Emerging parenthood: Parental sensitivity from infancy to toddlerhood

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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.

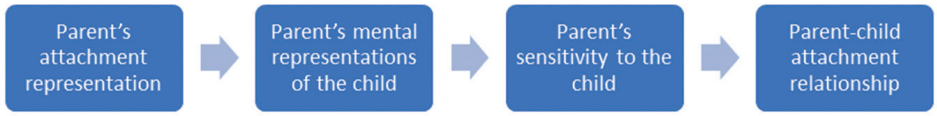

Figure 1. Theoretical framework of the intergenerational transmission of attachment.

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.

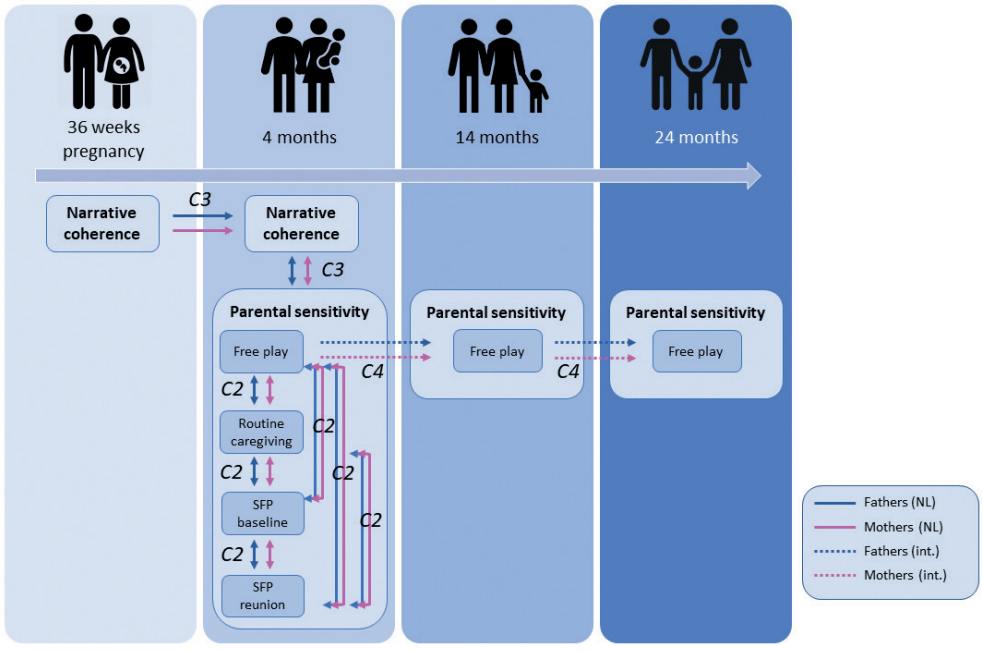

Figure 2. Main framework of the chapters in this dissertation (C2 = Chapter 2; C3 = Chapter 3, C4 = Chapter 4).

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