and last author, and they only coded videotapes of families they did not visit. To guarantee independency among scores, mothers and fathers of the same family were coded by separate coders, and none of the coders who were trained to code multiple

assessments coded the same parent more than once. To prevent coder drift, during the coding process 25-30% of the 14-month as well as the 24-month videotapes were double coded; if coders' scores differed two or more points, the videotape was discussed and a consensus score was determined.

In total, 17 coders coded the videotapes of the 4-month assessment and 8 coders the videotapes of the 14-month assessment. Both reliability sets consisted of 30 videotapes (10 mothers and 10 fathers per country). Intraclass correlation coefficients (absolute agreement) for the different pairs of coders ranged from .70 to .94 (M = .82) for the 4-month assessment, and from .70 to .87 (M = .79) for the 14-month assessment. No separate reliability set was made specifically for the 24-month assessment, because the 14- and 24-month assessment were highly similar with regard to the task. Instead, 11 coders were either trained to reliability based on the 14-month reliability set or were already reliable, with intraclass correlation coefficients (absolute agreement) for the different pairs of coders ranging from .70 to .91 (M = .79). After receiving an extra training session on the coding of 24-month videotapes, they coded the videotapes of the 24-month assessment.

Analyses

Descriptive statistics of all relevant variables are shown in Table 1, Pearson correlations between time points and between mothers and fathers are shown in Table 2. Missing data in the final sample occurred because one or both parents did not participate in one of the home visits or a questionnaire was not filled out. These missing data were completely at random, indicating that there was no pattern to be found, Little's MCAR test $\chi^2(183) = 202.10$, $p = .159$. Multiple imputations were performed to handle these missing data, using both the mice and mitml package in R version 3.6.1 (R Core Team, 2019; Van Buuren & Groothuis-Oudshoorn, 2011) and accounting for the nested data. Based on all the other variables in the data set, missing data were imputed 20 times using 20 iterations. The summary function from mitml and RandEffStats from merTools were used for pooling and yielded the same results. The anova function from mitml was used to compare nested models.

Table 1. Descriptive Statistics for Family SES, Mothers' and Fathers' Age, and Parental Sensitivity at 4, 14, and 24 Months in Three Countries.

		UK			USA			NL		
		M	***SD***	**Range**	***M***	***SD***	**Range**	***M***	***SD***	***Range***
At birth	Family SES	-0.11	0.61	-2.33-1.58	0.36	0.74	-1.00-4.47	-0.16	0.76	-1.75-1.26
	Mothers' age	32.59	3.61	25-43	34.06	3.47	26-43	30.04	3.76	21-41
	Fathers' age	34.03	4.37	23-49	35.63	4.37	28-50	32.41	4.31	23-48
4-months	Maternal sensitivity	5.25	1.65	2-9	5.39	1.98	1-9	5.13	1.94	1-9
	Paternal sensitivity	5.60	1.68	1-9	5.19	1.90	1-9	5.62	1.89	1-9
14-months	Maternal sensitivity	6.07	1.53	2-9	5.82	1.68	2-9	6.59	1.27	3-9
	Paternal sensitivity	5.57	1.61	2-9	5.91	1.65	2-9	5.96	1.53	2-9
24-months	Maternal sensitivity	6.44	1.40	3-9	6.07	1.58	1-9	6.98	1.30	3-9
	Paternal sensitivity	6.22	1.40	2-9	6.19	1.47	2-9	6.38	1.35	3-9

Table 2. Pooled Correlations for Parents' Age and Family SES at the Birth of Their Child and Their Sensitivity at 4, 14, and 24 Months.

1. Family SES	-	.16**	.09	.12*	.09
2. Parental age	.24**	-	-.03	-.05	-.05
3. 4-month sensitivity	.12*	.08	**.19****	.19**	.14**
4. 14-month sensitivity	.05	-.10*	.15**	**.15****	.27**
5. 24-month sensitivity	.10	-.15**	.12*	.29**	**.20****

Note. Numbers below the diagonal refer to correlations for mothers, numbers above the diagonal refer to correlations for fathers, and the bold numbers on the diagonal refer to correlations between maternal and paternal sensitivity.
* $p < .05$. ** $p < .01$. *** $p < .001$.

A three-level multilevel modeling (MLM) approach was applied, because the data were hierarchically nested as well as repeatedly measured (Tasca et al., 2009). The lme4 package of R version 3.6.1 was used. MLM analyses were performed to examine across the three postnatal time points whether (1) mean levels of parental sensitivity change over time, (2) mothers are overall more sensitive than fathers, and trajectories of parental sensitivity are different for mothers versus fathers, and (3) country of residence predicts overall levels and/or trajectories of parental sensitivity. As both family socioeconomic status and parents' age have been shown to be related to parental sensitivity (e.g., Bornstein et al., 2006; Roubinov & Boyce, 2017), both variables were included as a covariate first in all models, with family SES based on the mean of the standardized scores of parents' averaged household income and educational level, and higher scores representing a higher family SES (for a more extensive description of this measure, see Woudstra et al., 2019). At Level 1, within-parent change in sensitivity over time was modeled (for a more elaborate explanation of three-level MLM, see Tasca et al., 2009). At Level 2, variability in between-parent change in sensitivity was modeled. At Level 3, between-family growth was modeled, to account for the fact that the parents were nested into families. After specifying each level, a conditional intraclass correlation (ICC) based on complete cases was calculated using the sjstats package in R (Lüdecke, 2020) to check the levels of clustering and confirm the need of MLM.

The three-step MLM approach by Singer and Willett (2003) was used by running three types of models. First, an unconditional means or intercept-only model (Model 1) was run to examine whether MLM was indeed the necessary approach to analyze these data, by calculating the aforementioned ICC.

Unconditional Means Model:
Level 1: $Y_{ij} = \pi_{0i} + \varepsilon_{ij}$

Level 2: $\pi_{0i} = \gamma_{00} + \zeta_{0i}$

Second, four unconditional growth models were run. The first two unconditional growth models were run to examine the effect of time on parental sensitivity: one model with a fixed slope (Model 2), indicating that all parents follow a similar pattern over time (e.g., all

increasing), and one model with a random slope (Model 3), allowing for parents' individual variability in pattern over time. Both models were compared, by calculating an F-value: a significant F-value would indicate that the latter model was a better fit. The next two unconditional growth models were run to control for dependency as the parents were nested into families (i.e., Level 3 was added). In the first model, the intercepts were varied on family level (Model 4). In the second model, slopes were varied on family level (Model 5). Again, an F-value was calculated to examine which of the two possible models fitted best.

Unconditional Growth Model with fixed slope for time:
Level 1: $Y_{ij} = \pi_{0i} + \chi(\mathrm{TIME}_{ij}) + \varepsilon_{ij}$

Level 2: $\pi_{0i} = \gamma_{00} + \zeta_{0i}$

Unconditional Growth Model with random slope for time:

Level 1: $Y_{ij} = \pi_{0i} + \pi_{1i}(\mathrm{TIME}_{ij}) + \varepsilon_{ij}$

Level 2: $\pi_{0i} = \gamma_{00} + \zeta_{0i}$
$\pi_{1i} = \gamma_{10} + \zeta_{1i}$

Unconditional Growth Model with random intercept and fixed slope on family level:
Level 1: $Y_{tij} = \pi_{0ij} + \pi_{1i}(\mathrm{TIME}_{tij}) + \varepsilon_{tij}$

Level 2: $\pi_{0ij} = \beta_{00j} + r_{0ij}$
$\pi_{1ij} = \beta_{10j} + r_{1ij}$

Level 3: $\beta_{00j} = \gamma_{000} + u_{00j}$

Unconditional Growth Model with random intercept and random slope on family level:
Level 1: $Y_{tij} = \pi_{0ij} + \pi_{1ij}(\mathrm{TIME}_{tij}) + \varepsilon_{tij}$

Level 2: $\pi_{0ij} = \beta_{00j} + r_{0ij}$
$\pi_{1ij} = \beta_{10j} + r_{1ij}$

Level 3: $\beta_{00j} = \gamma_{000} + u_{00j}$
$\beta_{10j} = \gamma_{100} + u_{10j}$

Third, four conditional growth models were run to control for family SES (Model 6) and parents' age (Model 7), and to examine the effects of parent gender and time*parent gender (Model 8), and country and time*country (Model 9) on parental sensitivity. In this order, each of these predictors was added to the previous model if the random effects demonstrated that there was still significant variance to be explained. F-values were calculated to compare each model to the previous best fitting model, to determine the best fitting final model.

Final Conditional Growth Model:

Level 1: $Y_{tij} = \pi_{0ij} + \pi_{1ij}(\text{TIME}_{tij}) + \varepsilon_{tij}$

Level 2: $\pi_{0ij} = \beta_{00j} + \beta_{10j}(\text{parental age}_{ij}) + \beta_{10j}(\text{parent gender}_{ij}) + r_{0ij}$

$\pi_{1ij} = \beta_{10j} + \beta_{12j}(\text{parent gender}_{ij}) + r_{1ij}$

Level 3: $\beta_{00j} = \gamma_{000} + \gamma_{001}(\text{family SES}_j) + \gamma_{001}(\text{country}_j) + u_{00j}$

$\beta_{01j} = \gamma_{010} + u_{01j}$

$\beta_{02j} = \gamma_{020} + u_{02j}$

$\beta_{10j} = \gamma_{100} + \gamma_{102}(\text{country}_j) + u_{10j}$

$\beta_{12j} = \gamma_{120} + u_{12j}$

Results

The conditional ICC for the unconditional means model was 16%. Because multilevel modeling is a necessary approach when the between-subject variance is at least 10% of the total variance in unconditional means models (Kreft & De Leeuw, 1998), we concluded that multilevel modeling was indeed necessary for the current study. Furthermore, the AIC lowered after adding each level (Model 2-4), indicating better model fit (see Table 3). Pseudo R^2 indicated that after adding Level 2, the main effect of time explains 11% of within subject variance in parental sensitivity.

As shown in Appendix B, the unconditional growth model with a fixed slope (Model 2) was a better fit than the unconditional means model (Model 1), with F (1, 3931.73) = 184.27, p = 0.000. However, the unconditional growth model with a random slope (Model 3) fitted the data even better, with F (2, 8286.32) = 13.04, p = 0.000, indicating that not all parents follow a similar pattern in their development of sensitivity over time. Regarding the next two unconditional growth models, the F-values demonstrated that Model 4 was a better fit than Model 3, with F (1, 6910.63) = 26.22, p = 0.000. Model 4 also fitted the data better than Model 5, with F (2, 2006.34) = 1.86, p = 0.155, indicating that a random intercept but not a random slope on family level was the best fit. Therefore, in the last step a three-level model with a random slope for time and a random intercept at the family level was used, to which covariates and predictors were added.

Table 3. Fixed and Random Effects of the First Four Models Predicting Parental Sensitivity.

	Model 1	Model 2	Model 3	Model 4
Fixed effects				
Intercept	5.92*** (0.04)	5.40*** (0.05)	5.40*** (0.06)	5.40*** (0.06)
Time		0.52*** (0.04)	0.52*** (0.04)	0.52*** (0.04)
Random effects				
Within parents (σ^2_e)	2.40	2.13	1.90	1.90
Between parents – intercept (σ^2_{r0})	0.38	0.48	1.10	0.81
Between parents – slope (σ^2_{r1})			0.22	0.22
Between parents - covariance (σ^2_{r01})				-0.61
Between families (σ^2_{u00})				0.29
Model fit stats				
AIC	9671.6	9480.3	9456.8	9430.9
Conditional ICC	.16	.19	.27	.27

Note. The numbers not in brackets represent model estimates, the numbers in brackets are the standard errors. Apart from the conditional ICC values, which are based on complete cases, all values are based on pooled results of the imputed datasets.
* $p < .05$. ** $p < .01$. *** $p < .001$.

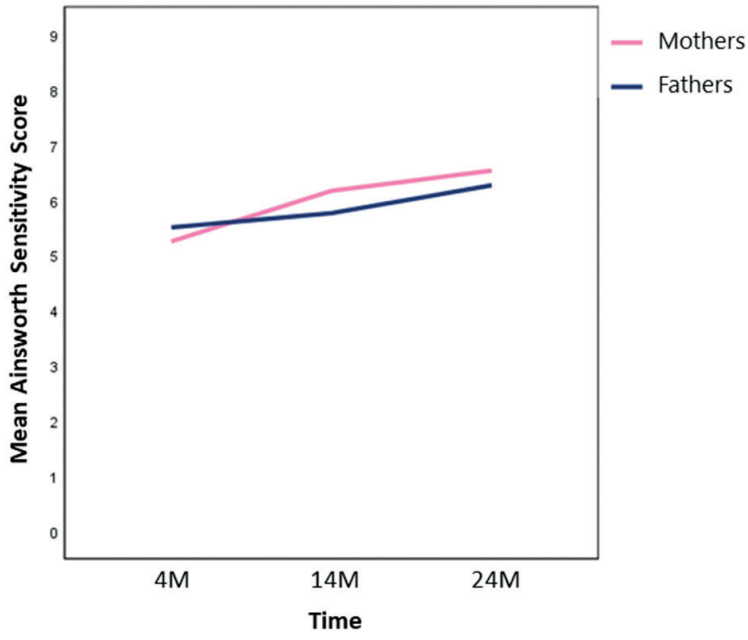

Figure 1. Maternal and paternal sensitivity at 4, 14, and 24 months.

As demonstrated in Table 4, the results of the final conditional growth model (Model 9) shows that both covariates added significantly to the model. We therefore, controlled for the effect of family SES and parents' age on parental sensitivity in the final results, in addition to controlling for the data dependency on family level. Overall, Model 9 showed that the fixed effects of time on parental sensitivity were significant: both the intercept (5.88; t = 16.26, p = 0.000) and the slope (1.01; t = 7.42, p = 0.000) of parental sensitivity were significantly different from zero. Above this main effect of time, there was a significant interaction effect of time*parent gender, which showed that mothers' sensitivity levels improved more over time from 4 to 24 months than fathers' sensitivity levels (see also Figure 1). Lastly, there was a significant interaction effect of time*country on parental sensitivity: trajectories of parental sensitivity differed significantly between the Netherlands and the United Kingdom, with more improvement over time in the Netherlands than in the UK.

Table 4. Fixed and Random Effects of Final Conditional Growth Model Predicting Parental Sensitivity

	Estimate	***SE***	***t***	***df***	***p***
Fixed effects					
Intercept	5.88	0.36	16.26	1069.51	0.000
Time	1.01	0.14	7.42	2299.28	0.000
Family SES	0.24	0.10	2.47	36.47	0.018
Parental age	-0.02	0.01	-1.97	2578.92	0.049
Parent gender	0.15	0.11	1.30	4347.00	0.195
Time*Parent gender	-0.24	0.08	-3.02	1375.18	0.003
Country – NL vs. USA	-0.16	0.18	-0.85	506.43	0.397
Country – NL vs. UK	-0.01	0.15	-0.06	1523.49	0.953
Country – USA vs. UK	0.15	0.15	0.97	5245.25	0.335
Time*Country – NL vs. USA	-0.19	0.11	-1.77	3468.53	0.077
Time*Country – NL vs. UK	-0.20	0.09	-2.29	25200.53	0.022
Time*Country – USA vs. UK	-0.02	0.10	-0.20	3915.47	0.843
Random effects					
Within parents (σ^2_e)	1.90				
Between parents – intercept (σ^2_{r0})	0.83				
Between parents – slope (σ^2_{r1})	0.20				
Between parents - covariance (σ^2_{r01})	-0.62				
Between families (σ^2_{u00})	0.26				
Model fit stats					
AIC	8393.9				
Conditional ICC	.24				

Discussion

The aim of the current study was to examine (differences in) trajectories of maternal and paternal sensitivity from infancy to toddlerhood in both mothers and fathers in the UK, the USA, and the Netherlands. The results show that parental sensitivity increased over time from infancy to toddlerhood. Furthermore, mothers were overall not more sensitive than fathers, but mothers' sensitivity levels did improve more over time than fathers' sensitivity levels. Lastly, no differences in overall sensitivity levels were found between the three countries, though parental sensitivity levels in the Netherlands did improve more over time than in the UK.

First, we explored trajectories of parental sensitivity, and found an increase in parental sensitivity over time from infancy to toddlerhood. Overall, previous research on trajectories of parental sensitivity showed mixed results, possibly because of the diversity in conceptualizations of parental sensitivity in these studies, as well as the variety in settings used to observe parental sensitivity both within the same study and between the different studies. In the current study, we therefore used the original definition and coding system of sensitivity by Mary Ainsworth (1974), as well as the same measurement setting across the three measured time points (i.e., play setting). Consequently, the increase in parental sensitivity over time from infancy to toddlerhood cannot be explained by confounding factors such as broader definitions of sensitivity that include positive affect, or differences in measurement settings. It thus seems that responding in a sensitive manner to the child's signals actually gets easier over time for parents, at least from infancy to toddlerhood. As previously mentioned, this could be explained by the child becoming a more active partner in communication (Iverson, 2010), making it easier for the child to signal their needs, as well as the fact that new parents gradually build up experience over time with parenting in general and with their child's unique characteristics, needs, and signals.

Second, we examined differences in (trajectories of) parental sensitivity in mothers and fathers. In contrast to our hypothesis, we found no difference in overall levels of sensitivity between mothers and fathers, demonstrating that mothers are overall not more sensitive than fathers in the first two years of the child's life. However, we did find an interaction effect: mothers' sensitivity levels showed a steeper upwards slope, indicating that they increased more over time than fathers' sensitivity levels. It is likely that the amount of time that mothers and fathers can generally spend with their infant plays a role in this finding. Whereas fathers generally have to go back to work immediately after birth (USA) or after one or two weeks (UK and the Netherlands), mothers are often able to spend more time with their infant, at least in the first few months. This gives mothers a chance to get to know their infant's unique needs and signals faster, whereas fathers need a little more time to eventually get on the same level as mothers. These are important results, as previous research results have been mixed, and most of these studies only measured parental sensitivity at one time point. The current study demonstrates that it is important to examine parental sensitivity across time to truly understand the bigger picture regarding possible differences in sensitivity between mothers and fathers. Measuring sensitivity at one time point only could give a distorted view on whether mothers are overall 'better parents' than fathers, as is still widely believed by both the general public and biologists

(Gustafsson et al., 2013). The current study shows that mothers' and fathers' sensitivity levels in the first two years of their child's life are overall quite similar, but their trajectories do differ during these years.

Third, we examined differences in (trajectories of) parental sensitivity between three countries: the UK, the USA and the Netherlands. In contrast to our hypothesis, we found no difference in overall levels of sensitivity between the three countries. We did find an interaction effect, however: parental sensitivity improved more over time in the Netherlands than in the UK. Two explanations may underlie these results. First, in line with the Family Stress Model (Conger & Donnellan, 2007), research showed that a lack of or limited paid leave is related to less parental wellbeing (Glass,et al., 2016). As the UK families received partial but not fully paid leave, this may not necessarily caused financial stress in the first month, but it could have gotten more financially stressful for them as the time passed – explaining why their parental sensitivity improved less over time. Second, paid leave in the USA is not regulated by the government but depends on the employer. It is possible that a lot of the participating families from the USA received (fully) paid leave from their employer, just like all Dutch families, whereas all families from the UK only received partial paid leave. This could explain the absence of a significant slope difference between the Netherlands and the UK on the one hand, and the USA on the other hand.

Several limitations of this study should be mentioned. First, because of practical reasons it was not possible to train coders in each country. Therefore, the current study was only able to use Dutch coders. Even though all Dutch coders received extensive training and were fluent in English, coder bias could not be completely ruled out which could have played a role in the country slope differences found in this study. Future research on differences in trajectories between these countries, using coders from each country, is necessary to examine whether the found differences can be replicated. Second, even though this longitudinal collaboration between multiple countries offers a uniquely large observational dataset, the possible universality of parental sensitivity remains to be understood as the included countries are all WEIRD: Western, Educated, Industrialized, Rich, and Democratic (Henrich et al., 2010). Additionally, our sample was quite specific in background characteristics: parents' educational background, their parental age at birth and family SES were relatively high, which makes sense as higher education is related to delayed childbearing (Eriksson et al., 2013), and highly educated people tend to have a higher income. Future research with a more diverse sample is necessary to examine the generalizability of our findings. Third, our five-minute observations of parental sensitivity were relatively short, which is different from the length of Mary Ainsworth's observations. She originally started with the development of her maternal sensitivity coding instrument for her two-hour observations in Uganda, that she did twice a month for a period of nine months (Bretherton, 2013). It would therefore be interesting to replicate the current study using longer observations, to examine whether the same results are found.

In conclusion, the current study provides valuable insights in trajectories of maternal as well as paternal sensitivity from infancy to toddlerhood. The results of this study are highly robust, as the data were collected in such a way that the confounding factors of previous studies were eliminated. Furthermore, the analyses were carefully selected to

fit the complex multilevel data, and performed on a large dataset. All in all, this study demonstrates that primiparous mothers' and fathers' sensitivity generally improves over time from infancy to toddlerhood. Furthermore, even though mothers' and fathers' parenting styles have proven to be different in some ways, in the first two years of their child's life they are overall quite similar concerning the extent to which they respond sensitively to their child's signals.

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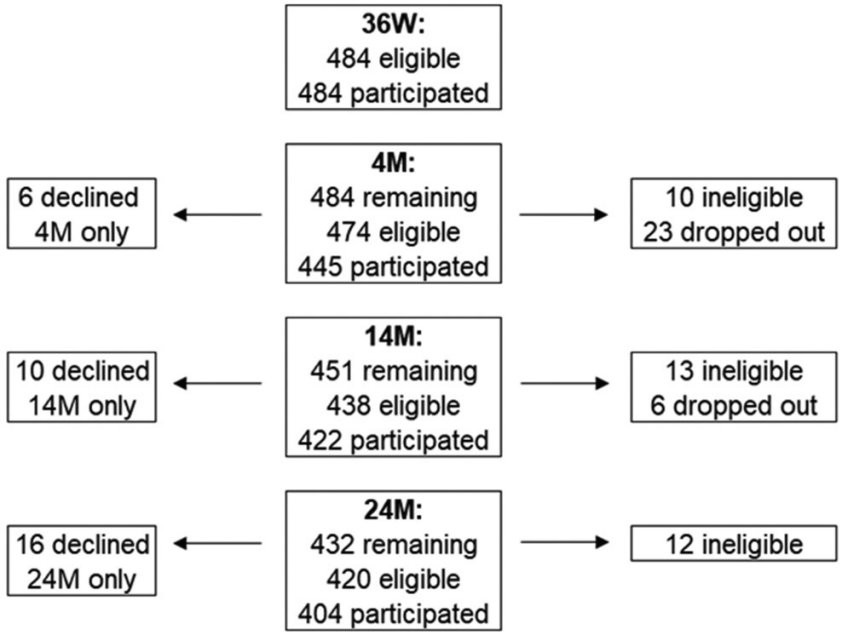
Appendix A:

Flow of participants through each wave.



Appendix B:

Comparison of Multilevel Models Predicting Trajectories of Parental Sensitivity.

Model comparison	*F*	*df1*	*df2*	*p*
1vs2	184.27	1	3931.73	0.000
2vs3	13.04	2	8286.32	0.000
3vs4	26.22	1	6910.63	0.000
4vs5	1.86	2	2006.34	0.155
4vs6	8.74	1	143.37	0.004
6vs7	11.54	1	2481.91	0.001
7vs8	5.73	2	1010.65	0.003
8vs9	3.09	4	285.50	0.016

CHAPTER 5

5

General discussion

"I'm actually just excited to finally hold him, finally see what he looks like, how he is, what he does. How it's going to feel to be together. I think it feels very connected. I believe I'll probably be on like cloud nine, of course also days of frustration, I know that, but that's ok. […] We'll discover together how it's going to work, to be a family, actually."

– A Dutch mother in her prenatal interview.

"It's a bit hard to grasp as a man, that it's yours. You can rationally reason about it, but the penny hasn't dropped yet. And I think the moment a child is born, it will be clear, also emotionally, what that will entail, that you'll have a child and it's yours and you'll build up a bond with them, and they become a part of your life."

– A Dutch father in his prenatal interview.

The birth of a child represents an important transition in a person's life. As these Dutch expecting parents demonstrate in the quotes above, several questions, expectations, and responsibilities arise during this major adjustment phase. They become a parent and are confronted with an exciting and challenging new task: parenting. Even though parents can positively impact child development through sensitive parenting, especially in the first few foundational years of children's lives, limited research had been done on the early development of sensitive parenting. Therefore, the overarching aim of this dissertation was to provide more insight in the development of sensitive parenting from infancy to toddlerhood in primiparous mothers and fathers. In Chapter 2, we examined whether the context in which parental sensitivity is observed could be a source of variability in sensitivity, by comparing mothers' and fathers' sensitive parenting to their four-month-old infant in four different contexts. In Chapter 3, we examined the development of mothers' as well as fathers' narrative coherence of their mental representations of their child across the transition to parenthood, and the relation between pre- and postnatal narrative coherence and parental sensitivity. In Chapter 4, we examined the trajectories of maternal and paternal sensitivity across three time points from infancy to toddlerhood, using a multilevel modeling design and following the implications of the study presented in Chapter 2. In this final chapter, the findings of these studies will be summarized and discussed, resulting in an overview of conclusions and limitations of this dissertation as well as implications for future research and practice.

Context as a source of variability in parental sensitivity

Before examining trajectories and possible precursors of sensitive parenting, we studied the measurement of this construct – and in particular the context in which parental sensitivity is measured. Even though this construct was originally developed by Mary Ainsworth based on her long, naturalistic observations of mother-infant interactions (e.g., Ainsworth, 1967), in more recent research parental sensitivity has generally been measured via short observations in a wide range of contexts. An important research question of this dissertation was therefore whether the context in which parental sensitivity is measured,

plays a role in findings of variability in sensitivity. In other words: should we take context into account when measuring (trajectories of) parental sensitivity?

To answer this question, we examined maternal and paternal sensitivity towards four-month-old infants in four different contexts: a routine caregiving session, free play episode, and the baseline and reunion of the Still Face Paradigm (SFP; Tronick et al., 1978). The results, which are described in detail in Chapter 2, demonstrated that mean levels of parental sensitivity indeed varied across contexts: parental sensitivity was higher during routine caregiving than during free play, the SFP baseline, and the SFP reunion, and higher during free play than during the SFP baseline and reunion. Our findings suggest that parents find it easier to notice their child's signals and respond appropriately to them in situations that are more ecologically valid, and that they are more challenged in less naturalistic contexts, which is in line with a previous study that examined mothers only (Joosen et al., 2012). This highlights the importance of taking context into account when measuring parental sensitivity. To avoid confounding effects, we advise researchers to use similar observational settings over time and across subgroups when studying (trajectories of) sensitive parenting. We therefore applied this implication in Chapters 3 and 4. In Chapter 3, we used all four previously mentioned contexts for observations of sensitivity in both mothers and fathers. In Chapter 4, to represent daily life as much as possible, we selected a naturalistic observational context that could be used similarly over time for both mothers and fathers to measure parental sensitivity (i.e., a free play setting).

Narrative coherence and parental sensitivity across the transition to parenthood

Parental sensitivity is an important predictor of infant attachment quality (De Wolff & Van IJzendoorn, 1997). Together with parents' representations of their child, it is theorized to play an important role in the intergenerational transmission of attachment (e.g., Oppenheim, 2006). This theoretical framework is visualized in Figure 1. Research suggests that in particular the narrative coherence of parents' mental representations of the child, i.e. parents' ability to provide a believable, clear, relevant, and internally consistent story about (the relationship with) their child, seems to play a role in this framework (Oppenheim, 2006; Sher-Censor, 2015). Therefore, the second goal of this dissertation was to examine the development of narrative coherence across the transition to parenthood specifically, and its theorized relation with sensitive parenting, of which the results are presented in Chapter 3. To our knowledge, this was the very first study to focus on prenatal as well as postnatal narrative coherence in both mothers and fathers, including the theorized link with parental sensitivity.

Figure 1. Theoretical framework of the intergenerational transmission of attachment.

Regarding the development of narrative coherence across the transition to parenthood, our results demonstrated that mean levels of both paternal and maternal narrative coherence improved over time, which was in line with previous research on related parental representation concepts (e.g., Cairo et al., 2012; Vreeswijk et al., 2015). These findings indicate that – even though parents already create thoughts and feelings about the (future) relationship with their child during pregnancy (Foley et al., 2019; Glover & Capron, 2017) – speaking coherently about the relationship with their child becomes easier when parents have had actual experiences with their child and can add vivid examples of who their child is. Interestingly, pre- and postnatal narrative coherence were related in fathers, but not in mothers. Mothers who created a more coherent narrative during pregnancy, were not necessarily more coherent after the birth of their child. This may be explained by the hormonal changes that mothers experience during and after pregnancy, by the amount of time spent with the infant, and/or by possible negative birth experiences. Both mothers and fathers experience hormonal changes across the transition to parenthood, such as changes in estradiol and testosterone, but mothers' changes and fluctuations are driven by pregnancy, childbirth, and lactation, and are more drastic (Leuner et al., 2010). Furthermore, mothers are more often the primary caregiver than fathers, which allows them to spend more time with their infant. The instability of mothers' narrative coherence across the transition to parenthood may also indicate that prenatal fantasies more quickly turned into realistic and complex narratives in mothers than in fathers. Lastly, negative birth experiences could have temporarily hampered some mothers' ability to create a coherent narrative, as we noticed during our data collection that mothers with negative experiences often elaborated on the birth experience instead of the interview question. Previous research indeed demonstrated that a negative violation of expectations (i.e., when postnatal representations of the parent-child relationship are more negative than prenatal representations) more often occurs in mothers with more negative birth experiences, whereas this is not the case for fathers (Flykt et al., 2014). As this is the first study to examine narrative coherence across the transition to parenthood, we are careful in drawing conclusions. Much more research is needed to further examine how and why narrative coherence develops and changes over time across the transition to parenthood.

In contrast to our hypothesis, we only found weak evidence for the theorized link between narrative coherence and parental sensitivity. As previously mentioned, we observed parental sensitivity during routine caregiving, free play, and the SFP baseline and reunion. In fathers, only postnatal narrative coherence was related to parental sensitivity in the free play context. In all other contexts pre- and postnatal narrative coherence did not predict parental sensitivity in both mothers and fathers. This does not necessarily

mean that the theoretical framework of narrative coherence and parental sensitivity as important factors in the intergenerational transmission of attachment is incorrect. Previous meta-analyses on related parental representation concepts did find evidence for the relation between parents' representations of the child and their sensitivity, although the studies that were included generally focused on older infants than our sample (Foley & Hughes, 2018; Zeegers et al., 2017). The current study is the first that focused on the concept of narrative coherence in relation to parental sensitivity during the transition to parenthood in particular, and we looked at a specific and relatively short time frame from 36-weeks pregnancy to 4 months after birth during which a major life event takes place and a whole new family system is being formed. The infants' young age may have played a role, as well as the relative instability of narrative coherence in this special time period. Perhaps more time is needed for parents to be able to form realistic and complex narratives, and thus for narrative coherence to become more crystallized, in order to be able to represent the flexibility in parents' information processing that is relevant for their actual parenting. Importantly, previous research indicated that sensitivity in mothers could also be somewhat instable in the first year of the child's life (Lohaus et al., 2004). All in all, these results highlight the importance of longitudinal research to create more insight on the development of narrative coherence as well as parental sensitivity and its interconnectedness across the transition to parenthood and in the first years of the child's life. In Chapter 4, we therefore zoomed in on sensitive parenting, and examined maternal and paternal sensitivity over time from early infancy to toddlerhood.

Maternal and paternal sensitivity from infancy to toddlerhood

The last two goals of this dissertation were to examine differences in parental sensitivity between mothers and fathers, and to study the development of maternal and paternal sensitivity over time, of which the results are presented in Chapter 2 and 4. In Chapter 2, we examined differences between mothers' and fathers' sensitive parenting to their four-month-old infant in four different observational contexts, and found that mothers and fathers were equally sensitive across all contexts. In Chapter 3, we examined differences between maternal and paternal sensitivity in relation to narrative coherence, and found that only paternal sensitivity was related to paternal narrative coherence in a free play context only. In Chapter 4, instead of focusing on one time point, we examined trajectories of parental sensitivity in mothers and fathers across three time points from infancy to toddlerhood. Parental sensitivity was observed in the same context over time (i.e., free play, as this was a naturalistic observational context that could quite easily be used similarly over time), using Ainsworth's conceptualization of sensitivity. Furthermore, the data set consisted of not only Dutch parents, but also parents from the UK and the USA. Again, we found no overall difference between mothers' and fathers' sensitivity. Interestingly, we did find differences in their trajectories over time: parental sensitivity increased from infancy to toddlerhood in both parents, indicating that both parents become better in responding in a sensitive matter to the child's signals over time, but this increase was slightly steeper for mothers than for fathers.

The results of this dissertation on (overall) differences between mothers and fathers sensitive parenting are interesting, as they are in contrast to the popular belief of not just the general public but also some biologists that mothers are naturally 'better' parents than fathers (Gustafsson et al., 2013). At least with regard to sensitive parenting in the first two years of children's lives, this is not true: just four months after birth, mothers' and fathers' sensitivity is equal, and the same is true for the overall two-year-period. Their trajectories during this time frame do differ though, with a slightly steeper increase in mothers compared to fathers, which could perhaps be explained by the difference in the amount of time that mothers and fathers generally spend with their child. Whereas fathers usually go back to work quite quickly after the birth of their child, mothers regularly have a longer period of pregnancy leave and often work less hours after they have become parents than before their pregnancy so they can take care of their child (e.g., CBS, 2019). Even though spending more time with children does not guarantee higher levels of sensitivity, it can help in getting to understand children's unique wishes, needs, and signals, which is necessary to respond in a sensitive manner to their signals. As previous research on differences in mothers' and fathers' sensitive parenting using different time points in infancy as well as toddlerhood was mixed, partly due to the use of different contexts and conceptualizations of sensitivity, this dissertation adds to the existing literature by showing the bigger picture of mothers' and fathers' trajectories of sensitive parenting in those first two foundational years of their child's life.

Strengths, limitations, and implications for future directions

This dissertation has a number of strengths, such as its longitudinal multi-method design, the inclusion of fathers, and the multilevel modeling approach to account for the dyadic nature of data. However, a few limitations of this dissertation should be taken into account. First, all samples of the studies presented in this dissertation consisted of parents from so-called WEIRD countries: Western, Educated, Industrialized, Rich, and Democratic (Henrich et al., 2010). Participating parents were relatively highly educated, and their age at the birth of their child as well as their family SES was relatively high, which fits with findings that higher education is related to delayed childbearing as well as a higher income (Eriksson et al., 2013). The specific background characteristics thus limit the generalizability of our results, which also means that this dissertation is unable to contribute to the deeper understanding of the possible universality of parental sensitivity which has been highly debated (e.g., Mesman et al., 2018; Keller et al., 2018). Future research should investigate whether the results presented in this dissertation also apply for more diverse groups of parents, in order to understand to what extent Ainsworth's concept of sensitivity is a universally valid construct.

Second, this dissertation describes the first study on pre- to postnatal narrative coherence and its relation with maternal and paternal sensitivity, but the time period studied was relatively short which possibly affected the results. As narrative coherence across the transition to parenthood is a relatively new research topic, the field would benefit from longitudinal research on the development of narrative coherence across this transition into the first few years of the child's life, as well as on its theorized relation with parental

sensitivity to explore whether and when this possible relation starts to develop, in order to gain more insight in the specific mechanisms of the intergenerational transmission of attachment.

Third, this dissertation focused on parenting constructs only, whereas parenting is not a one-way street. This is also a central aspect of family systems theory: family dynamics do not consist of linear cause-and-effect interactions with a clear starting point (e.g., parenting behavior) and an end (e.g., child outcome; Kelledy & Lyons, 2019). Parents and children mutually influence each other, also called circular causality, and this creates an interactional pattern with no clear start or end. This raises the question of whether parenting constructs should be researched in isolation, without taking into account child constructs. When we take a closer look at the development of the sensitivity construct and coding scheme by Ainsworth, however, a major aspect that is often unrecognized is the emphasis on the dyadic nature (Bretherton, 2013). As mentioned by Bretherton (2013), Ainsworth does not interpret maternal and infant behavior as unidirectional cause-and-effect relations, but clearly describes what in family systems theory is called circular causality:

Whatever role may be played by the baby's constitutional characteristics, it seems quite clear that the mother's contribution to the interaction and the baby's contributions are caught up in an interacting spiral. It is because of these spiral effects – some vicious and some virtuous – that the variables are so confounded that it is not possible to distinguish independent from dependent variables. (Ainsworth & Bell, 1969, p. 160)

Ainsworth therefore does not consider sensitivity in absolute terms, isolated from the child's behaviors, which is reflected in her definition of maternal sensitivity, and also described in the following quote (Bretherton, 2013):

[It] does not consider maternal behavior in any absolute terms. The most important aspect of it, I repeat, was the mother's ability to gear her interactions to infant behavioral cues, so that despite inevitable constitutional differences among infants who later became securely attached, all had had experiences of a good "mesh." (Ainsworth, 1977, p. 6)

Thus, even though it would of course be interesting to dive more into the interconnectedness of parental sensitivity and child behaviors in future research, Ainsworth's sensitivity used in this dissertation is a parenting construct already with a dyadic or relational character.

Besides suggestions for future research, this dissertation also has practical implications. First, psychologists, social workers, and other professionals working with families need to be aware that context plays a role when they evaluate parents' parenting skills: parents are able to demonstrate their full capacities best in more naturalistic contexts (e.g., in their own home during regular activities), whereas they are more challenged in less naturalistic contexts (e.g., in the office or lab). Thus, context matters, and both ends of parents' capability spectrum could be valuable to examine when an evaluation of parenting skills is necessary; whereas the more naturalistic contexts can reflect daily life and the best of parents' capabilities, the less naturalistic contexts are useful to examine parents' behaviors

when they feel challenged during situations they are less familiar or comfortable with. Second, whereas prenatal check-ups are vital for parents' and babies' health and wellbeing, and could play a role in the prevention of family problems after birth, it is important to also understand that ideas and feelings expecting parents have of the near future with their child may not necessarily be representative of their postnatal representations and their actual parenting, at least on the short term. Lastly, as there is still a widespread belief that mothers are 'better' parents than fathers, this dissertation shows that we should not underestimate fathers at least with regard to their sensitive parenting skills: in the first foundational years of their child's life, fathers' skills are overall equal to mothers' sensitive parenting skills.

Conclusion

All in all, this dissertation provides a deeper understanding of the development of sensitive parenting from infancy to toddlerhood in primiparous mothers and fathers, through the use of international, longitudinal data and a multi-method and multi-context design. Taking all findings together, we highly encourage both research and practice to take context into account when studying and evaluating parenting skills. Additionally, we made a first step towards more clarity on narrative coherence across the transition to parenthood and its relation with parental sensitivity, and we recommend to examine this topic more longitudinally to gain more insight in this part of the framework of intergenerational transmission of attachment. Furthermore, we conclude that, whereas trajectories of sensitivity differ between mothers and fathers from infancy to toddlerhood, overall they are equally sensitive. Lastly, we conclude that parental sensitivity increases from infancy to toddlerhood in both mothers and fathers: in those first foundational years of children's lives, parents do become better in sensitive parenting.

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APPENDIX

Appendices

Nederlandse samenvatting (Summary in Dutch)

Het creëren van een optimale start tijdens de eerste 1000 dagen van alle kinderen is een belangrijke focus geworden voor zowel onderzoekers als beleidsmakers (bijv. Cusick & Georgieff, 2013; Rijksoverheid, 2018). Tijdens de eerste 1000 dagen vindt de snelste hersengroei plaats bij kinderen (Cusick & Georgieff, 2013). Deze specifieke periode is dan ook belangrijk voor het aanleggen van een goede basis bij kinderen als het gaat om algehele gezondheid en (hersen)ontwikkeling. Daarnaast ontwikkelen kinderen in deze periode gehechtheidsrelaties met hun opvoeders. Een veilige gehechtheidsrelatie met een opvoeder hangt samen met talloze positieve ontwikkelingsuitkomsten bij het kind (bijv. Thompson, 2018). Veilige gehechtheid is daarom een belangrijke bouwsteen voor de basis die kinderen aanleggen in de eerste 1000 dagen. Ouders beïnvloeden de mentale en fysieke gezondheid van hun kinderen al vanaf de conceptie op verschillende manieren. Zij kunnen zo bijdragen aan de positieve ontwikkeling van kinderen tot ver in de volwassenheid, en zelfs tot in volgende generaties (bijv. Chen et al., 2019; Cusick & Georgieff, 2013; Whittle et al., 2014).

Een manier waarop ouders een positieve invloed kunnen hebben op de ontwikkeling van hun kind, en specifiek op de gehechtheidsrelatie met hun kind, is via sensitief ouderschap (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). Sensitief ouderschap (hierna genoemd: sensitiviteit) staat voor de vaardigheid van ouders om de signalen van hun kind te begrijpen en hierop prompt en adequaat te reageren (Ainsworth et al., 1974). Sensitiviteit is in het bijzonder belangrijk in de eerste drie jaar van een kinderleven, omdat het in deze periode impact heeft op allerlei positieve ontwikkelingen die gedurende het hele leven voortduren (bijvoorbeeld betere breinontwikkeling; DePasquale & Gunnar, 2020). Daarnaast heeft onderzoek aangetoond dat het voor de maatschappij als geheel ook financiële voordelen heeft wanneer ouders sensitief zijn naar hun kind in de vroege kindertijd, aangezien meer sensitief ouderschap gerelateerd is aan lagere kosten voor de maatschappij op latere leeftijd (Bachman et al., 2022).

Ouders die sensitief reageren, geven een gepaste reactie op de signalen van hun kind (Ainsworth et al., 1974; De Wolff & Van IJzendoorn, 1997). Sensitiviteit speelt via diverse mechanismen een vitale rol bij de ontwikkeling van kinderen in de vroege kindertijd, zo leren kinderen door sensitieve reacties van hun ouders dat zij op een positieve manier kunnen bouwen en vertrouwen op hun ouders, wat het opbouwen van een veilige gehechtheidsrelatie stimuleert. Verrassend genoeg is er echter nog maar weinig onderzoek gedaan naar het verloop van sensitiviteit over de tijd heen, bij zowel moeders als vaders, gedurende deze eerste belangrijke bouwjaren in het leven van kinderen. Daarom was het doel van dit proefschrift om meer inzicht te geven in het verloop van sensitief ouderschap vanaf de geboorte van het kind tot de peutertijd, bij zowel moeders als vaders die voor het eerst een kind hebben gekregen. Figuur 1 geeft een schematische weergave van de onderwerpen die zijn behandeld in dit proefschrift. De volgende vragen zijn onderzocht:

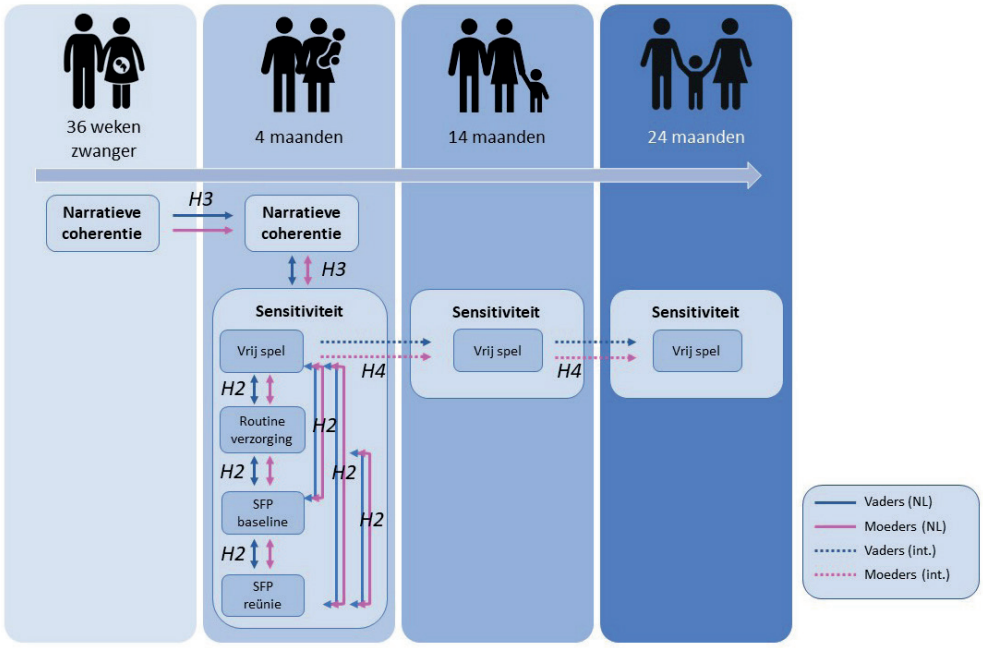
1. In hoeverre is sensitiviteit afhankelijk van de context waarin het wordt geobserveerd? [Hoofdstuk 2]

2. Hoe verloopt narratieve coherentie van (aanstaande) moeders en vaders over de tijd heen gedurende de transitie naar het ouderschap? [Hoofdstuk 3]

3. Is de narratieve coherentie van moeders en vaders tijdens en na de zwangerschap gerelateerd aan hun sensitiviteit? [Hoofdstuk 3]

4. In hoeverre verschillen moeders en vaders in hun sensitiviteit in de periode van de babytijd tot de peutertijd? [Hoofdstuk 2, 3 en 4]

5. Hoe verloopt sensitiviteit over de tijd heen van de babytijd tot de peutertijd bij zowel moeders als vaders? [Hoofdstuk 4]



Figuur 1. Schematische weergave van de onderwerpen in dit proefschrift (H2 = Hoofdstuk 2; H3 = Hoofdstuk 3; H4 = Hoofdstuk 4).

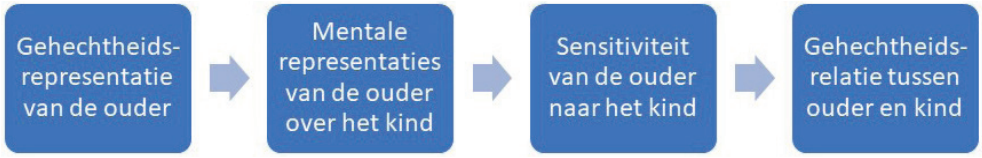
Het belang van context bij het meten van verschillen in sensitiviteit

Voorafgaand aan het onderzoeken van narratieve coherentie als voorspeller van sensitiviteit en het verloop van sensitiviteit over de tijd heen, hebben we het meten van het construct sensitiviteit onder de loep genomen. We hebben in het bijzonder gekeken naar de contexten waarin sensitiviteit vaak wordt gemeten. Hoewel het construct sensitiviteit oorspronkelijk is ontwikkeld door Mary Ainsworth, gebaseerd op haar lange observaties van moeder-kind interacties in natuurlijke settingen (bijv. Ainsworth et al., 1967), wordt sensitiviteit in meer recente studies gemeten via korte observaties in diverse soorten contexten. Een belangrijke vraag in dit proefschrift was dan ook in hoeverre de context waarin sensitiviteit wordt geobserveerd, een rol speelt bij gevonden verschillen in sensitiviteit. Met andere woorden: moeten we rekening houden met de context wanneer we (het verloop van) sensitiviteit willen onderzoeken?

Om deze vraag te beantwoorden, hebben we sensitiviteit naar baby's van 4 maanden oud geobserveerd bij zowel moeders als vaders in 109 Nederlandse gezinnen, in vier verschillende contexten: een routine verzorgingstaak (bijvoorbeeld de baby in bad doen), een moment waar zij met hun baby speelden ('vrij spel'), en het baselinemoment en reüniemoment van een experiment genaamd *Still Face Paradigm* (SFP; Tronick et al., 1978). De resultaten, die in detail staan beschreven in Hoofdstuk 2, laten zien dat de mate van sensitiviteit die ouders lieten zien naar hun baby inderdaad per context verschilde: ouders waren over het algemeen sensitiever naar hun baby in de context waarin zij een routine verzorgingstaak uitvoerden, dan in de context van vrij spel en tijdens de baseline en reünie van het SFP-experiment. Ook waren zij over het algemeen sensitiever naar hun baby in de context van vrij spel dan tijdens de baseline en reünie van het SFP-experiment. De resultaten van dit onderzoek laten zien dat vaders en moeders beter zijn in het oppikken van en passend reageren op de signalen van hun baby in contexten die meer ecologisch valide zijn, oftewel tijdens situaties die meer overeenkomen met hun dagelijkse realiteit. Daarnaast worden ouders dus meer uitgedaagd in hun sensitieve ouderschap in contexten die minder ecologisch valide zijn, oftewel tijdens situaties die minder overeenkomen met hun dagelijkse realiteit. Deze resultaten komen overeen met eerder onderzoek naar alleen moeders (Joosen et al., 2012), en benadrukken hoe belangrijk het is om in rekening te houden met de context wanneer sensitiviteit wordt geobserveerd. Om meetfouten in gevonden effecten te voorkomen, adviseren wij daarom zowel voor wetenschappelijk onderzoek naar (het verloop van) sensitiviteit als voor de praktijk om gelijksoortige observatiecontexten te gebruiken wanneer er verschillende meetmomenten over de tijd heen zijn en/of wanneer er verschillende subgroepen worden geobserveerd. Dit advies hebben wij zelf toegepast in Hoofdstukken 3 en 4. In Hoofdstuk 3 hebben we alle vier de genoemde contexten gebruikt om sensitiviteit te observeren bij zowel moeders als vaders. In Hoofdstuk 4 hebben we, om de observatiecontext zoveel mogelijk overeen te laten komen met de dagelijkse realiteit van ouders, een observatiecontext uitgekozen die op gelijke wijze over de tijd heen kon worden gebruikt bij zowel moeders als vaders om sensitiviteit te observeren (i.e., een vrij spel situatie).

Narratieve coherentie in de overgang naar ouderschap en in relatie tot sensitiviteit

Zoals eerder benoemd, is sensitief ouderschap een belangrijke factor in de ontwikkeling van een veilige gehechtheidsrelatie tussen ouder en kind (De Wolff & Van IJzendoorn, 1997). In de wetenschappelijke theorie wordt daarnaast benoemd dat sensitiviteit, samen met de gedachten en gevoelens die ouders hebben over hun kind ('mentale representaties'), een rol speelt in de intergenerationele overdracht van gehechtheid (bijv. Oppenheim, 2006). Dit theoretische raamwerk wordt schematisch weergegeven in Figuur 2.



Figuur 2. Theoretisch framework van de intergenerationele overdracht van gehechtheid.

Een aantal wetenschappers vermoedt dat met name de narratieve coherentie van deze mentale representaties een rol speelt in dit raamwerk (Oppenheim, 2006; Sher-Censor, 2015). Narratieve coherentie staat voor de mate waarin een ouder in staat is om op een geloofwaardige, duidelijke, relevante en intern consistente manier te praten over (de relatie met) zijn of haar kind. Ouders creëren al gedachten en gevoelens over (de relatie met) hun kind tijdens de zwangerschap (Foley et al., 2019; Glover & Capron, 2017). Daarom was het tweede doel van dit proefschrift om het verloop van narratieve coherentie specifiek tijdens de transitie van zwangerschap naar ouderschap te onderzoeken, en om de vermoedelijke relatie van narratieve coherentie tijdens en na de zwangerschap met sensitiviteit te onderzoeken. Deze studie is middels interviews en observaties uitgevoerd bij moeders en vaders uit 105 Nederlandse gezinnen en de resultaten hiervan zijn in detail beschreven in Hoofdstuk 3. Voor zover bekend is dit de eerste studie waarin naar prenatale en postnatale narratieve coherentie wordt gekeken bij zowel moeders als vaders, inclusief de relatie met sensitief ouderschap.

Met betrekking tot het verloop van narratieve coherentie tijdens de transitie van zwangerschap naar ouderschap laten onze resultaten zien dat de mate van narratieve coherentie bij zowel moeders als vaders verbetert over de tijd heen. Dit komt ook overeen met eerder onderzoek naar gelijksoortige concepten over mentale representaties (bijv. Cairo et al., 2012; Vreeswijk et al., 2015). De resultaten laten zien dat het voor ouders makkelijker is om op een coherente manier over (de relatie met) hun kind te praten, wanneer zij ook daadwerkelijk ervaring met hun kind hebben opgedaan en daardoor ook levendige voorbeelden kunnen geven over wie hun kind is. Interessant genoeg was er wel een relatie tussen prenatale en postnatale narratieve coherentie bij vaders, maar niet bij moeders; moeders die een meer coherent verhaal schetsten tijdens hun zwangerschap, waren niet per se ook meer coherent na de geboorte van hun kind. Er zijn drie mogelijke verklaringen voor dit resultaat. Ten eerste de hormonale veranderingen die moeders

doormaken tijdens en na de zwangerschap: zowel moeders als vaders krijgen te maken met hormonale veranderingen tijdens de transitie naar het ouderschap, zoals veranderingen in estradiol en testosteron, maar de hormonale veranderingen en schommelingen bij moeders worden aangestuurd door de zwangerschap, de geboorte, en door het al dan niet geven van borstvoeding, en zijn ook drastischer dan bij vaders (Leuner et al., 2010). Ten tweede de hoeveelheid tijd die moeders spenderen met hun kind: moeders zijn over het algemeen vaker de primaire verzorger dan vaders, waardoor zij meestal ook meer tijd met hun kind doorbrengen. De gevonden instabiliteit in de narratieve coherentie bij moeders kan dus ook betekenen dat moeders sneller dan vaders hun fantasieën vanuit de zwangerschap omzetten in realistische en complexe verhalen. Ten derde spelen mogelijke negatieve bevallingservaringen een rol, die wellicht tijdelijk ervoor zorgden dat sommige moeders minder goed in staat waren om op een coherente manier over (de relatie met) hun kind te praten. Tijdens onze dataverzameling merkten we namelijk dat moeders die negatief terugkeken op hun bevalling, vaker ingingen op hun ervaring rondom de bevalling dan op de gevraagde gedachten en gevoelens over (hun relatie met) hun kind. Wanneer de representaties van ouders over hun kind na de zwangerschap negatiever zijn dan tijdens de zwangerschap, dan wordt dit een negatieve schending van verwachtingen genoemd. Eerder wetenschappelijk onderzoek laat inderdaad ook zien dat een negatieve schending van verwachtingen vaker wordt teruggevonden bij moeders die negatieve bevallingservaringen hebben dan bij vaders, wat een bevestiging kan zijn voor deze verklaring (Flykt et al., 2014). Aangezien dit voor zover bekend de eerste studie is waarin narratieve coherentie wordt onderzocht bij vaders en moeders tijdens de transitie van zwangerschap naar ouderschap, zijn we bewust voorzichtig in het trekken van conclusies. Er is meer onderzoek nodig om verder te ontdekken hoe en waarom narratieve coherentie precies verandert over de tijd heen gedurende deze transitie.

In tegenstelling tot wat we verwachtten, vonden we slechts zwak bewijs voor de eerder gesuggereerde relatie tussen narratieve coherentie en sensitiviteit. Zoals aangegeven hebben we sensitiviteit in vier contexten geobserveerd: tijdens een routine verzorgingstaak, tijdens vrij spel, en tijdens de baseline en reünie van het SFP-experiment. Bij vaders bleek alleen postnatale narratieve coherentie gerelateerd te zijn aan hun sensitiviteit, en ook alleen in de context van vrij spel. In alle andere contexten bleek er geen relatie te bestaan tussen zowel prenatale als postnatale narratieve coherentie en sensitiviteit, bij vaders én moeders. Dit is echter nog geen afdoende bewijs voor de onjuistheid van het eerder genoemde theoretische raamwerk, waarin narratieve coherentie en sensitiviteit als belangrijke factoren worden gezien voor de intergenerationele overdracht van gehechtheid. Eerdere meta-analyses (i.e., grote studies waarbij de resultaten van meerdere andere onderzoeken worden samengenomen) naar gelijksoortige concepten over mentale representaties vonden namelijk wél bewijs voor de relatie tussen mentale representaties van ouders over hun kind en hun sensitiviteit (Foley & Hughes, 2018; Zeegers et al., 2017). De studies die in deze meta-analyses werden samengenomen, richtten zich echter over het algemeen op oudere kinderen dan in onze steekproef. De huidige studie is voor zover bekend het eerste onderzoek waarbij specifiek het concept narratieve coherentie is bestudeerd in relatie tot sensitiviteit tijdens de transitie van zwangerschap naar ouderschap. Wij keken tijdens deze studie naar een specifieke en relatief korte tijdsperiode van 36 weken zwangerschap tot 4 maanden na de geboorte, en

tijdens deze periode vond natuurlijk een belangrijke en unieke levensgebeurtenis plaats waardoor er een heel nieuw gezinssysteem is ontstaan. De relatief jonge leeftijd van het kind speelde mogelijk een rol bij het gevonden zwakke bewijs voor de relatie tussen narratieve coherentie en sensitiviteit, net als het feit dat narratieve coherentie in ieder geval bij moeders wat onstabiel bleek te zijn gedurende de transitie naar het ouderschap. Het is goed mogelijk dat ouders wat meer tijd nodig hebben om dermate realistische en complexe verhalen over (de relatie met) hun kind te kunnen vertellen, oftewel dat hun narratieve coherentie dermate is uitgekristalliseerd, dat het een goede weergave is van de flexibiliteit in informatieverwerkingsprocessen die relevant is voor hun daadwerkelijke (sensitieve) ouderschap. Tot slot dient te worden opgemerkt dat eerder wetenschappelijk onderzoek heeft uitgewezen dat sensitiviteit bij moeders in het eerste jaar van het leven van hun kind daarnaast ook wat instabiel kan zijn (Lohaus et al., 2004). Al met al benadrukken de resultaten van deze studie dat er longitudinaal onderzoek moet worden gedaan om meer inzicht te verkrijgen in zowel het verloop van narratieve coherentie als sensitiviteit en de relatie tussen deze concepten, specifiek tijdens de transitie van zwangerschap naar ouderschap en in de eerste levensjaren van kinderen. In Hoofdstuk 4 hebben we ons daarom gefocust op het verloop van sensitief ouderschap over de tijd heen van de babytijd tot de peutertijd bij zowel moeders als vaders.

Verschillen in sensitiviteit tussen moeders en vaders van de babytijd tot de peutertijd

De laatste twee doelen van dit proefschrift waren het onderzoeken van verschillen in sensitiviteit tussen vaders en moeders en het bestuderen van het verloop van moederlijke en vaderlijke sensitiviteit over de tijd heen van de babytijd tot de peutertijd. De resultaten hiervan zijn in detail beschreven in Hoofdstukken 2, 3 en 4. In Hoofdstuk 2 hebben we verschillen tussen moeders en vaders in hun sensitiviteit naar hun 4 maanden oude baby onderzocht in vier verschillende contexten. We vonden dat moeders en vaders even sensitief waren in alle contexten. In Hoofdstuk 3 hebben we verschillen tussen moeders en vaders in hun sensitiviteit in relatie tot narratieve coherentie onderzocht. We vonden dat alleen sensitiviteit bij vaders gerelateerd was aan hun postnatale narratieve coherentie, en alleen in de vrij spel context. In Hoofdstuk 4 hebben we, in plaats van ons te richten op één tijdsmoment, juist het verloop van sensitiviteit bij moeders en vaders over de tijd heen onderzocht. We hebben op drie meetmomenten van de babytijd tot de peutertijd observaties uitgevoerd: toen het kind 4, 14 en 24 maanden oud was. Op basis van het beschreven resultaat in Hoofdstuk 2 hebben we ervoor gekozen om sensitiviteit te observeren in dezelfde context op alle drie de meetmomenten, namelijk vrij spel, gebruik makend van Ainsworth's conceptualisatie van sensitiviteit. Daarnaast hebben we niet alleen sensitiviteit bij Nederlandse ouders onderzocht, maar ook bij ouders uit het Verenigd Koninkrijk en de Verenigde Staten. In totaal hebben 428 gezinnen aan deze studie meegedaan. Ook in deze studie vonden we geen overall verschillen in sensitiviteit tussen vaders en moeders. Interessant genoeg vonden we wel verschillen in hun verloop van sensitiviteit over de tijd heen. De mate van sensitiviteit nam namelijk toe bij zowel moeders als vaders van de babytijd naar de peutertijd, wat aangeeft dat beide ouders

over de tijd heen beter worden in het oppikken en gepast reageren op de signalen van hun kind. Sensitiviteit nam wel iets sneller toe bij moeders dan bij vaders.

De resultaten van dit proefschrift over de (overall) verschillen in sensitiviteit tussen moeders en vaders staan haaks op het wijdverspreide idee van zowel algemeen publiek als van sommige biologen dat moeders van nature 'betere' ouders zijn dan vaders (Gustafsson et al., 2013). Dit is in ieder geval niet waar voor wat betreft sensitief ouderschap specifiek in de eerste twee levensjaren van een kind: slechts 4 maanden na de geboorte van het kind zijn moeders en vaders even sensitief, en hetzelfde geldt voor de overall periode van de babytijd tot de peutertijd. Wel is het zo dat het verloop van sensitiviteit iets verschilt voor vaders versus moeders, aangezien moeders iets sneller stijgen, wat wellicht kan worden verklaard door de hoeveelheid tijd die moeders en vaders over het algemeen spenderen met hun kind. Waar vaders over het algemeen weer vrij snel aan het werk gaan na de geboorte van hun kind, hebben moeders over het algemeen een wat langere periode van verlof en werken zij na de geboorte van hun kind ook meestal minder uren dan voor hun zwangerschap, zodat zij voor hun kind kunnen zorgen (bijv. CBS, 2019). Hoewel het spenderen van meer tijd met kinderen natuurlijk geen garantie geeft voor een hogere mate van sensitiviteit, kan het wel helpen om de unieke wensen, behoeften en signalen van een kind te leren herkennen en begrijpen, wat immers een voorwaarde is om ook sensitief op de signalen te kunnen reageren. Eerdere onderzoeken naar verschillen in sensitiviteit tussen vaders en moeders op diverse tijdsmomenten van de babytijd tot de peutertijd vonden wisselende resultaten, deels vanwege het gebruik van verschillende contexten en verschillende conceptualisaties van sensitiviteit. Dit proefschrift draagt dan ook bij aan de bestaande literatuur door het gedegen in kaart brengen van het grotere geheel als het gaat om het verloop van sensitief ouderschap bij moeders en vaders in de eerste belangrijke bouwjaren van hun kind.

Sterke eigenschappen, beperkingen en aanbevelingen voor onderzoek

Dit proefschrift heeft een aantal belangrijke sterke eigenschappen. Zo is gebruik gemaakt van een longitudinaal *multi-method design*, zijn niet alleen moeders maar ook vaders onderzocht, en is een *multilevel* benadering toegepast in Hoofdstuk 4 om rekening te kunnen houden met het geneste karakter van de longitudinale data. Dit proefschrift heeft ook een aantal noemenswaardige beperkingen. Ten eerste bestaat de steekproef van het onderzoeksproject dat in dit proefschrift staat beschreven, uit ouders van 'WEIRD'-landen: westerse, opgeleide, geïndustrialiseerde, rijke en democratische landen (Henrich et al., 2010). De ouders die hebben deelgenomen aan de beschreven studies, waren relatief hoog opgeleid en relatief oud tijdens de geboorte van hun eerste kind en hadden een relatief hoge sociaaleconomische status. Dit komt overeen met onderzoeken die hebben uitgewezen dat een hogere opleiding gerelateerd is aan zowel een hoger inkomen als het later krijgen van kinderen (Eriksson et al., 2013). De specifieke achtergrondkenmerken van de steekproeven van de beschreven studies zorgen er dus voor dat we de gevonden resultaten slechts beperkt kunnen generaliseren. Toekomstig onderzoek is dan ook nodig om te ontdekken in hoeverre de resultaten van dit proefschrift ook van toepassing zijn op een meer diverse groep ouders, zodat er meer duidelijk wordt over de mogelijke

universele validiteit van Ainsworth's sensitiviteitsconcept (bijv. Mesman et al., 2018; Keller et al., 2018).

Ten tweede beschrijft dit proefschrift de allereerste studie naar het verloop van narratieve coherentie in de transitie naar het ouderschap, en de relatie met zowel moederlijke als vaderlijke sensitiviteit. De bestudeerde periode was echter relatief kort, wat de gevonden resultaten mogelijk heeft beïnvloed. Narratieve coherentie is een relatief nieuw onderzoeksonderwerp. De wetenschap zou dan ook baat hebben bij longitudinale studies naar zowel het verloop van narratieve coherentie vanaf de zwangerschap tot in de eerste levensjaren van het kind, als de vermoedelijke relatie met sensitiviteit. Op deze manier kan worden onderzocht of en wanneer deze relatie zich begint te ontwikkelen, om zo meer inzicht te krijgen in de specifieke mechanismen van de intergenerationele overdracht van gehechtheid.

Ten derde heeft dit proefschrift meer inzicht verschaft in het verloop van sensitiviteit als belangrijke ouderschapsvaardigheid. Ouderschap is echter geen eenrichtingsverkeer. Dit is ook een belangrijk uitgangspunt van de wetenschappelijke theorie over familiesystemen: gezinsdynamieken bestaan niet uit lineaire oorzaak-gevolg interacties met een duidelijk startpunt (bijvoorbeeld: ouderschapsgedrag) en eindpunt (bijvoorbeeld: kindgedrag; Kelledy & Lyons, 2019). Ouders en kinderen hebben beiden invloed op elkaar, dit wordt ook wel circulaire causaliteit genoemd, en dit zorgt voor een interactief patroon zonder duidelijk start- en eindpunt. Dit roept dan ook de vraag op in hoeverre ouderschapsgedrag eigenlijk wel in isolatie kan worden onderzocht, zonder kindgedrag in acht te nemen. Wanneer we echter goed kijken naar de ontwikkeling van het sensitiviteitsconstruct en het bijbehorende codeersysteem van Ainsworth, dan valt op dat zij een belangrijk aspect heeft benadrukt dat vaak onderbelicht wordt, namelijk het dyadische karakter van sensitiviteit (Bretherton, 2013). Ainsworth interpreteert moeder- en kindgedrag namelijk niet als oorzaak-gevolg relaties met één richting, maar beschrijft in haar sensitiviteitsstudies duidelijk het concept circulaire causaliteit. Zij beschouwt het concept sensitiviteit dan ook niet als een absoluut concept zonder rekening te houden met kindgedrag, iets wat ook duidelijk terugkomt in haar definitie van sensitiviteit. Hoewel het uiteraard interessant is om meer onderzoek te doen naar de relatie tussen sensitiviteit en verschillende kinduitkomsten in de toekomst, is de definitie van sensitiviteit volgens Ainsworth, gebruikt in dit proefschrift, dus al een ouderschapsconstruct met een dyadisch of relationeel karakter.

Aanbevelingen voor de praktijk

Naast aanbevelingen voor toekomstig wetenschappelijk onderzoek, heeft dit proefschrift ook een aantal implicaties voor de praktijk. Ten eerste adviseren wij pedagogen, psychologen, sociaal werkers en andere professionals die met gezinnen werken om zich bewust te zijn van het feit dat context een rol speelt wanneer je bij opvoeders hun opvoedvaardigheden evalueert: uit dit proefschrift blijkt dat ouders wat betreft hun opvoedvaardigheden het beste tot hun recht komen in meer natuurlijke situaties (bijvoorbeeld in hun eigen huis tijdens dagelijkse activiteiten) en meer uitgedaagd

worden in minder natuurlijke of bekende situaties of locaties (bijvoorbeeld op kantoor of in een lab). Context is dus belangrijk om mee te wegen in het oordeel, en beide uiteindes van het spectrum kunnen waardevol zijn om te onderzoeken wanneer er een evaluatie van opvoedvaardigheden nodig is. Ten tweede raden we aan om bij prenatale controles – die cruciaal zijn voor de gezondheid en het welzijn van zowel ouders als kinderen, en een belangrijke rol spelen bij de preventie van gezinsproblematiek na de geboorte – in acht te nemen dat gedachten en gevoelens die aanstaande ouders kunnen hebben over de nabije toekomst met hun kind, niet per se representatief hoeven te zijn voor hun ideeën en gevoelens na de geboorte en hun daadwerkelijke ouderschap, in ieder geval op de korte termijn. Tot slot, aangezien er nog steeds een wijdverspreid idee is dat moeders 'betere' ouders zijn dan vaders, benadrukt dit proefschrift dat we vaders niet moeten onderschatten, in ieder geval met betrekking tot sensitief ouderschap: bij westerse, relatief hoogopgeleide ouders geldt dat de sensitieve ouderschapsvaardigheden van vaders over het algemeen gelijk zijn aan die van moeders in de belangrijke eerste bouwjaren van een kinderleven – zowel moeders als vaders zijn gemiddeld genomen adequaat sensitief in de periode van de babytijd tot de peutertijd.

Conclusie

Al met al geeft dit proefschrift belangrijke inzichten in het verloop van sensitief ouderschap van de babytijd tot de peutertijd bij ouders die hun eerst kind hebben gekregen, via het gebruik van internationale, longitudinale data en een *multi-method* en *multi-context design*. Op basis van de beschreven onderzoeksresultaten raden we aan om context in acht te nemen wanneer ouderschapsvaardigheden worden bestudeerd en geëvalueerd. Daarnaast hebben we een eerste stap gezet naar meer duidelijkheid over narratieve coherentie in de transitie van zwangerschap naar ouderschap en de relatie met sensitief ouderschap, en raden we aan om dit onderwerp in de toekomst meer longitudinaal te onderzoeken om zo beter inzicht te krijgen in de specifieke mechanismen van het raamwerk over intergenerationele overdracht van gehechtheid. Ook concluderen we dat, hoewel vaders en moeders wel een verschillend verloop van sensitiviteit hebben van de babytijd tot de peutertijd, zij over deze gehele tijdsperiode genomen wel even sensitief reageren op de signalen van hun kind. Tot slot concluderen we dat sensitiviteit bij zowel vaders als moeders toeneemt over de tijd heen van de babytijd tot de peutertijd: in de eerste belangrijke bouwjaren van een kinderleven worden ouders daadwerkelijk beter in sensitief ouderschap.

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Curriculum Vitae

Marjolein Catharina Elisabeth Branger werd geboren op 30 juni 1990 te Woerden. In 2008 behaalde zij haar Gymnasiumdiploma cum laude aan het Kalsbeek College in Woerden. In hetzelfde jaar startte zij de bacheloropleiding Pedagogische Wetenschappen met als specialisatie Gezinspedagogiek aan de Universiteit Leiden. Na het behalen van haar bachelordiploma in 2011 startte Marjolein met haar master Education and Child studies (specialisatie: Child and Family Studies) aan dezelfde universiteit. Gedurende haar masteropleiding werkte zij als onderzoeksassistent bij de afdeling Kinder- en jeugdpsychiatrie van het UMC Utrecht. Daarnaast was zij als onderzoeksstagiaire betrokken bij een studie naar de prevalentie van seksueel misbruik in de Nederlandse jeugdzorg, een onderzoeksproject uitgevoerd door de Universiteit Leiden in opdracht van de commissie-Samson. In 2012 rondde Marjolein haar masteropleiding af, waarna zij aan de slag ging als onderwijs- en onderzoeksmedewerker bij het instituut Pedagogische Wetenschappen van de Universiteit Leiden. Gedurende deze tijd heeft zij onderwijs verzorgd in zowel de bachelor- als de masteropleiding Pedagogische Wetenschappen en trainingen gevolgd om de ouderschapsconstructen sensitiviteit, non-intrusiviteit en disciplinering betrouwbaar te kunnen coderen. Tevens is zij betrokken geweest bij het opzetten en uitvoeren van een internationaal onderzoeksproject naar een instrument om opvattingen over kindermishandeling in kaart te brengen. Daaropvolgend startte zij bij hetzelfde instituut in 2014 als docent en als promovenda op een internationaal, longitudinaal onderzoeksproject naar onder andere de ontwikkeling van sensitiviteit bij ouders die hun eerste kind hebben gekregen. De resultaten van haar onderzoek zijn beschreven in dit proefschrift. In 2019 besloot Marjolein om zich volledig op onderwijs te gaan richten. Zij behaalde haar RYT-200 yoga teacher certificaat op Aruba en maakte de overstap naar het hoger beroepsonderwijs. Sindsdien is zij verbonden aan de opleiding Pedagogiek van de Haagse Hogeschool als docent, leerlijncoördinator, studieloopbaanbegeleider en afstudeerbegeleider.

List of Publications

Branger, M. C. E., Emmen, R. A. G., Woudstra, M. J., Alink, L. R. A., & Mesman, J. (2022). Narrative coherence across the transition to parenthood: Primiparous parents' representations of their child in relation to parental sensitivity. *Acta Psychologica, 226,* 103581. https://doi.org/10.1016/j.actpsy.2022.103581

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