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Maternal reflective functioning: influence on parenting practices and the early development of externalizing behavior

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Chapter 1

General Introduction

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In the last few decades, violence and aggression have become major global public health issues (Krug, Mercy, Dahlberg, & Zwi, 2002). Violence and aggression are associated with social, psychological, neurobiological, genetic, and environmental risk factors which offer potential novel opportunities for intervention and prevention (Liu et al., 2013). Aggression during early childhood not only poses challenges to families, health professionals, and educators, it is also predictive of persisting aggressive behavior and violence (Côté, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Campbell, Spieker, Burchinal, Poe, & NICHD Early Child Care Research Network, 2006; NICHD Early Child Care Research Network, 2004). Therefore, timely prevention efforts are of great importance. To be able to tackle the problem of aggression and violence, it is essential to study the factors that may account for the initial manifestation and continuation of such behavior, particularly those factors that are potentially malleable. Parental reflective functioning might be an interesting candidate in this respect, as it has been associated with children's externalizing and internalizing behavior (Benbassat & Priel, 2012; Ha et al., 2011; Meins, Centifanti, Fernyhough, & Fishburn, 2013) and is considered trainable (Katznelson, 2014).

The significance of parenting practices for children's socio-behavioral development and psychosocial adjustment is undisputed. In the last two decades research in the field of child development has increasingly focused attention on the parents' capacity to treat their child as a psychological agent (i.e., an individual that can reason about its own and other people's intentions, goals, and beliefs) (Baron-Cohen, Tager-Flusberg, & Cohen, 1993). This relatively new focus has partly been motivated by the fact that attachment researchers have struggled to identify the possible mechanisms for the intergenerational transmission of attachment security (Bowlby, 1973, 1988). The classical attachment model proposed that parental responsiveness (i.e., prompt and contingent reaction to infant's signals) was the mechanism that linked maternal and child attachment security. Thus, the mother's state of mind affects her sensitivity to the child's cues (Main, Kaplan, & Cassidy, 1985), which impacts the child's attachment security (Ainsworth, Blehar, Waters, & Wall, 1978). Sensitivity is defined as the ability to respond in a timely, appropriate, and contingent manner to the child's signals (Ainsworth, Bell, & Stayton, 1974). However, a large meta-analysis showed that maternal sensitivity could only explain a relatively minor part of the association between maternal attachment representations and child attachment (Van IJzendoorn, 1995). In their search for possible additional mechanisms that might help explain the intergenerational transmission of attachment security, several researchers proposed that maternal mentalizing (i.e., the ability to reflect upon and make sense of

oneself and others in terms of mental states) might be a good candidate, as it seems to be related to both maternal and infant attachment security (Bernier & Dozier, 2003; Fonagy & Target, 2005; Main, 1991; Meins, 1997). The idea behind this was that 'secure' parents are more reflective; this makes their children more confident that their internal states will be appropriately processed, accepted, and responded to. As a result, the child is able to form a secure attachment relationship to the parents (Sharp & Fonagy, 2008).

Besides that maternal mentalizing has been related to child attachment security (Bernier & Dozier, 2003; Fonagy, Steele, & Steele, 1991; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005) and maternal attachment security (Bick, Dozier, & Moore, 2012; Slade, Belsky, Aber, & Phelps, 1999; Slade, Grienenberger, et al., 2005), there are also indications that maternal mentalization may play a much broader role in children's socio-behavioral development (Sharp & Fonagy, 2008). For example, higher maternal mentalization has been positively associated with children's regulatory capacities, social skills, and ability to play and symbolize (Fonagy, 2008; Fonagy, Gergely, Jurist, & Target, 2002). An increasing number of studies on the links between parental mentalizing and child socio-behavioral development are currently appearing. However, more studies on the underlying mechanisms by which parental mentalizing affects children's socio-behavioral development are much needed. Because parental mentalizing is considered trainable (Slade, 2007; Slade, Sadler, De Dios-Kenn, et al., 2005), it is becoming an interesting target for programs aiming to improve children's socio-behavioral development and/or the prevention of adverse child behaviors such as aggression and disruptive behaviors.

Reflective functioning and related constructs

Before a more elaborate overview of parental mentalizing or reflective functioning (RF) and its role in the development of children's (externalizing) behavioral problems will be given, several important concepts in this respect will be discussed.

The concept of mentalization has been defined as the capacity to reflect upon and make sense of oneself and others, both implicitly and explicitly, in terms of mental processes and subjective states (Fonagy & Bateman, 2008; Fonagy et al., 1991). A comprehension of mental states is necessary to make sense of, predict, and anticipate another person's actions (Fonagy & Target, 1998). Mentalizing has also often been studied in relation to parenting, which led to the introduction of the concepts of 'parental mentalizing' and 'parental reflective functioning' (Slade, 2005; Slade, Grienenberger, et al., 2005). Reflective functioning in the context of parenting is defined as the parents' ability to

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“keep the child in mind”, meaning being able to make sense of their child’s mental states and using this understanding to guide their own responses to the child (Slade, Sadler, & Mayes, 2005). More specifically, parental RF is seen as the parents’ ability to think reflectively about themselves as parents, the child, and their relationship with the child (Slade, 2005). Within the context of attachment or parenting, RF is often used as an operationalization of the parental mentalizing ability (Arnott & Meins, 2007; Fonagy, Gergely, Jurist, & Target, 2002; Grienenberger, Kelly, & Slade 2005; Slade, Belsky, Aber, & Phelps, 1999). High RF is also considered a main outcome of adequate mentalization abilities. Therefore, the concepts of RF and mentalizing are frequently used interchangeably in the literature and in this thesis.

In order to investigate the aforementioned possible mechanisms involved in the intergenerational transmission of attachment security, the concept of maternal mind-mindedness was introduced (MMM; Meins, 1997). MMM describes the mother's inclination to treat her child as an individual with a mind of its own. MMM is closely related to maternal RF, as both concepts consider the mother’s ability to treat her child as a psychological agent, with the potential to reason about either their own or other people’s explicit goals, intentions, and beliefs (Baron-Cohen et al., 1993; Behne, 2005; Meltzoff, 2007; Sharp & Fonagy, 2008; Symons, 2004). During infancy, MMM is measured at a certain point in time using observations of interactions between parent–infant dyads. Parental RF, on the other hand, is measured within the context of the ongoing, current, and evolving parent-child relationship using an interview (Slade, 2005; Slade, Bernbach, Grienenberger, Levy, & Locker, 2002; Slade, Patterson, & Miller, 2007). Nonetheless, RF and MMM are both operationalizations of parental mentalizing and therefore considered similar concepts.

Another construct that is related to mentalizing, is Theory of Mind (ToM). The term ToM first appeared in 1978 in a paper on chimpanzees and refers to the ability to attribute mental states to the self and to others (Premack & Woodruff, 1978). Examples of mental states are emotions, feelings, intentions, desires, beliefs, and thoughts. In the last few decades, broader definitions of ToM have appeared and these include not only the ability to attribute mental states to self and others, but also the ability to reflect on the contents of one's own mind and the minds of others. This placed the capacity to interpret behavior of others within a mentalistic framework (Sharp & Fonagy, 2008). Mentalistic in this sense implies our capacity to attribute mental states to ourselves as well as to others, and to utilize this capacity in order to anticipate and shape our own and others’ behavior. As ToM has often been linked to specific tasks and/or age groups (O’Connor & Hirsch, 1999), such as the ‘false-belief’ task used to study ToM in young children (Frye & Moore, 2014; Lagattuta

et al., 2015), some researchers prefer to use the more general term mentalizing instead of ToM. ToM can be considered a measurement of children's mentalizing ability.

Summarizing the different constructs, RF and MMM can be regarded as complementary constructs associated with parental mentalizing, whereas ToM generally refers to the developing mentalizing ability in the child.

Prenatal and postnatal reflective functioning

Maternal mentalizing starts to develop during pregnancy, as a woman's representations of herself as a mother and of her baby become increasingly specific (Slade, Cohen, Sadler, & Miller, 2009). Prenatal reflective functioning refers to a parent's capacity to think of the fetus, from at least the last trimester onward, as a separate individual, with developing personal features, temperament, and needs. A reflective parent is interested and curious about the baby's developing capacities and experiences from early on, and willing to observe and think of the reactions of the baby in relation to the parent's own actions and mental states. The reflective parent-to-be is able to already imagine and think of situations with the baby after birth, for example how the child will resemble the parent(s) and what temperamental characteristics he or she might have. Also, reflective parents-to-be will think of the impact they already may have on their baby, consider the importance of their own health and behavior for the unborn child, and think of the changes that having a child will bring to their lives. So, during pregnancy the parents prepare for the birth of the baby by making room for the child both in mind and in practice (Pajulo et al., 2015).

Postnatal mentalizing or RF can be regarded as a parent's ability to understand his or her own mental states, to keep the child's mental states in mind, and to understand how these mental states impact their behavior (Ordway, Webb, Sadler, & Slade, 2015). A reflective parent is aware of one's own and the child's mental states, understands how these mental states impact behavior, and seems better equipped to regulate complex emotional experiences. The reflective parent will also understand that mental states can be ambiguous, that they can be hidden or disguised, and that they can change in valence or intensity over time (Slade, 2002, 2005). The low reflective parent, on the other hand, appears oblivious of one's own or the child's mental state. Often they will fail to step back from immediate emotional experiences to consider the underlying mental processes (Fonagy et al., 1996), or even deny (negative) emotional experiences related to parenting (Slade, 2005).

So, reflective parents have the ability to regulate and reflect on their own thoughts and emotional experiences, and are also able to also link these to their child's internal

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experiences and behavior (Slade, Grienenberger, et al., 2005). This capacity helps the parents to recognize and read their child's cues, thereby facilitating the parents in understanding the meaning and intention of their child's signals and making them see the child as a separate individual. This provides parents with a framework of how to respond when confronted with child-rearing issues (Ordway, Sadler, Dixon, & Slade, 2014).

Parental postnatal RF has been associated with parenting behavior (Grienenberger et al., 2005; Huth-Bocks, Muzik, Beeghly, Earls, & Stacks, 2014; Stacks et al., 2014). For example, mothers who are aware of their child's mental states and whose representations of the child typically involve positive elements, show more sensitivity or responsiveness during mother-child interactions (Demers, Bernier, Tarabulsy, & Provost, 2010; Grienenberger et al., 2005; Slade et al., 1999). Lower RF has been associated with more negative maternal parenting behaviors, such as negativity, controlling parenting, and intrusiveness (Slade, Grienenberger, et al., 2005; Stacks et al., 2014). So, parental RF is regarded as a vital element for adequate, responsive parenting (Fonagy et al., 2002). However, most studies on parental RF and parenting behavior have been conducted during the postnatal period and assessed parenting behavior during one task (Grienenberger et al., 2005; Pajulo et al., 2008) or used composite scores derived by averaging across the interactive tasks (Rosenblum, McDonough, Sameroff, & Muzik, 2008; Stacks et al., 2014). Parental RF may be more strongly related to adequate interactive parenting behavior during more challenging or stressful situations, as reflective parents are assumed to be better able to regulate more challenging (emotional) experiences (Slade 2002, 2005). More research is necessary to examine to what extent prenatal and postnatal RF are related to parenting behavior and whether the influence of parental RF on parenting behavior varies between contexts.

Parental reflective functioning and child socio-behavioral development

Parental RF is thought to be especially important during infancy, when the infant's communication is limited to a non-verbal level, and therefore parents interpret the infant's internal world through observation of their behavioral and affective cues. During infancy the child relies on the parent as an important source of information about the self, others, and the world. When the child is distressed, the reflective parent's empathic responses teach the infant that emotions are manageable and acceptable, which in turn serves as a vital function in organizing and regulating the infant's emotional state (Fonagy et al., 2002). In time, these mutual regulatory processes nurture the infant's capacity to self-regulate, and ultimately to embody its internal experiences and to mentalize him or herself.

Postnatal parental mentalizing has been linked to children's socio-behavioral development (Benbassat & Priel, 2012; Laranjo, Bernier, Meins, & Carlson, 2010; Sharp & Fonagy, 2008). For example, parental mentalizing has been positively related to children's ability to regulate behavior (Heron-Delaney et al., 2016; Suchman, DeCoste, Castiglioni, Legow, & Mayes, 2008; Suchman, DeCoste, & Mayes, 2009), to the quality of ToM (Laranjo et al., 2010; Meins & Fernyhough, 1999; Meins et al., 2003), and to RF-abilities in school-aged children (Ensink, Bégin, Normandin, & Fonagy, 2016) and adolescents (Benbassat & Priel, 2012). Alternatively, a lack of parental mentalizing or inadequate parental mentalizing seems to be related to less optimal child psychosocial outcomes (Sharp & Fonagy, 2008). For instance, lower levels of parental RF have been associated with more behavioral problems in children (Benbassat & Priel, 2012; Ensink et al., 2016; Ha, Sharp, & Goodyer, 2011; Meins, Centifanti, Fernyhough, & Fishburn, 2013), like conduct problems (Psychogiou, Daley, Thompson, & Sonuga-Barke, 2008; Sharp, Fonagy, & Goodyer, 2006), attention problems, and social withdrawal (Fonagy et al., 2002).

So, whereas adequate postnatal parental RF is thought to contribute to quality of behavior and emotion regulation in the child and to facilitate the child's developing RF-capacity, poor parental mentalizing is supposed to increase the risk for the development of behavioral problems. One can imagine that reflective parents operationalize their understanding of their child's mental states through parenting behaviors. Inadequate parenting behaviors (such as hostility, unresponsiveness, and ineffective parenting) have also been related to children's behavioral problems (Edwards & Hans, 2015; Feng, Shaw, & Silk, 2008; Healy, Murray, Cooper, Hughes, & Halligan, 2013; Hughes & Ensor, 2006; Keren & Tyano, 2012), so the effects of parental RF on children's behavioral problems may be mediated by parenting behavior. The foundations of the mother-infant relationship are formed prenatally and considering the fact that prenatal parental mentalizing is relatively strongly associated with postnatal mentalization (Arnott & Meins, 2007, 2008; Steele & Steele, 2008), more research on prenatal RF and its relation with later parenting behavior and children's socio-behavioral development is important.

From a clinical perspective it is also important to gain more insight in the effects of parental RF on children's socio-behavioral problems. Children growing up in families struggling with multiple complex problems, such as maternal mental illness, substance (ab)use, poverty, and single parenthood, are at risk for developing behavioral problems (Cabaj, McDonald, & Tough, 2014; Côté et al., 2006; Hay et al., 2011; Huijbregts, Séguin, Zoccolillo, Boivin, & Tremblay, 2008). These 'high-risk' families often need substantial

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support to promote good enough care for their child. Parental RF is often compromised in these high-risk, multi-problem families (Pajulo et al., 2012; Schechter et al., 2005; Suchman, DeCoste, Castiglioni, et al., 2010). In light of the association between parental mentalizing and children's socio-behavioral development, parental RF may be an interesting component for intervention programs aiming to prevent or reduce behavioral problems in children. Programs focusing on improving parental RF in high-risk parents (Sadler et al., 2013; Slade, 2007; Slade et al., 2010) do indeed appear to enhance the level of RF (Katznelson, 2014). Prevention and intervention efforts initiated early in life are presumed to be most effective (Beauchaine, Neuhaus, Brenner, & Gatzke-Kopp, 2008). Therefore, research on the effects (of training) prenatal and postnatal RF on children's behavioral problems is important.

Physical aggression

In very young children, aggression is often studied by assessing (precursors of) physical aggression. Surprisingly, many studies on the development of aggression do not provide a specific definition of the concept and there is an ongoing debate on what should be interpreted as true aggressive behavior. Where some researchers argue that by definition all acts of physical force directed against other people are expressions of aggression (Alink et al., 2006; Côté et al., 2006), others oppose that forceful acts can only be deemed aggressive if there is clear intent to harm another person (Dodge, Coie, & Lyman, 2006; Estrem, 2005). Measuring intentions is very hard at any age, but it is particularly problematic when referring to behaviors in infants and toddlers. This is due to their limited verbal and cognitive abilities, especially as the capacity to understand the consequences of one's behavior and to oversee other people's feelings does not develop fully until the end of the preschool years (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Furthermore, many aggressive behaviors driven by anger, fear or intense frustration are not intentional but rather impulsive (Tremblay, 2000, 2003). Taken together, it might not be needed for the definition of aggression to include the criterion of intent (Tremblay, 2000), especially when investigating (precursors of) physical aggression in early infancy. Therefore, in this thesis aggression will be defined as a set of physical behaviors that may cause 'physical harm' to others and/or objects (the actual 'physical harm' will most likely be limited considering the age of the participating children).

With the developing motor ability to direct force against other people, early manifestations of physical aggression are part of the behavioral repertoire of infants (Caplan, Vespo, Pedersen, & Hay, 1991; Hay et al., 2011; Hay et al., 2010). In the first year

of life, physical aggression emerges as a response to goal blockage, conflict, and restraint. While the variety of aggressive behaviors during infancy is still limited, with increasing age, infants' mobility, activity and cognitive abilities grow and provide more occasions, ways, and diverse reasons for demonstrating aggression. During particular developmental periods, the use of some physical aggression seems universal (Côté et al., 2006; Tremblay et al., 1999; Tremblay et al., 2004); however, only a minority of 6-to-8-month-olds show physical force (Hay et al., 2010; Nærde, Ogden, Janson, & Zachrisson, 2014). For example, 15% of mothers report clear signs of anger and few report biting or hitting by their 6-month-olds (Hay et al., 2010). Generally, a pattern is observed in which the use of physical aggression increases with development and reaches a peak during the 2nd year of life (Alink et al., 2006; Nærde et al., 2014), with a decline in physical aggression from age 3 years onwards (Alink et al., 2006; Tremblay et al., 2004).

Most longitudinal studies on aggression had as primary intention the identification of factors determining atypical development indicated by high-risk pathways (Broidy et al., 2003; Tremblay et al., 2004), or focused on the study of physical aggression from toddlerhood or the (pre)school period onwards, with only a few starting in infancy (for a review, see Keren & Tyano, 2012). Current evidence on both the typical and atypical development of physical aggression starting from early infancy thus lags behind. To gain more insight in the mechanisms responsible for the development and persistence of (physical) aggression, more research is needed, especially as the few studies that have focused on early infancy seem to indicate that individual differences in precursors of physical aggression can already be observed from as early as 6 months. These differences remain stable from early infancy to the third year of life (Hay et al., 2010; Hay et al., 2014), suggesting some individuals are on the trajectory to high levels of aggression as early as 6 months of age (Hay et al., 2014).

During toddlerhood a group of aggressive 'early-starter' children can be identified, who seem to fail or struggle in developing more mature regulation abilities to replace physical aggression and who continue showing the most persistent and serious forms of aggression, including antisocial behavior, later in life (Aguilar, Sroufe, Egeland, & Carlson, 2000; Moffitt, Caspi, Harrington, & Milne, 2002). When high levels of aggression are present and/or persist after toddlerhood, negative behavioral outcomes are increasingly likely (Baillargeon et al., 2007; Côté et al., 2006; Tremblay et al., 2004). With interventions aiming to reduce aggression being more effective when offered at a younger age (Hermanns, Ory, & Schrijvers, 2005), this underlines the importance of understanding how

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aggression unfolds at the earliest possible stages in order to prevent the risk of the array of socio-behavioral problems later in development and to prevent negative economic consequences, like long-lasting and expensive treatment programs.

Since parental RF seems to be associated with the development of socio-behavioral problems in children (Ha et al., 2011; Walker, Wheatcroft, & Camic, 2011), parental RF might be important in managing childhood aggression. Postnatal parental mentalizing has been inversely associated with externalizing behavioral problems in older children (Benbassat & Priel, 2012; Ensink et al., 2016; Ha et al., 2011; Meins et al., 2013). Also, more frequent maternal references to mental states have been related to lower levels of aggression in 2-year-olds (Garner & Dunsmore, 2011). However, no studies to date have examined the role of maternal RF in the development of early physical aggression. More research is essential to unravel the potential role of maternal RF in the development of (precursors of) physical aggression in early infancy.

Objectives and outline of the thesis

Violence in society is an increasing concern of policy makers and public health. It is therefore relevant to study the mechanisms that are related to the development of aggression and violence in individuals, especially factors that are malleable. The risk for developing aggressive behavior has been associated with multiple (complex interactions between) neurobiological, neurocognitive, and social-environmental factors. The present thesis will specifically focus on maternal reflective functioning and its association with (externalizing) behavior in early childhood; RF seems to be trainable and it has been linked to infant emotion regulation and socio-behavioral development. So far, studies directly linking parental RF and childhood aggression are scarce. Hence, more research on the association between prenatal and postnatal RF on the one hand and children's aggressive behavior on the other is important. Therefore, the aim of the current thesis is to investigate the effect of maternal RF on the development of (precursors of) behavioral problems, especially aggressive behavior, from infancy onwards. A further aim is to examine whether potential effects of maternal RF on child aggression can be explained by parenting behavior, particularly maternal sensitivity and intrusiveness.

The studies described in this dissertation are part of the longitudinal Mother-Infant Neurodevelopment Study (*MINDS*) – Leiden. *MINDS* – Leiden is a large ongoing study into neurobiological and neurocognitive predictors of early behavioral problems and the effects of an early intensive RF-based home visiting program for first-time high-risk

mothers and their children. Therefore, **Chapter 2** offers an overview of the background, design, and sample characteristics of *MINDS* – Leiden.

Factors that have been used to define risk status with respect to child socio-behavioral outcomes, such as substance (ab)use and psychiatric problems of parents (World Health Organization, 2005), have also been associated with reduced maternal mentalizing (Pajulo, Helenius, & Mayes, 2006; Pajulo et al., 2012; Rosenblum et al., 2008; Sadler et al., 2007; Toth, Rogosch, & Cicchetti, 2008). To date, studies predominantly investigated maternal RF in the postnatal period using either low-risk samples or clinical and/or high-risk samples without a control group (Grienenberger et al., 2005; Miller, 2008; Schechter et al., 2005; Suchman, DeCoste, Leigh, & Borelli, 2010). In order to be able to potentially enhance maternal RF in a very early stage, it is important to understand which factors determine the quality of maternal RF in general and more specifically of prenatal RF. In **Chapter 3**, we will examine whether prenatal RF differs between a group of first-time mothers-to-be from a high-risk (HR) background and a low-risk control group. Furthermore, we will determine which psychosocial and environmental risk factors in the HR-group are linked to quality of prenatal RF.

Risk factors negatively impact children's socio-behavioral development, either directly and/or indirectly, through parenting capacities and parent-child interactions (Cyr, Euser, Bakermans-Kranenburg, & Van IJzendoorn, 2010; Seng & Prinz, 2008). Quality of parental RF may be an important mechanism through which risk factors impact parenting behavior, as low parental RF has been linked to the presence of risk factors (Pajulo et al., 2006; Pajulo et al., 2012; Rosenblum et al., 2008; Sadler et al., 2007; Toth et al., 2008), and because reflective parents may operationalize the understanding of their child's mental states through their interactive behavior with the child. However, no studies to date have investigated the potential mediating role of prenatal RF in associations between risk factors and maternal interactive behavior. In **Chapter 4**, we will investigate whether prenatal RF is related to postnatal maternal interactive behavior in first-time mothers and their six-month-old infants, and to what extent quality of prenatal RF might explain the negative influence of the presence of multiple risk factors on maternal interactive behavior. Due to its essential role in providing adequate and cohesive responses to infant distress, it could be that RF is more strongly related to adequate (or positive) maternal interactive behavior during more challenging tasks. Hence, we will also examine the relation between prenatal RF and maternal interactive behavior during both non-challenging and challenging tasks.

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Considering the fact that early physical aggression increases the likelihood for a less optimal development, and that it has a negative impact on the child's family, it is vital to increase our understanding of the early manifestations and factors influencing the onset and developmental course of aggression. Particularly more knowledge about malleable factors is essential for the treatment and prevention of those unwanted behaviors. With its established value as an important concept for thinking about quality of parenting behavior and parent-child interactions (Farrow & Blissett, 2014; Grienenberger et al., 2005; Koren Karie, Oppenheim, Dolev, Sher, & Etzion-Carasso, 2002) and its links to the development of socio-behavioral problems in children (Ha et al., 2011; Walker et al., 2011), parental RF may be an interesting target in this respect. Most research to date has been conducted on the effects of postnatal RF on children's socio-behavioral development. No studies to date have examined the role of prenatal RF in the development of early physical aggression. The aim of **Chapter 5** is therefore to investigate whether maternal prenatal RF predicts the development of physical aggression in infancy and whether maternal sensitivity and/or intrusiveness mediate or moderate this association.

Parental RF has mostly been studied postnatally as an unitary construct, in which it has been linked to children's socio-behavioral development. However, there are indications that it might be more appropriate to regard parental RF as a multidimensional construct. A more detailed understanding of the components of both prenatal and postnatal parental RF and their potentially differential implications for early behavioral development may enhance the efficacy of prevention and intervention programs aiming at reducing children's behavioral problems by focusing on improvement of specific aspects of parental RF. In **Chapter 6**, we will investigate maternal prenatal and postnatal RF as multi-dimensional constructs, and whether the dimensions of RF are differentially associated with children's temperament and externalizing behavior 20 months post-partum.

Finally, in **Chapter 7** the results of the previous mentioned studies will be integrated and discussed. Scientific and clinical implications and recommendations for future research will be provided.

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