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Coparenting and Child Anxiety

Marijke Metz

Coparenting and Child Anxiety | Marijke Metz



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Coparenting and Child Anxiety

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CHAPTER

General Introduction

1

Parents and parenting are the focus of many studies, and effects of parenting on child development have been demonstrated repeatedly (McLeod, Wood, & Weisz, 2007; Möller, Nikolić, Majdandžić, & Bögels, 2016; Van der Bruggen, Stams, & Bögels, 2008). However, the investigation of mothers' and fathers' individual parenting behaviors overlooks a crucial aspect in parenting: the cooperation between the individuals who are raising a child together (Feinberg, 2003; Majdandžić, de Vente, Feinberg, Aktar, & Bögels, 2012). This parental cooperation is called coparenting. The cover of this thesis shows an animal that is often thought of as a prime example of high quality parental cooperation: the penguin. Male and female penguins share the brooding of the egg, because the egg has to be kept warm at all times in an environment that can become as cold as minus 60°C. The brooding penguin is unable to eat during brooding, so male and female need to take turns. The penguin that is not brooding gets a chance to spend a few days (or even weeks) in the sea to eat (Cherel, Stahl, & Le Maho, 1987). Thus, sharing the brooding task enables penguins to make sure the (unborn) chick and both parents survive the brooding period. Also for humans, sharing the parenting burden may have several advantages for the parents and for the child. The benefits of a positive coparenting relationship on child development and the influences family characteristics have on coparenting are the focus of this dissertation.

Coparenting is a construct that is central to family systems theory, in which the family is perceived as consisting of several subsystems: the mother-father system, the mother-child system, the father-child system, and the mother-father-child system (Minuchin, 1974). This last subsystem comprises the coparenting relationship. Coparenting has been defined in several ways, among others as “the supportive alliance between adults raising children” (McHale, 1997, p. 183), “the quality of coordination between adults in their parental roles” (Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007, p. 83), and “the ways that parents and/or parental figures relate to each other in the role of parent” (Feinberg, 2003, p. 96). The definition by Feinberg (2003) has been leading in the current thesis, encompassing both the positive and negative aspects of the coparenting relationship. Coparenting explicitly concerns the relationship between two individuals who are raising a child together (next to the child's parents, this could be grandparents, aunts, or neighbors; note that in the current thesis, I only studied coparenting relationships between the biological mother and father who are parenting the child together). In addition, coparenting does not include the romantic relationship, even though the coparenting construct is integrally linked to the romantic relationship (Kitzmann, 2002). It is important to note that coparenting differs from the individual parenting role, as it entails the quality of the cooperation in parenting tasks between multiple individuals. Also, coparenting explicitly includes the presence of the child, because the child is at the center of every coparenting interaction; however, this does not mean that the child has to be physically present in coparenting interaction. The child can be at the center of the interaction by being physically present in the interaction, but a child-related issue in the absence of the child can also be the topic of the interaction. Thus,

coparenting involves the way two parental figures cooperate in parenting, which makes this construct different from parenting (because coparenting involves both parents) and from the romantic couple relationship (because coparenting involves the child and the two partners in their parental roles).

Research interest in coparenting has been growing since researchers in the 1980's pointed out the importance of studying this construct. The first mentioning of the coparenting construct goes back to family systems theory, in which Minuchin (1974; 1985) denoted coparenting as the executive family subsystem. This executive subsystem is a determining force in the management of family interactions and family outcomes (Minuchin, 1974; 1985). Also, Cohen and Weiss (1985) stated that "coparenting is the centre about which family process evolves" (Weissman and Cohen 1985, p. 24).", because coparenting interactions contribute to parental self-esteem and the way they manage parenting stress. Feinberg (2003) argues that through these processes, coparenting interactions influence family dynamics and family outcomes.

Feinberg (2003) was the first to provide a comprehensive framework for understanding coparenting and its links with parenting and child adjustment. Feinberg (2003) argues that both marital relationship quality and the parent-child relationship have been extensively studied, but that these two lines of research never have come together. He proposes coparenting as a construct that bridges the two distinct domains of the parent-parent relationship and the parent-child relationship; thus, the coparenting construct is a step forward in studying how family dynamics influence child adjustment. In his framework, Feinberg (2003) distinguishes four components that together make up coparenting: (dis) agreement on childrearing issues, division of (child-related) labor, joint management of family interactions, and support and undermining of the other parent's coparental role. Most studies on coparenting focus on support and undermining and study these constructs separately (e.g., Belsky, Woodworth, & Crnic, 1996; Gordon & Feldman, 2008). In line with these studies, I mainly focus on supportive coparenting and undermining coparenting as measures of coparenting behavior. Supportive coparenting is defined as the "affirmation of the other's competency as a parent, acknowledging and respecting the other's contributions, and upholding the other's parenting decisions and authority" (p. 104, Feinberg, 2003; Belsky et al., 1996; McHale, 1995; Weissman & Cohen, 1985). Undermining coparenting is defined as parental undermining of the other parent through criticism, disparagement, and blame (Belsky et al., 1996; McHale, 1995; Feinberg, 2003). These two behaviors also capture aspects of the other three constructs Feinberg distinguished, such as parents' feelings towards their partner about the way childrearing issues are handled, whether parents agree with the division of labor, and whether joint family management is smooth versus conflictual.

Coparenting and Family Member Anxiety

Coparenting has been found to be linked to externalizing and internalizing problems (Teubert & Pinquart, 2010). More specifically, researchers have called attention to the role coparenting may play in the development of anxiety (Majdandžić et al., 2012). Anxiety disorders run in families (Hettema, Neale, & Kendler, 2001), which means that anxious children are at an increased risk to have anxious parents, and anxious parents are at an increased risk to have an anxious child. The aggregation of anxiety within families may play an important role in the way family dynamics, including coparenting, are shaped and, therefore, coparenting and family member anxiety may be intertwined.

Anxiety disorders are the most common psychological problem in childhood, affecting approximately 15% - 20% of children during a given time in childhood or adolescence (Beesdo, Knappe, & Pine, 2009; Costello, Egger, & Angold, 2005). Child anxiety poses a risk for the development of more anxiety problems later in life, psychopathology other than anxiety such as conduct disorder and depression, drug abuse and poorer educational outcomes (Beesdo-Baum & Knappe, 2012; Bittner, Egger, Erkanli, Costello, Foley, & Angold, 2007; Woodward & Fergusson, 2001). It is uncommon to diagnose anxiety disorders in early childhood, because it is not possible to identify whether young children's fears are persistent, excessive and impair functioning (American Psychiatric Association, 2013). Therefore, in research on infancy and early childhood, children's temperament is usually studied as a precursor of anxiety. The broad temperamental dimension of negative affectivity, and fearful temperament specifically, have been identified as risk factors for the development of child anxiety (Hudson, Dodd, & Bovopoulos, 2011; Dougherty et al., 2013; Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Negative affectivity is defined as a proneness to the experience of negative emotions, and is often denoted difficult temperament (e.g., Watson & Clark, 1984). Fearful temperament is a component of negative affectivity and is used to describe children who tend to show inhibition, fear and distress in response to new objects, situations, and people (Fox et al., 2005). Hence, the current thesis focuses on child temperament as well as on child anxiety.

In anxiety research, a family systems view is mostly lacking (Majdandžić et al., 2012). To take into account the interconnectedness between family members' anxiety and family interactions, Majdandžić and colleagues (2012) proposed coparenting as a way to incorporate the family system into anxiety research. The emphasis of parents' individual influences on the development of child anxiety "ignores the potential importance of the family system as an organized whole in anxiety development" (Majdandžić et al., 2012, p. 29). In a theoretical model, Majdandžić and colleagues (2012) discussed the bidirectional associations between coparenting and family member anxiety.

Model of bidirectional associations between coparenting and family member anxiety

The model of Majdandžić and colleagues (2012) is based on Feinberg's ecological model (2003) and on their own literature review on the associations between family member anxiety and coparenting. This model is shown in Figure 1. In the model of Majdandžić and colleagues, the associations between child anxiety and coparenting are included, as well as associations between child anxiety and parenting, and coparenting and parenting; in this thesis, I focused only on coparenting behaviors, and not on parenting behaviors. The model describes two important bidirectional effects: the effects from parental anxiety to coparenting and vice versa, and the effects from child anxiety to coparenting and vice versa.

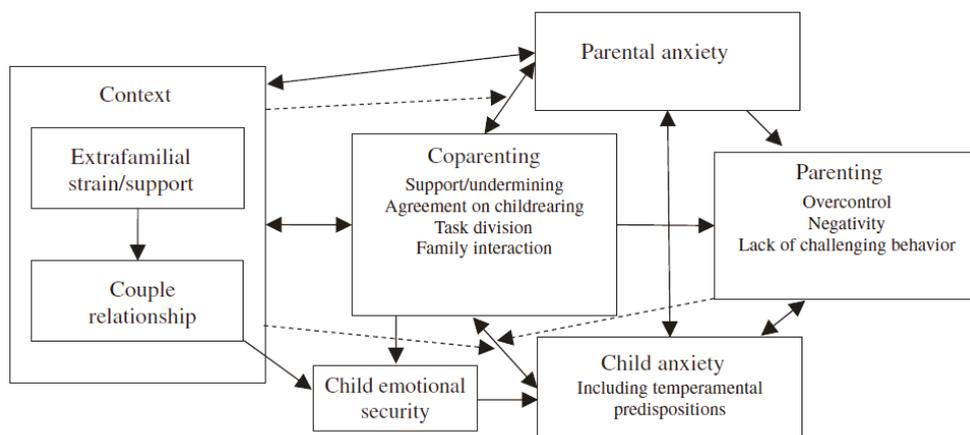


Figure 1: The model by Majdandžić et al. (2012) of bidirectional associations between child anxiety, coparenting, and parenting.

Bidirectional associations between parental anxiety and coparenting

In discussing possible ways through which parental anxiety could affect the coparenting relationship, Majdandžić and colleagues (2012) emphasize the interaction between the anxious and the non-anxious partner. No empirical studies have previously addressed the specific association from coparenting to parental anxiety, but Majdandžić and colleagues (2012) do hypothesize that coparenting can influence parental anxiety. Parents' traits can change in the light of a developing coparenting relationship (McHale, Kuersten-Hogan, & Rao, 2004b); thus, parental anxiety may change due to the quality of the coparenting interactions. For example, a more supportive coparenting relationship may cause an anxious parent to feel more supported by their environment, leading to a decrease in anxiety.

With regard to the associations from parental anxiety to coparenting, Majdandžić and colleagues (2012) proposed several mechanisms through which coparenting and parental anxiety could be related. Anxious parents may be worried about their partner's challenging

or autonomy encouraging parenting practices, as the anxious parent may perceive this as risky or lax parenting. This may lead to disagreement between partners on how to parent, causing less supportive and more undermining coparenting between parents. Anxious parents may also withdraw from coparenting, which decreases supportive coparenting interactions.

The non-anxious parent's behaviors can affect the coparenting interactions with the anxious parent in a positive or a negative way. A non-anxious parent who acknowledges the anxiety of their partner and takes this anxiety into account in their parenting and communication to their partner can foster a supportive coparenting relationship. Also, parents may be able to divide childrearing in such a way that both the anxious and the non-anxious parent can take on those tasks that suit them, thereby avoiding anxious feelings and increasing supportive coparenting interactions. In contrast, the non-anxious parent can oppose their partner's worries and anxieties, thereby undermining the partner.

Stress may be another mechanism through which parental anxiety influences the coparenting relationship. Stressful coparenting situations can induce a fight, flight, or freeze response in anxious parents, because these situations may be perceived as threat (Siegel & Hartzell, 2004). These automatic responses to threat, which happen through the so-called fast route in the brain that acts in interaction with high adrenaline levels, can increase the risk for conflict and undermining coparenting, because it creates a fast and automatic judgment of the situation (Bögels & Restifo, 2010). As anxious individuals experience more stress than non-anxious individuals, anxious parents may be at an increased risk to experience more undermining and less supportive coparenting interactions due to their automatic responses to stressful situations.

Empirical studies on the associations between parental anxiety and coparenting are scarce. Depression, a constructed highly comorbid with anxiety (Moffitt et al., 2007), as reported by fathers has been found to be related to less perceived supportive coparenting behaviors from the partner (Isacco, Garfield & Rogers, 2010). Also, fathers' self-reported negative emotionality (a construct similar to anxiety, as it involves parents' fear, anger, and anxiety; Krueger, Caspi, Moffitt, Silva, & McGee, 1996) is related to higher observed undermining coparenting, but only when parents rate their child as having a difficult temperament (Laxman et al., 2013). Interestingly, mothers' higher levels of self-reported negative emotionality are related to lower levels of observed undermining. One study found that higher levels of self-reported parental anxiety related to lower levels of self-reported coparenting quality, for fathers and mothers (Delvecchio, Sciandra, Finos, Mazzeschi, & Di Riso, 2015). Thus, it is hypothesized that parental anxiety is related to coparenting, and also that these associations may differ for fathers and mothers.

Bidirectional associations between child anxiety and coparenting

Children's (predisposition to) anxiety is hypothesized to relate to lower levels of supportive coparenting and higher levels of undermining coparenting (Feinberg, 2003). Children with a highly negative temperament may demand more coparenting efforts than children with an easy temperament, because it is more difficult to soothe them (Feinberg, 2003). These challenges in parenting may lead to more discussions between parents about their parenting strategies, which provide more opportunities for coparental undermining. In addition, difficult child temperament is suggested to increase general stress levels in the family, which may lead to father's withdrawal from coparenting interactions, increases in conflict, and the formation of coalitions within the family (Feinberg, 2003). These behaviors all relate to poorer child outcomes and lower coparenting quality (e.g., Jacobvitz & Bush, 1996; Kerig, 1995; Kitzmann, 200; Wang & Crane, 2001).

On the other hand, children with a highly negative temperament may also positively affect the coparenting relationship: the increased contact between parents as a consequence of frequent parenting challenges may pull coparents together (Crockenberg & Leerkes, 2003). Several studies have found that children's negative affectivity indeed relates to higher supportive coparenting and lower undermining coparenting (Berkman, Alberts, Carleton, & McHale, 2002). It has been hypothesized that especially parents who are psychologically prepared to become parents experience positive effects from having a difficult child; however, parents who are unprepared to become parents may experience negative effects from having a difficult child (Crockenberg & Leerkes, 2003). Thus the associations between child anxiety and coparenting may be influenced (i.e., moderated) by characteristics of the parents.

With regard to the influence of coparenting on child anxiety, it has been hypothesized that undermining coparenting interactions may lead to children's perceptions of their family environment as insecure, hostile, or threatening (Davies et al., 2006). The exposure to an unsafe environment over longer periods of time may induce anxiety in the child (Majdandžić et al., 2012). Undermining coparenting can also result in the withdrawal of one parent from the family triad, thereby leading to dysfunctional coalitions within the family or triangulation (engaging a child in interparental conflict), which may induce stress and anxiety in the child (Majdandžić et al., 2012). Generally, empirical results are in line with the hypothesis that more undermining coparenting relates to more internalizing problems and higher negative affectivity (Cook, Schoppe-Sullivan, Buckley, & Davis, 2009; Katz & Low, 2004; McHale & Rasmussen, 1998). Similarly, more supportive coparenting relates to less internalizing problems and lower negative affectivity (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Gordon & Feldman, 2005; Laxman et al., 2013; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007; Van Egeren, 2004).

Some researchers have suggested that undermining coparenting interactions may lead to *positive* child outcomes. Based on their finding that highly fearful 10-month-olds became

less fearful at 3 years if parents were observed to be highly undermining at 3 years, Belsky, Putnam and Crnic (1996) suggested that the exposure to moderate levels of coparental conflict may toughen up children who are prone to develop child anxiety (Belsky et al., 1996; Park et al., 1997). An example to explain this process would be the following situation, as described by Belsky and colleagues (1996): when a child falls, the mother may comfort the child, whereas the father expresses that the mother is spoiling the child and tells it to stop crying (i.e., an undermining coparenting interaction). From events like these, children may learn that their behavior leads to conflict between their parents, leading the child to attempt to become tougher in order to reduce such instances of conflict.

Differences between the roles of fathers and mothers

In their literature review on coparenting and anxiety, Majdandžić and colleagues (2012) found that parent gender may play a role in the associations between family member anxiety and coparenting. With regard to the association from child anxiety to coparenting, the authors conclude from the literature that it is especially fathers' coparenting that is related to the child's characteristics, rather than mothers' coparenting. Fathers' parenting behaviors have been hypothesized to be especially important in the development of child anxiety (Bögels & Phares, 2008). This is based on the idea that fathers tend to focus on preparing children to interact with the world outside the family (Paquette, 2004), which may be especially important in the development of child anxiety (Bögels & Perotti, 2011). Mothers are hypothesized to focus more on the internal and caring world inside the family (Paquette, 2004). If fathers' parenting tasks are specifically aimed at preparing their child for the outside world, it is reasonable to assume that family member anxiety may have different effects on mothers' coparenting than on fathers' coparenting. Anxiety influences how people interact with the outside world; therefore, anxiety in children and in fathers would pose a greater risk for fathers' coparenting tasks, whereas anxiety in children and in mothers does not pose the same risk for mothers' coparenting tasks (Majdandžić et al., 2012). Thus, fathers' coparenting may be influenced more strongly by the fathers' own and the child's anxiety than mothers' coparenting is influenced by her own or the child's anxiety.

Next to the specific relations between fathers' coparenting and anxiety and the child's anxiety, anxious children may evoke protective behaviors from the mother which are related to the maternal task of caring, such as maternal gatekeeping. Maternal gatekeeping is defined as maternal behaviors that inhibit a collaborative effort between men and women in family work (Allen & Hawkins, 1999). These kinds of protective behaviors may in turn increase conflict between the father and the mother, withdrawal of the father and dysfunctional family coalitions (Cannon, Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2008; Dienhart, 2001; Mendez, Loker, Fefer, Wolgemuth, & Mann, 2015). Hence, the different roles of fathers and mothers in parenting may result in differences between fathers and mothers in the associations between family member anxiety and coparenting.

Several studies have established that mothers' and fathers' coparenting relate differently to infant negative affectivity. Especially fathers' coparenting behavior is related to negative affectivity in 5- to 15-month-olds, whereas mothers' coparenting did not relate to infant negative affectivity (Gordon & Feldman, 2008; Lindsey et al., 2005; Van Egeren, 2004). In addition, in a study on the longitudinal associations between negative affectivity and coparenting, more child negative affectivity at 13 months only related to more undermining coparenting at 30 months when fathers were high on negative emotionality (Laxman et al., 2013). Thus, empirical research supports the hypothesis that especially fathers' coparenting behaviors relate to fathers' anxiety and to child anxiety.

Coparenting, Moderation and Mediation

The discussed bidirectional associations all concern direct associations between coparenting and family member anxiety. However, coparenting may not only be directly related to family outcomes, but also indirectly through moderation (Feinberg, 2003; Majdandžić et al., 2012). In addition, coparenting could serve as a mediator in child development (Feinberg, 2003; Teubert & Pinquart, 2010). Feinberg (2003) adds that the importance of a construct is not only demonstrated through the direct effects a behavior has on an outcome, but also by the extent to which a behavior influences associations and is influenced by other factors. In other words, if coparenting is a construct sensitive to changes in specific family factors, this means that coparenting is malleable and may therefore be an effective target in treatment.

According to Feinberg “there are two moderating questions regarding coparenting: Does coparenting moderate the relations between risk factors and family outcomes [...]? And, second, what factors affect the influence of coparenting on parenting and child adjustment?” (2003, p. 115). Thus, it is important to note that coparenting might itself serve as a moderator, but associations between coparenting and family outcomes might also be moderated by other factors. Several studies have demonstrated such moderating effects of coparenting (Altenburger, Lang, Schoppe-Sullivan, Dush, & Johnson, 2015; Kolak & Volling, 2013), and moderation by other factors on coparenting relations (Laxman, 2010; Laxman et al., 2013; McHale, 1995). The hypothesis that family factors moderate the associations between coparenting and child anxiety is in line with the transactional model of Crockenberg and Leerkes (2003), which, as discussed above, posits that some parents may be more ready to become parents and may therefore be less vulnerable to the negative effects of having a highly negative infant.

With regard to anxiety and coparenting, Majdandžić and colleagues (2012) suggested that coparenting may moderate the associations between parenting and child anxiety. For example, overprotective parenting may relate to child anxiety only when parents are undermining in their coparenting, whereas overprotective parenting may not relate to child anxiety when parents are supportive in their coparenting. Majdandžić and colleagues (2012) also noted that relationship satisfaction, parents' age, family of origin, and financial strain

are factors that may moderate the associations between coparenting and family outcomes. Remarkably, parental anxiety is not included as a moderator in the model of Majdandžić and colleagues (2012). However, as described above, parental psychopathology may make parents more sensitive to their child's temperament, and highly anxious parents' coparenting may thus be more vulnerable to infant's negative temperament compared to coparenting of low anxious parents. Therefore, in the current dissertation, I investigated parental anxiety as a possible moderator in the associations between coparenting and child anxiety.

Next to the role of parents' gender and parents' anxiety as moderators, I also investigated the moderating role of relationship satisfaction. Previous research has demonstrated that relationship satisfaction is closely related to coparenting behaviors (Lindahl, Clements, & Markman, 1997; Kitzman, 2000; Schoppe-Sullivan et al., 2004) as well as to child functioning (McHale et al., 2004). Research demonstrated that only for couples with low prenatal relationship satisfaction, more parent-reported infant negative affectivity at 3 months was related to more observed undermining and less supportive coparenting, while for couples with high prenatal relationship satisfaction, more parent-reported infant negative affectivity was related to more support and less undermining (McHale et al., 2004; Schoppe-Sullivan et al., 2007). Hence, these studies illustrate that having a high relationship satisfaction before child birth may be a meaningful moderator in the relations between infant negative affectivity and coparenting. These findings are in line with the idea that couples with high relationship satisfaction pull together in the event of a negative infant, whereas couples with a low relationship satisfaction drift apart (Crockenberg & Leerkes, 2003). This thesis aimed to replicate and extend the findings of relationship satisfaction as a moderator.

Besides the discussed moderators of the association between coparenting and child outcomes, coparenting itself may serve as a moderator (Feinberg, 2003; Majdandžić et al., 2012). Several studies demonstrated that high levels of supportive coparenting protected infants with low effortful and high levels of negative affectivity from demonstrating dysregulated and externalizing problems later in life (Altenburger et al., 2015; Kolak & Volling, 2013; Schoppe-Sullivan et al., 2009). Up until now, the moderating role of coparenting in the association from infants' temperamental characteristics to later child anxiety has not been investigated; therefore, I aimed to study the moderating role of coparenting in child development.

Next to the moderating role of coparenting, it may also be the case that coparenting serves as a mediator in the development of child anxiety (Feinberg, 2003; Teubert & Pinquart, 2010). Thus, the development from a fearful infant to an anxious child may occur *through* coparenting. Several studies found that coparenting mediated the associations between marital conflict and parenting behavior (Bonds & Gondoli, 2007; Floyd, Gilliom, & Costigan, 1998; Margolin, Gordis, & John, 2001; Pedro, Ribeiro, & Shelton, 2012; Sturge-Apple, Davies, & Cummings, 2006). With regard to child anxiety, it was found

that if parents displayed high levels of marital violence and were undermining in their coparenting, children were at an increased risk to display anxious symptomatology. One study investigated the role of parental anxiety through coparenting on family maladjustment, and these authors found that when parents are highly anxious and they display undermining coparenting, families had lower scores on family functioning (Delvecchio et al., 2015). Thus, family characteristics may affect child and family outcomes through coparenting.

OUTLINE OF THIS DISSERTATION

The associations that I tested are graphically represented in Figure 2. This model is based on the model of Majdandžić and colleagues (2012) and focuses on coparenting as a central construct in family member anxiety. I investigated the associations between child temperamental predispositions of anxiety (i.e., fearful temperament and negative affectivity) and coparenting, and the associations between coparenting and child anxiety. I also investigated the moderating role of two prenatal parental characteristics, namely relationship quality and parental anxiety. In addition, I investigated the moderating and mediating roles of coparenting in anxiety development. In the next four chapters, I investigated different parts of this model. Chapter 2 investigates the bidirectional associations between coparenting and precursors of child anxiety and the moderating role of parental anxiety in these associations; chapter 3 investigates the moderating role of parental anxiety in the associations between infant fearful temperament, coparenting and child anxiety; Chapter 4 investigates the role of simultaneous coparenting behaviors of fathers and mothers as a moderator of the stability of anxiety from infancy to toddlerhood; Chapter 5 investigates the role of relationship satisfaction in the longitudinal associations between precursors of child anxiety and coparenting.

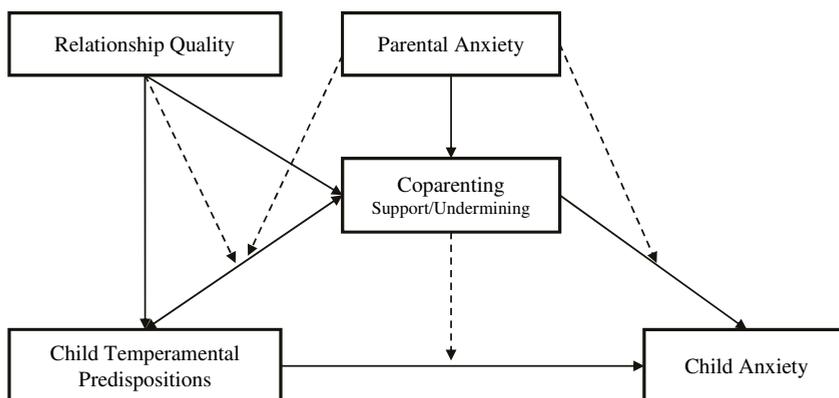


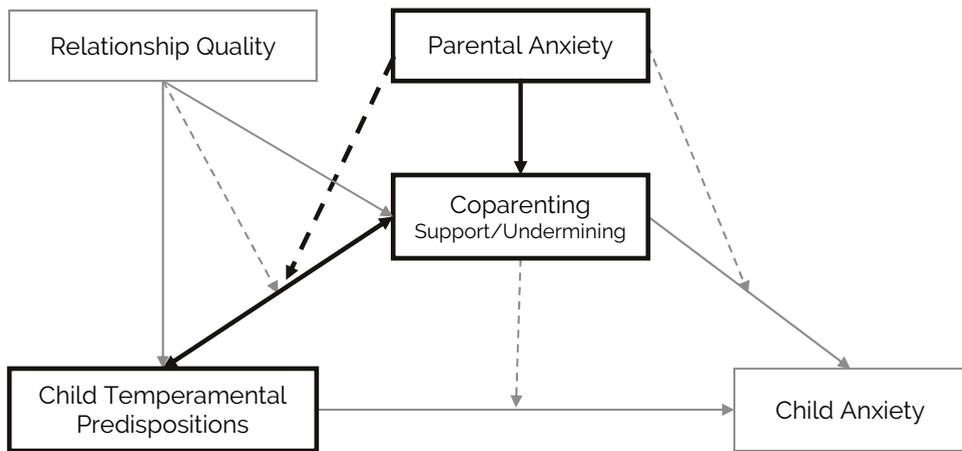
Figure 2: Graphical representation of the associations tested in this thesis (adjustment of the model by Majdandžić et al., 2012). Dashed lines represent moderation effects.

In chapter 2, I test the hypothesis that associations between child fearful temperament and coparenting are bidirectional, using parents' self-reports of their coparenting and parent-reports about children's fearful temperament when children were 4 months, 1 year, and 2.5 years old ($N = 135$). In addition, I investigate whether fathers' and mothers' anxiety disorder severity (based on a clinical interview) influence their coparenting and whether fathers' and mothers' anxiety disorder severity moderates the relations between coparenting and child fearful temperament. The longitudinal design enables me to test concurrent models (in which predictor and outcome occur at the same moment in time) as well as lagged models (in which the predictor is measured at an earlier moment than the outcome). This methodology makes it possible to investigate the direction of effects between child fearful temperament and coparenting.

Chapter 3 presents a study on the role of parental anxiety disorder severity in the associations between observations of child fearful temperament at 1 year and observed coparenting at 2.5 years, and in the associations from coparenting at 2.5 years to parent-reported child anxiety symptoms at 4.5 years ($N = 151$). Coparenting was observed using a global measure of supportive and undermining coparenting behaviors in the triad. Child fearful temperament was observed using several tasks in which children responded to novel stimuli. I aim to investigate whether the associations between child fearful temperament, coparenting, and child anxiety differ between families with high and low-anxious parents. Also, I investigate coparenting as a mediator in the relation from infant fearful temperament to child anxiety.

In chapter 4, I present a study on the role of simultaneity in coparenting behaviors between fathers and mothers in the continuity from parent-reported infant negative affectivity at 4 months to parent-reported child anxiety symptoms at 2.5 years ($N = 116$). I observed coparenting behaviors on a micro-level and coded fathers' and mothers' coparenting behaviors separately. Parents could perform coparenting behaviors simultaneously (i.e., both parents display the same coparenting behavior at the same time), or divergently (i.e., only mother displayed a certain coparenting behavior while father was neutral, or only father displayed a certain coparenting behavior while mother was neutral). These measures of simultaneity made it possible to investigate the role of the co-occurrence of coparenting behaviors in the prediction of child anxiety.

Chapter 5 presents a replication and extension of previous research on the role of prenatal romantic relationship satisfaction in the association between coparenting behaviors and child negative affectivity from 4 months to 4.5 years ($N = 151$). Previous research demonstrated that only in couples with low prenatal relationship satisfaction, more negative affectivity in infancy related to less supportive coparenting; on the other hand, in couples with high prenatal relationship satisfaction, more negative affectivity in 3- to 4-month-olds related to higher levels of supportive coparenting (McHale et al., 2004; Schoppe-Sullivan et al., 2007). I aimed to replicate these results and to extend the study by separately investigating mothers' and fathers' behaviors, and by extending the developmental period from infancy to early childhood.



Graphical representation of the associations tested in this thesis (adjustment of the model by Majdandžić et al., 2012). Dashed lines represent moderation effects. Lines in black are the effects that are tested in Chapter 2. Lines in grey are tested in other chapters.

CHAPTER

2

Concurrent and Predictive Associations Between Infants' and Toddlers' Fearful Temperament, Coparenting, and Parental Anxiety Disorders

This chapter is based on:
Metz, M, Majdandžić, M., & Bögels, S. M. (2016). Concurrent
and Predictive Associations Between Infants' and Toddlers'
Fearful Temperament, Coparenting, and Parental Anxiety
Disorders. *Journal of Clinical Child and Adolescent
Psychology*, 1-12.

ABSTRACT

Objective

This study investigated the bidirectional relations between two dimensions of coparenting (the way parental figures cooperate in parenting), undermining and support, and child fearful temperament longitudinally from infancy to toddlerhood, while inspecting the moderating role of parents' anxiety disorders.

Method

Questionnaire data on coparenting and child fearful temperament were obtained from 135 mothers, fathers and their firstborns at 4 months, 12 months, and 30 months. Parental anxiety disorder severity was assessed with a semi-structured interview before the birth of the child.

Results

Multilevel analysis revealed that, across measurement moments, undermining coparenting, but not supportive coparenting, was concurrently related to higher child fearful temperament. Parental anxiety disorder severity was related to more undermining coparenting, but not to supportive coparenting. No moderation effects for parental anxiety disorder or for parent gender were found in the relations between coparenting and child fearful temperament.

Conclusions

We conclude that more parental anxiety is related to a lower quality of the coparenting relationship, which in turn is associated to more child fearful temperament. More specifically, it appears that undermining coparenting, and not supportive coparenting, is related to child fearful temperament and parental anxiety disorder severity. Our results suggest that undermining coparenting, by both father and mother, is one of the mechanisms that may contribute to the intergenerational transmission of anxiety from parent to child. The coparenting relationship may be a useful target in the prevention and treatment of child anxiety.

INTRODUCTION

In developmental psychology, families are defined as interdependent systems (Minuchin, 1985), implying that the study of development should focus on the family system rather than on the dyadic relations within this system (mother – child, father – child, mother – father). Given that anxiety disorders are by far the most prevalent mental disorders, with an estimated one-year prevalence of 14% (Hettinga, Neale, & Kendler, 2001; Wittchen et al., 2011), and generally have their onset in childhood (American Psychiatric Association, 2013; Beesdo-Baum & Knappe, 2012), it is surprising that research on the development of childhood anxiety generally lacks a family systems perspective (Majdandžić, de Vente, Feinberg, Aktar, & Bögels, 2012). Based on Feinberg's (2003) ecological model of coparenting, Majdandžić et al. (2012) proposed the construct of coparenting as a way to introduce a systemic approach to the study of anxiety.

Generally, coparenting is defined as “the ways that parents and/or parental figures relate to each other in the role of parent” (Feinberg, 2003, p. 96), thus entailing the triadic mother-father-child system. Coparenting is usually described in terms of supportive and undermining coparenting. Supportive coparenting refers to the “affirmation of the other's competency as a parent, acknowledging and respecting the other's contributions, and upholding the other's parenting decisions and authority” (Feinberg, 2003, p. 104). Undermining coparenting refers to parental undermining of the other parent through criticism, disparagement, and blame (Belsky, Woodworth, & Crnic, 1996; McHale, 1995; Feinberg, 2003).

In their model, Majdandžić et al. (2012) propose several bidirectional associations between coparenting and child anxiety. The authors suggest that anxiety in the child may lead to more coparental conflict (i.e., undermining). In turn, undermining coparenting creates an emotionally unsafe environment which could lead to more anxiety in the child. Similarly, a supportive coparenting environment can serve as a protective factor against child anxiety. These dynamics can result in a vicious cycle where more child anxiety relates to more undermining and less support, which is again related to more anxiety in the child. Thus, coparenting and child anxiety are thought to bidirectionally influence each other.

Research shows that a fearful temperament in infants and young children is a risk factor for the development of anxiety in later childhood (Fox, Henderson, Marshall, Nichols & Ghera, 2005). Children with a fearful temperament tend to show inhibition, fear and distress in response to new objects, situations, and people. To unravel the development of childhood anxiety, it is relevant to explore the development of its precursors, such as a fearful temperament (Hudson, Dodd & Bovopoulos, 2011; Dougherty et al., 2013). The relations between coparenting and child fearful temperament specifically have not yet been studied, therefore, we here discuss studies including the broader concepts of child negative affect, as well as difficult temperament (i.e., irritable, distress-prone and unadaptable) and similar constructs. Negative affect and difficult temperament have been identified as risk factors for later anxiety (Fox et al., 2005).

In infancy, concurrent relations between coparenting and child temperament have been found for both supportive and undermining coparenting. Gordon and Feldman (2008) found negative relations between fathers' coparenting mutuality (a parent's active support of the partner's interactive efforts with the child) and parent reports of difficult temperament at 5 months. Others have found negative trends between observed supportive coparenting in the family triad and unadaptability and fussiness at 3.5 months (Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). Using self-reports of perceived support from the other parent, Van Egeren (2004) found that fathers reported better coparenting experiences when infants were perceived to have an easier temperament in 1- to 6-month-olds. Also, more observed paternal intrusiveness (which is part of undermining coparenting) has been related to more difficult temperament in 13-month-olds (Lindsey, Caldera, & Colwell, 2005). Thus, correlational studies provide evidence for a negative relation between difficult temperamental child characteristics and the quality of the coparenting relationship. In addition, the results from concurrent studies indicate that it is especially fathers' coparenting that is related to child difficult temperament, in such a way that fathers' supportive coparenting and coparenting mutuality are related to lower levels of difficult child temperament (Gordon & Feldman, 2005; Van Egeren, 2004) and that fathers' intrusive coparenting is related to more difficult child temperament (Lindsey, Caldera, & Colwell, 2005).

In addition to concurrent research, longitudinal studies have also established relations between difficult child temperament and coparenting. Using observations of the whole family, predictive relations from difficult child temperament to less subsequent supportive coparenting were found from 3.5 months to 13 months (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009) and from 13 months to 3 years (Laxman et al., 2013). Davis et al. (2009) found these effects also in the reversed direction, such that more supportive coparenting at 3.5 months predicted less difficult child temperament at 13 months. Whereas Davis et al. (2009) found no longitudinal associations between child difficult temperament and undermining in the triad, Laxman et al. (2013) did find longitudinal associations from more difficult child temperament at 13 months to more undermining at 30 months. Interestingly, an interaction was found where more difficult child temperament at 13 months only related to more undermining at 30 months when fathers had a high score on negative emotionality. Using self-report data, Solmeyer and Feinberg (2011) found no relations between fathers' and mothers' ratings of child difficult temperament at 4–8 months and their self-reported supportive or undermining coparenting towards their partner at 13 months.

In conclusion, concurrent research between coparenting and child temperament shows that supportive as well as undermining coparenting are related to child difficult temperament. Some differences between mothers and fathers were found, but results are not replicated in all studies and the direction of these differences is unclear. In longitudinal research, significant relations have been found between supportive as well as undermining coparenting and child

difficult temperament. In longitudinal studies, father-mother differences were only assessed by Solmeyer and Feinberg (2011) and these authors did not find differences between fathers and mothers in the relations between child temperament and coparenting.

A relevant approach to the associations that have been found between child fearful temperament and coparenting quality is the model by Crockenberg and Leerkes (2003). This model proposes that for unprepared parents (e.g., parents with low income or psychopathology), child negative affectivity is related to poor family outcomes (such as low quality of the marital relations or the coparenting relationship); however, if families are well-prepared for their roles as parents, a child with negative affectivity can draw families together, resulting in positive family outcomes. The model suggests that parental psychopathology moderates the relationship between child negative temperamental characteristics and coparenting outcomes. Given our focus on child fearful temperament as a precursor of child anxiety and the fact that anxiety aggregates in families (Hettema, Neale, & Kendler, 2001), we here focus on the moderating role of parental anxiety in the relations between coparenting and child fearful temperament. In their review, Majdandžić et al. (2012) also propose that couples in which a member has an anxiety disorder might show different coparenting interactions than couples without an anxious parent. That is, parental anxiety disorders can interfere with positive coparenting due to concerns and overprotective behavior of the anxious parent, which may lead to heightened conflict. However, it can also be that parents with an anxiety disorder are more supportive of their partner's parenting due to their own insecurity (Majdandžić et al., 2012).

In line with the models of Crockenberg and Leerkes (2003) and Majdandžić et al. (2012), previous studies found relationships between lower coparenting quality and the presence of parental negativity (Belsky, Crnic, & Gable, 1995) as well as depression (Isacco, Garfield & Rogers, 2010). The only study examining a construct that is related to anxiety was done by Laxman et al. (2013). These authors found that fathers' negative emotionality (a construct involving the experiences of fear, anger, and anxiety; Krueger, Caspi, Moffitt, Silva, & McGee, 1996) was related to higher scores on observed undermining coparenting in the triad, but only when parents rated their child as having a difficult temperament. Interestingly, mothers' higher levels of negative emotionality were related to lower levels of observed undermining.

In the current study, the coparenting construct was investigated in relation to child fearful temperament from infancy to toddlerhood. By focusing on the developmental period from infancy to toddlerhood, we extend the current knowledge by bridging the developmental period from early infancy to toddlerhood. To our knowledge, no study has thus far specifically looked into the relations with child fearful temperament. Given the hypothesized role of parental anxiety disorders in the relations between child fearful temperament and coparenting (Crockenberg & Leerkes, 2003; Majdandžić et al., 2012; Laxman et al., 2013), we investigate both the relation between parental anxiety disorders and coparenting behaviors, and the moderating role of parental anxiety disorders in the

relations between child fearful temperament and coparenting behaviors. Finally, because previous research suggests differences between fathers and mothers in the relations between child fearful temperament and coparenting (Gordon & Feldman, 2008; Lindsey, Caldera & Colwell, 2005; Van Egeren, 2004), we investigated the role of parent gender in the relations between child fearful temperament and coparenting.

We used a longitudinal design, analyzing questionnaire data of fathers and mothers on coparenting and child temperament when the child was 4 months, 12 months, and 30 months old. The longitudinal design of our study enabled us to look at both the concurrent relations between coparenting behaviors and child fearful temperament and the predictive relationships between these behaviors over time. In this way, we aimed to shed more light on the direction of effects in the relations between coparenting and child temperament.

The goals of the study were to investigate (a) whether concurrent (i.e., correlational) as well as predictive (i.e., longitudinal) relations exist from coparenting to child fearful temperament and vice versa; (b) whether parents' own anxiety disorders are related to coparenting; (c) whether parents' anxiety disorders moderated the relationship between child fearful temperament and coparenting; and (d) whether the relations between coparenting and child fearful temperament differed for mothers and fathers. We expected to find (a) concurrent as well as predictive relations from coparenting to child fearful temperament and vice versa, with more supportive coparenting being related to less concurrent and subsequent child fearful temperament; more undermining coparenting being related to more concurrent and subsequent fear in the child; and more child fearful temperament being related to less concurrent and subsequent supportive coparenting and more concurrent and subsequent undermining coparenting. Also, we expected that (b) parental anxiety is related to coparenting behaviors, with parents high on anxiety disorders showing more undermining and less supportive coparenting than less anxious parents, and (c) parental anxiety moderates the relationships between child temperament and coparenting, in such a way that less anxious parents might become closer and more mutually supportive when the child has a fearful temperament, whereas highly anxious parents are negatively influenced by child fearful temperament and thus show more undermining when the child has a fearful temperament. Lastly, we expected to find that (d) fathers' coparenting behaviors show stronger relations with child fearful temperament than mothers' coparenting behaviors.

METHOD

Participants

Couples expecting their first child were recruited through advertisements in magazines and flyers distributed by midwives. The Department of Psychology's ethical approval was obtained and written informed consent was obtained from all participants. Families were excluded if the child's birth weight was under 2500 g, if the infant had neurological

disorders, or an APGAR score below 8. Families received a gift voucher after finishing every measurement. At Time 1, when the child was 4 months old (M age of child = 4.2, $SD = 0.33$), 135 fathers and mothers and their firstborns participated (75 (55.6%) girls). At Time 2, when the child was 12 months old ($M = 12.4$, $SD = .72$), 131 fathers (3% missing) and 130 mothers (4% missing) took part ($M = 12.4$, $SD = .72$) and at the last measurement (Time 3), when the child was 30 months old ($M = 30.1$, $SD = .53$), 121 fathers (11% missing) and 120 mothers (11% missing) participated. Attrition was mainly due to couples indicating that they did not have enough time to participate.

At the prenatal measurement, father's age was 34.5 years ($SD = 5.4$) and the average educational level of fathers was 6.6 ($SD = 1.6$) on an 8-point scale from 1 (*primary education*) to 8 (*university*). Mothers' average age was 31.5 ($SD = 4.2$) and mothers had an educational level of 7.1 ($SD = 1.14$). At the prenatal measurement, the average relationship duration was 6.4 years ($SD = 3.7$) and 97.8% of parents were married or living together; 2.2% indicated an "other" marital state. At 12 months, one couple was divorced, and at 30 months another couple was divorced. Analyses were completed with and without divorced couples. Because results stayed the same, these couples were not removed from the analyses.

Procedure

Before their child was born, parents separately visited the University research center to complete a clinical interview assessing anxiety disorders. When their child was 4 months, 12 months, and 30 months old, both parents separately visited the research center with his/her child for observational measurements (not part of the current study). At each of the three measurement occasions, parents completed several questionnaires about their infant and about themselves. Due to the length of the questionnaire booklets, the questionnaires were given to the parents in two separate booklets. We divided the set of questionnaires into one booklet about the child and one about the parent. Before the visit of the first parent, parents received the first questionnaire booklet at home by mail. When the first parent visited the lab, parents were asked to bring the filled out questionnaires with them. After parents returned the first questionnaire booklet, the second questionnaire booklet was given to them, to complete in their own homes. Parents returned the second questionnaire booklet when the second parent visited the lab, or by mail. In the current study, only questionnaires about coparenting and child temperament were used.

Measures

Parental anxiety disorder severity

At the prenatal measurement, parents were interviewed through the Anxiety Disorder Interview Schedule (ADIS; Di Nardo, Brown, & Barlow, 1994), a semi-structured clinical interview based on the DSM-IV criteria for anxiety disorders. Four trained and experienced interviewers assessed fathers' and mothers' current and past anxiety disorder

status. A trained psychologist recoded 10% of the data to establish interobserver reliability. Interobserver agreement for all ADIS diagnoses, based on absence or presence of the specific disorder, was 97.55% (range 90%-100%, $SD = 2.95$). In the interview, for every disorder, severity of the diagnosis is reflected in a severity score. All parents received a severity score ranging from 1 – 8 for every indicated anxiety problem, according to ADIS guidelines. Following Simon, Bögels and Voncken (2011), in order to create a continuous score of anxiety disorder severity, severity scores were summed for all current and past anxiety disorders at the time of the interview (including panic disorder, agoraphobia, social anxiety disorder, generalized anxiety disorder, post-traumatic stress disorder, and obsessive compulsive disorder, following DSM-IV criteria). This resulted in a continuous anxiety disorder severity measure, reflecting both the number of the diagnosed lifetime anxiety disorders and their impact on participants' lives.

Child fearful temperament

At all measurements, both parents reported on their child's temperament. At 4 months and 12 months, parents completed the Revised Infant Behavior Questionnaire (IBQ-R; Gartstein & Rothbart, 2003). The IBQ-R assesses infant temperament from 3 months to 12 months and consists of 14 scales with 191 items which are rated on a 7-point Likert scale from *never* to *always*. Parents are asked how often, during the past seven days, their child displayed specific behaviors. In the current study only the fearful temperament scale was used. This scale consists of 16 items, which measure general fear (e.g., "How often during the last week did the baby startle to a loud or sudden noise?") and social fear (e.g., "When introduced to an unfamiliar adult, how often did the baby cling to a parent?").

At 30 months, both parents filled out the short form of the Early Childhood Behavior Questionnaire (ECBQ; Putnam, Gartstein, & Rothbart, 2006). In the ECBQ, parents are asked how often their child displayed specific behaviors in the last two weeks. The questionnaire consists of 18 scales and 107 items; items were rated on a 7-point Likert scale from *never* to *always*. To ensure similarity between the IBQ measurement of a fearful temperament (which includes both social and non-social measures of fearful temperament) and the ECBQ measure of a fearful temperament, we combined the ECBQ scales of fearfulness (8 items about non-social fears, e.g. "While at home, how often did your child seem afraid of the dark?") and shyness (5 items about social fears, e.g. "When approaching unfamiliar children playing, how often did your child seem uncomfortable?") into one scale ($r_{\text{mothers}} = .27, p < .01$; $r_{\text{fathers}} = .22, p < .05$).

Cronbach's α for the measures of fearful temperament at 4 months, 12 months and 30 months for mothers were respectively: .77, .88, and .68. For fathers, Cronbach's α was .78 at 4 months, .89 at 12 months, and .70 at 30 months.

Coparenting relationship quality

The quality of the coparenting relationship was assessed through the Dutch version of the revised Coparenting Scale (CPS; Karreman, van Tuijl, van Aken & Dekovic, 2008; McHale, 1997; 1999; McHale, Kuerston-Hogan, Lauretti & Rasmussen, 2000). This questionnaire measures the way in which parents rate their own coparenting behaviors towards their partner. The revised CPS consists of 18 items which are answered on a Likert scale from 1 to 7 (*absolutely never to almost constantly / at least once an hour*). Due to a mistake in administering the questionnaire, one item was omitted (“How often in a typical week are you the first one to step in and handle things when your child is acting up or disobeying the rules?”).

In McHale’s (1997) original study on the CPS, four constructs emerged from factor analysis: family integrity, disparagement, conflict, and reprimand. In line with Karreman et al.’s (2008) results, only the Family Integrity and Conflict scales proved reliable in our sample (alpha’s ranging from .74 to .83), whereas the scales Disparagement and Reprimand were unreliable (alpha’s ranging from .16 to .54). To ensure reliable measurement of constructs and in order not to lose data, we performed a principal-component analysis with Varimax rotation to extract a new factor structure from the data. We found a reliable and stable two-factor solution for both fathers and mothers on all measurement occasions; see Table 1 for average factor loadings of fathers and mothers over time. Following the guidelines provided by Stevens (2009) for a reliable interpretation of factor loadings given sample size, only items with factor loadings larger than .512 were kept in. This procedure resulted in the removal of two items (How often in a typical week “...do you say to your partner ‘You need to handle this’ when your child is acting up”, “...do you stand by and watch quietly as your partner steps in to correct your child”). One item in the questionnaire on physical affection towards the child (“How often in a typical week (when all 3 of you are together) do you show physical affection to your child?”) yielded a satisfactory factor loading for fathers (.62) but not for mothers (.49). Based on these factor loadings and the lack of relation to the coparenting construct as we defined it, we decided to remove this item. This resulted in 14 items, which are evenly distributed across two factors which we from now on refer to as “supportive coparenting” (7 items) and “undermining coparenting” (7 items). Across the three measurements of fathers and mothers, this two-factor solution explained an average 46% (range: 42–49%) of the variance in the scores.

Table 1 Averaged factor loadings of the items in the Coparenting Scale per parent per factor, averaged across the three measurement occasions. SD of the factor loadings is in brackets.

Item description	Mother		Father	
	Factor 1 (SD)	Factor 2 (SD)	Factor 1 (SD)	Factor 2 (SD)
Physical affection to child	0.488 (.02)	-0.118 (.21)	0.624 (.06)	-0.025 (.08)
Physical affection to partner	0.654 (.04)	-0.127 (.11)	0.703 (.07)	-0.103 (.06)
Affirming the child to partner	0.645 (.07)	-0.005 (.08)	0.681 (.15)	-0.127 (.14)
Affirming the partner to child	0.779 (.04)	-0.026 (.03)	0.779 (.07)	-0.097 (.08)
Inviting partner to join in	0.696 (.04)	0.031 (.01)	0.721 (.09)	0.061 (.09)
Asking partner to discipline	0.133 (.21)	0.380 (.12)	0.298 (.02)	0.433 (.02)
Taking back seat in discipline	0.195 (.03)	0.105 (.15)	0.239 (.05)	0.343 (.19)
Intervening partner's discipline	-0.021 (.03)	0.576 (.09)	-0.098 (.02)	0.550 (.06)
Tense interchange with partner about child	0.009 (.05)	0.643 (.08)	-0.002 (.13)	0.742 (.02)
Tense interchange with partner about other	-0.065 (.10)	0.696 (.10)	-0.085 (.06)	0.703 (.03)
Arguing with partner about child	-0.041 (.11)	0.784 (.03)	-0.026 (.07)	0.743 (.06)
Arguing with partner about other	-0.077 (.20)	0.649 (.06)	-0.162 (.01)	0.634 (.07)
Invoking the family unit	0.710 (.02)	0.033 (.12)	0.723 (.01)	0.083 (.12)
Invoking the absent parent	0.780 (.04)	0.148 (.06)	0.795 (.02)	0.122 (.10)
Positively mentioning the absent parent	0.791 (.02)	0.079 (.09)	0.802 (.02)	0.049 (.06)
Cause neg. feeling-absent parent	0.207 (.04)	0.581 (.08)	0.191 (.07)	0.550 (.12)
Criticizing absent parent	0.022 (.03)	0.645 (.11)	0.036 (.13)	0.595 (.12)

Note: Factor 1 = supportive coparenting; Factor 2 = undermining coparenting

Scale scores were computed by averaging the corresponding item scores. The scale of support consisted of items such as “How often in a typical week (when all 3 of you are together) do you make an affirming or complimentary remark about your partner to your child?”. Thus, support refers to the extent to which a parent reported to give support to their partner. Cronbach’s α for the support scale ranged from .84 to .85 for mothers across measurement occasions, and from .86 to .90 for fathers. An example of the scale of undermining is “How often in a typical week when you are alone with your child do you find yourself saying something clearly negative or disparaging about your partner to your child?”. Thus, undermining refers to the extent to which a parent reported to undermine their partner. For undermining, Cronbach’s α ranged from .75 to .78 for mothers and from .74 to .78 for fathers across measurement occasions.

Statistical Analyses

To account for the hierarchical nature of our data, we used multilevel analysis with a two-level structure, consisting of measurement occasions nested within families. The significance of effects was evaluated at $\alpha = .05$. Because child fearful temperament was measured using two different questionnaires, we chose to standardize child fearful temperament into z scores at all measurement occasions. For reasons of comparability and comprehension, we also standardized support and undermining. Thus, all key study variables that were measured repeatedly, were standardized.

All multilevel models included a random intercept. Parent and Time were entered as dummy variables, with mother and Time 1 as reference categories. All other predictors were continuous. Models were analyzed using MLwiN version 2.24. Assumptions of multivariate normality and linearity were checked for all variables and were satisfactory.

Given our goal to investigate the bidirectional effects between coparenting and child fearful temperament, three different models were analyzed: a model in which coparenting (i.e., support and undermining) predicted child fearful temperament, a model in which child fearful temperament predicted supportive coparenting, and a model in which child fearful temperament predicted undermining coparenting. First, we fitted one concurrent model in which concurrent (i.e., simultaneous) relations between coparenting and child fearful temperament were addressed by entering predictors and outcome variables measured at the same moment in time. Next, we fitted three predictive models. In the predictive models, sequential effects were addressed by analyzing the effects of the predictors at t on the outcome variable at $t+1$. For example, undermining at Time 1 was used to predict child fearful temperament at Time 2. To correct for the stability of constructs over time in the predictive models, previous measurements of the outcome variable were also included as predictors; for example, when predicting child fearful temperament at $t+1$, child fearful temperament at t was also included as a predictor. Effects can therefore be interpreted as a change in the dependent variable. To control for concurrent effects in the predictive models,

we added the predictors not only at t , but also at $t+1$. Thus, in the model where support at t predicts child fearful temperament at $t+1$, the concurrent relations between support at $t+1$ and child fearful temperament at $t+1$ were also added.

In all models, Time was entered as a control variable. Next, parent (mother, father), parental anxiety disorder, and (depending on the model) child fearful temperament or support and undermining were included as predictors. In multilevel modelling, the dependent variable is entered at the lowest level. In our data, this is the level of measurement occasions for each parent separately. All data that were measured repeatedly for both father and mother are added into the models at this lowest level (i.e., fearful temperament, support, and undermining). This also means that for the association between child fearful temperament and supportive coparenting, fathers' reports of child fearful temperament are correlated to fathers' reports of supportive coparenting, and mothers' reports of child fearful temperament are correlated to mothers' reports of supportive coparenting. Through statistical interactions, differences in effects between fathers and mothers can be investigated.

Interaction terms with parental anxiety disorder and parent gender were added to the models to investigate the influences of parental anxiety disorder and parent gender on the relations between coparenting and child fearful temperament. Interaction terms were kept in or removed based on their explanatory value; only terms with a significant β were kept in the model ($\alpha = .05$). When significant, interaction effects were plotted and simple slopes were tested to interpret the results, as described in Preacher, Curran, and Bauer (2006).

RESULTS

Descriptive Statistics

Descriptive statistics and correlations for all key study variables are shown in Table 2. Of the 132 couples, 72 mothers (55 %) and 51 fathers (39 %) had one or more lifetime anxiety disorders before the birth of the child.

Multilevel Models

As described above, we tested a series of models assessing bidirectional relations between child fearful temperament, undermining coparenting and supportive coparenting. First, we present two models with child fearful temperament as the outcome: Model 1 concerns the concurrent relationships between child fearful temperament and coparenting; Model 2 concerns the predictive relationships in which child fearful temperament is predicted by coparenting. Second, the predictive model in which support is predicted by child fearful temperament is presented and third, the predictive model in which undermining is predicted by child fearful temperament is presented.

Table 2 Means, SD's, and correlations of parental anxiety, child fearful temperament, undermining, and support for both mothers and fathers at Time 1, Time 2, and Time 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1. mothers' anxiety																					
2. child fear M_T1	.05																				
3. child fear M_T2	.02	.26**																			
4. child fear M_T3	.09	.21*	.13																		
5. support M_T1	-.06	.04	.03	-.15																	
6. support M_T2	-.15	-.07	-.03	-.21*	.68***																
7. support M_T3	-.13	.08	.13	-.01	.54***	.50***															
8. undermining M_T1	.18	.11	.14	.02	.07	-.05	-.03														
9. undermining M_T2	.23*	.00	.13	.00	.07	.12	-.01	.62***													
10. undermining M_T3	.21*	-.12	.13	.07	.12	.11	.02	.51***	.65***												
11. fathers' anxiety	.29***	-.19*	-.14	-.14	-.12	-.12	.03	-.15	.07	.03	.00										
12. child fear F_T1	.07	.49***	.27**	.27**	-.09	-.07	-.10	.17	.23*	.21*	.09										
13. child fear F_T2	.09	.09	.55***	-.01	-.03	-.10	.04	.01	.03	.03	.02	.36***									
14. child fear F_T3	.01	.13	.29**	.44***	-.15	-.08	.09	.07	.18	.01	.04	.34***	.47***								
15. support F_T1	-.25**	.12	.19*	.07	.20*	.17	.34***	.01	.10	.14	-.24*	.16	.13	.11							
16. support F_T2	-.21*	.05	.18	-.01	.20*	.28**	.30**	-.05	.11	.15	-.13	.00	.06	.06	.71***						
17. support F_T3	-.30**	.03	.06	.06	.11	.18	.32***	-.11	.13	.03	-.12	-.02	.00	-.02	.63***	.69***					
18. undermining F_T1	.12	.04	.06	-.06	-.04	.07	.10	.25**	.28**	.20*	.10	.19	.11	.14	-.04	-.10	-.08				
19. undermining F_T2	.19*	-.05	.15	-.08	.00	.11	.02	.34***	.43***	.30**	.26**	.21*	.18	.20*	.02	-.04	-.10	.58***			
20. undermining F_T3	.25**	.01	.26**	-.05	.04	.13	.04	.37***	.44***	.47***	.31**	.26**	.28**	.19*	-.05	.04	.01	.57***	.69***		
Mean	6.10	1.86	2.47	2.86	5.20	5.30	5.27	2.25	2.34	2.57	3.96	1.96	2.45	2.82	4.94	4.98	5.13	2.02	2.27	2.47	
SD	7.12	0.67	0.80	0.74	0.87	0.83	0.70	0.71	0.71	0.67	5.35	0.61	0.76	0.84	0.91	0.87	0.84	0.65	0.69	0.68	
N	132	117	117	114	117	115	114	114	115	114	132	112	112	111	113	114	110	114	114	114	110

Note: M, mother; F, father; T1, Time 1 at 4 months; T2, Time 2 at 12 months; T3, Time 3 at 30 months. **p* < .05. ***p* < .01. ****p* < .001

Child fearful temperament

Table 3 shows the concurrent model (Model 1) and predictive model (Model 2) for the prediction of child fearful temperament. We found no significant associations between child fearful temperament and supportive coparenting, either concurrently or predictively. We did find that more undermining was related to more concurrent child fearful temperament. No predictive relationship was found from earlier undermining coparenting to later child fearful temperament. Parental anxiety disorder severity was unrelated to child fearful temperament and did also not moderate the relationship between coparenting and child fearful temperament. In addition, interactions with parent gender were not significant, indicating that there were no differences between fathers and mothers in the associations between coparenting and child fearful temperament.

Table 3 Parameter Estimates for the Concurrent and Predictive Multilevel Models of Child Fearful Temperament Regressed on Control Variables and Parent Variables.

	Model 1: concurrent relationships			Model 2: predictive relationships		
	β	SE	p	β	SE	p
Intercept	.03	.08	.708	-.15	.20	.453
Measurement 2	.01	.08	.901	.04	.09	.657
Measurement 3	.00	.08	1.000			
Parent	-.02	.07	.775	.05	.09	.579
Parental anxiety	.07	.05	.162	.03	.06	.617
Support_ t	.03	.04	.453	.01	.06	.868
Undermining_ t	.13**	.04	.001	.03	.07	.738
Child fear_ t				.12*	.05	.016
Support_ $t+1$				-.04	.06	.505
Undermining_ $t+1$.12*	.06	.046

Note: Model 1 tests the concurrent associations between predictors at t and child fearful temperament at t . Model 2 tests the predictive associations between predictors at t and child fearful temperament at $t+1$ (see Methods). All continuous predictor and outcome variables were transformed into z-scores.

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

Supportive coparenting

Table 4 shows the predictive model for supportive coparenting. We did not find a predictive relationship between child fearful temperament and support. Parents' lifetime anxiety disorder severity was unrelated to supportive coparenting. Also, parents' lifetime anxiety disorder severity did not moderate the association between child fearful temperament and supportive coparenting and no differences between fathers and mothers were found. The only significant predictor of supportive coparenting was previously measured supportive coparenting.

Undermining coparenting

Table 4 shows the predictive model for undermining coparenting. We found no predictive relationship from previous child fearful temperament to later undermining coparenting. We did find a concurrent association between child fearful temperament and undermining, replicating the concurrent model presented above. In addition, parental lifetime anxiety disorder severity was positively related to undermining coparenting. Thus, parents higher on anxiety severity before the birth of the child show higher undermining coparenting when children are 4 months to 30 months old. With regard to parent gender, we did not find significant interactions, indicating that the associations between undermining coparenting and child fearful temperament do not significantly differ for fathers and mothers¹.

Table 4 Parameter Estimates for the Predictive Multilevel Model of Supportive Coparenting and Undermining coparenting Regressed on Control Variables, Parental Anxiety, and Child fearful temperament.

	Supportive coparenting predictive relationships			Undermining Coparenting predictive relationships		
	β	<i>SE</i>	<i>p</i>	β	<i>SE</i>	<i>p</i>
Intercept	.06	.17	.724	.03	.16	.851
Measurement 2	.01	.08	.901	.01	.07	.886
Parent	-.04	.08	.617	-.09	.07	.199
Parental anxiety	-.06	.04	.134	.11**	.04	.006
Child fear_ <i>t</i>	.00	.04	1.000	.03	.04	.453
Child fear_ <i>t</i> +1	-.02	.04	.617	.08*	.04	.046
Support_ <i>t</i>	.62**	.04	<.001			
Undermining_ <i>t</i>				.45**	.05	<.001

Note: The models test the predictive associations between predictors at *t* and respectively, support at *t*+1 and undermining at *t*+1 (see Methods). All continuous predictor and outcome variables were transformed into z-scores. **p* < .05, ***p* < .01

DISCUSSION

The current study had four goals, namely to investigate: (I) the concurrent and predictive bidirectional relations between coparenting and child fearful temperament; (II) the relations between parental anxiety disorder and coparenting behaviors; (III) the moderating role of parental anxiety disorders in these associations; and (IV) the differences between mothers and fathers in these relations. First, with regard to supportive coparenting we found (a) no concurrent or predictive bidirectional relations between child fearful temperament and supportive coparenting; (b) no relations between parental anxiety disorder and supportive

¹ All analyses were also conducted with marital satisfaction included as a control variable. All main results were replicated.

coparenting; (c) no moderating role of parental anxiety disorders in the relations between child fearful temperament and supportive coparenting; and (d) no differences between fathers and mothers in the relations between child fearful temperament and supportive coparenting. Second, for undermining coparenting we found (a) a concurrent relation between more undermining coparenting and more concurrent child fearful temperament; (b) no predictive associations between undermining coparenting and child fearful temperament or vice versa; (c) a positive relationship between more parental anxiety disorder severity and more undermining; (d) no moderating role of parental lifetime anxiety disorder severity in the relations between child fearful temperament and undermining coparenting; and (e) no differences between fathers and mothers in the models of undermining and child fearful temperament.

For the relations between supportive coparenting and child fearful temperament, we hypothesized that supportive coparenting is negatively related to child fearful temperament, concurrently as well as predictively. However, none of the expected negative relations between supportive coparenting and child fearful temperament were found. This is not in line with most previous research, in which it has been replicated that more difficult child temperament correlates with less concurrent supportive coparenting (Gordon & Feldman, 2008; Schoppe-Sullivan et al., 2007; Van Egeren, 2004). Similarly, we did not find predictive relations from supportive coparenting to child fearful temperament or vice versa. This is a replication of the results by Solmeyer and Feinberg (2011) who also used McHale's (1997) Coparenting Scale to measure supportive coparenting. Interestingly, studies that did find longitudinal associations between supportive coparenting and child difficult temperament used observed triadic data (Davis et al., 2009; Laxman et al., 2013). Hence, from these results it appears that self-reports of support towards the partner might be unrelated to infants' temperament, whereas perceptions of received coparenting (Van Egeren, 2004) or observational data of support in the triad (Davis et al., 2009; Laxman et al., 2013) are related to infants' difficult temperamental characteristics. An explanation of these results is that parents' judgements of their own positive behaviors are more susceptible to socially desirable answers than partner's and observers' ratings of these behaviors. The results of previous research thus suggest that to study the relation with infant temperament, observations of supportive coparenting or reports of partners' support might be more valid measures than self-ratings. These hypotheses regarding the best measurement of supportive coparenting need to be tested in future research. As was also pointed out by Van Egeren (Van Egeren, 2004; Van Egeren & Hawkins, 2004), the measurement of coparenting is difficult and it is of high importance that researchers in coparenting consider these measurement issues when interpreting and comparing results.

For undermining coparenting, we found relations between undermining and child fearful temperament in the concurrent model. This is in accordance with our hypothesis that the environment of undermining coparenting creates feelings of emotional unsafety in

the child and that, vice versa, a fearful child puts extra strains on the coparenting alliance, leading to more stress resulting in more undermining coparenting (Majdandžić et al., 2012). Our results are in line with previous findings that general difficult child temperament and concurrent undermining coparenting are positively related (Lindsey, Caldera, & Colwell, 2005). Contrary to expectations, we did not find a predictive relationship from undermining to subsequent child fearful temperament. Thus, the level of undermining at a given age appears to predict only the level of fearful temperament in the child at the same moment and not in the future. These results were not in line with our expectation that a predictive relation would exist both from more undermining to more later child fear, and from more child fearful temperament to more later undermining. However, the results are in line with the results of Solmeyer and Feinberg (2011) who found no relations between self-reports of child difficult temperament and later self-reported undermining. Also the observational study of Davis et al. (2009) found no association between undermining coparenting and later child difficult temperament, and vice versa. Hence, research thus far does not point towards a predictive association between child temperamental characteristics and undermining coparenting. An exception to these findings was the research done by Laxman et al. (2013), who found a longitudinal association from child difficult temperament to more undermining coparenting, but only when fathers had a high score on negative emotionality. Given that we did not find a moderating role of parental anxiety in the associations between child fearful temperament and undermining coparenting (see the following paragraph), it might be the case that parents' personality traits such as negative emotionality play a meaningful role in the predictive associations between child fearful temperament and undermining coparenting. However, the result by Laxman et al. (2013) needs to be replicated in the future.

The current study was the first to investigate the relations between parental anxiety disorder and coparenting behaviors. Based on the model of Majdandžić et al. (2012) and on previous findings on parental negativity (Belsky, Crnic, & Gable, 1995) and depression (Isacco, Garfield, & Rogers, 2010), we expected that highly anxious parents' coparenting differs from the coparenting behavior of less anxious parents. In their model, Majdandžić et al. (2012) propose several mechanisms that might be at play when one of the coparenting partners is anxious, through which parents might become either more undermining or more supportive when one of the partners is highly anxious. Our results are in line with the reasoning that parents are more undermining when a parent is high on anxiety disorder severity: we found that higher parental anxiety disorder severity before birth of the child was related to more undermining coparenting at 4 months, 12 months and 30 months. From our results it can be concluded that parents who are highly anxious also are more undermining. It remains unclear whether the partners of these anxious parents also become more undermining. Unraveling these dynamics in families who have an anxious partner might be an interesting question for future research, since this can give additional

information in the development of clinical interventions. We conclude that parental anxiety plays a role in the undermining coparenting behavior of parents and should be included in future research on coparenting.

Our results thus show that undermining coparenting is both related to more child fearful temperament and to more parental anxiety. Interestingly, we did not find associations between parents' lifetime anxiety disorder severity and the temperamental fearfulness of their children, even though ample evidence exists for the intergenerational transmission of anxiety (Hettinga, Neale, & Kendler, 2001). Minuchin (1985) pointed to coparenting as the executive subsystem in the family and our results lend partial support to this claim. Our results point to undermining coparenting as a possible mechanism in the transmission of anxiety from parents to their children: when parents are anxious, they may become more undermining, which in turn is related to more fearfulness in the child. However, given the lack of predictive associations between coparenting and child fearful temperament, this role of undermining in the intergenerational transmission of anxiety is a hypothesis that needs to be tested in future research.

We hypothesized highly anxious parents to be more vulnerable to the stressor of having a temperamentally fearful child than non-anxious parents (Crockenberg & Leerkes, 2003). Therefore we expected to find a moderating effect of parental anxiety disorder severity in the relations between coparenting and child fearful temperament. We expected parents with a high anxiety disorder severity to show stronger associations between more child fearful temperament and less supportive coparenting and more undermining coparenting than parents with a low anxiety disorder severity. However, we did not find this moderating effect. Even though we were the first to study the relationship between parental anxiety disorders and coparenting, others have looked at the relationship between parental negative emotionality and coparenting. Laxman et al. (2013) also found no moderating role of negative emotionality in the relations between child difficult temperament and supportive coparenting, but these authors did find a moderating effect of fathers' negative emotionality in the relations between undermining coparenting and child difficult temperament. The lack of a moderating role for parental anxiety could be due to the fact that more general characteristics such as personality (e.g., negative emotionality) are more strongly related to child outcomes and coparenting behaviors. Future research should again look into the role of parental anxiety in the relations between coparenting and child fearful temperament, because we did find a relation between coparenting and child outcomes, as well as between parental anxiety and coparenting behaviors.

With respect to parent gender, we found that child fearful temperament and coparenting are related in the same way for both fathers and mothers, as did Solmeyer and Feinberg (2011), whereas others (Lindsey, Caldera, & Colwell, 2005; Schoppe-Sullivan et al., 2007; Van Egeren, 2004) have found differences in the relations between undermining and child fearful temperament between parents. These different findings may be due to differences in

methodology. Only Van Egeren (2004) and Solmeyer and Feinberg (2011) measured both coparenting and child temperament separately for both parents (as we did). Other research did not differentiate between the perceptions of temperament of mothers and fathers (Lindsey, Caldera, & Colwell, 2005) or did not differentiate between coparenting behaviors of mothers and fathers (Davis et al., 2009; Laxman et al., 2013). In order to validly assess coparenting differences between mothers and fathers, perceptions of both parents should be used in future research.

Even though effect sizes in the current study are small, this was expected based on the meta-analysis of Teubert and Pinquart (2010), which also found only small effect sizes for coparenting in relation to internalizing problems in children. As also noted by Teubert and Pinquart (2010), different aspects of family dynamics (such as individual parenting style, dyadic parent-child dynamics, and coparenting) have relatively small effects on the child, but the cumulative effects of these interrelated aspects may be stronger. Effects of coparenting might become stronger later in childhood, when dynamics become more stable and have influenced development over a longer period of time. Future research should consider longitudinal measures of coparenting over a longer developmental period, to investigate whether effects become stronger over time.

Several limitations of our study should be taken into consideration when interpreting and generalizing results. First, our sample consisted of mostly highly educated, married couples. Moreover, anxiety disordered parents were oversampled. These rather specific characteristics of our sample limit the generalizability of our results to the general population. It should be noted that our sample is not a clinical sample; thus, our results apply to parents with a relatively high score on lifetime anxiety disorder severity in the general population. Also, the limitations of self-report (social desirability and subjectivity) apply to our study and limit the validity of our results, and perhaps especially for highly anxious parents, as social anxiety may increase socially desirable answering tendencies. However, as also noted by McHale (2007), in coparenting research, self-reports can give valuable insights into the way parents *experience* the coparenting relationship, which might be a more important indicator of the coparenting quality than the actual behaviors that take place (Feinberg, 2003). For future studies, combining questionnaire data with observational data is a good solution to the problems concerning the measurement of coparenting. Also, a study with a larger sample size and more measurement occasions would provide more statistical power to investigate two-way and three-way interactions in the models, which makes it possible to draw more robust conclusions regarding the processes underlying the relations between coparenting and fearful child temperament as well as differences in these relations between fathers and mothers.

The current study also had several strengths. We used a longitudinal design to investigate predictive as well as concurrent relations over three measurement occasions, making causal implications possible. We included interactions in these models to provide insights into

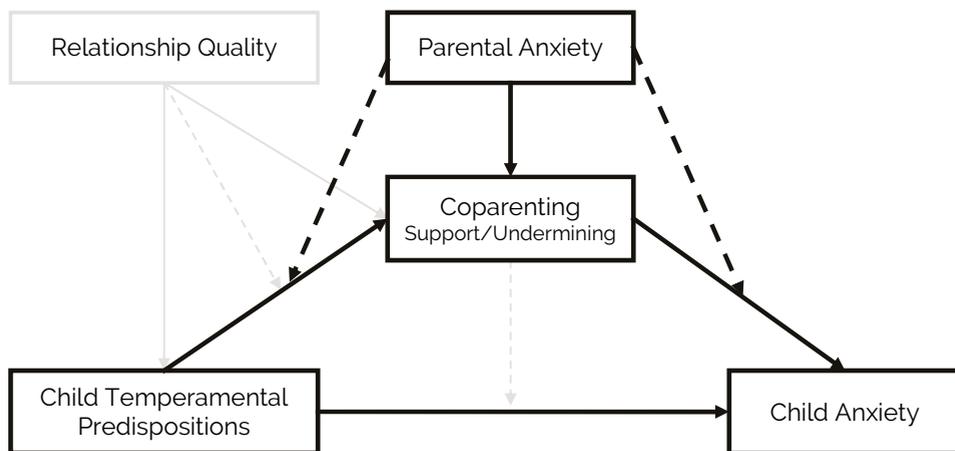
family dynamics underlying the development of child fearful temperament and coparenting. We assessed fathers and mothers, making it possible to differentiate between paternal and maternal roles in the relations between coparenting and child fearful temperament. Our study was the first to include a measure of anxiety disorders, rather than personality traits in the study of coparenting. Our results imply that parental anxiety disorder is negatively related to the quality of the coparenting relationship and should therefore be further investigated in future research on coparenting. Finally, all analyses were also conducted with marital satisfaction included as a predictor. All results in the models that include marital satisfaction were similar to the results presented without marital satisfaction. This strengthens the evidence that coparenting and marital satisfaction are two separate constructs and that the coparenting alliance is a meaningful target for intervention, as was also pointed out by others (e.g., Chen & Johnston, 2012; Feinberg, Kan, & Goslin, 2009).

Our results have several clinical implications. We found that more parental anxiety disorder severity was related to more undermining coparenting, and we found that fearfulness in the child and undermining co-occur. These results suggest that undermining coparenting is an important novel parenting factor to consider in understanding the causes and effects of child fearful temperament. Therefore, undermining coparenting should be considered as a target in the prevention and treatment of child anxiety. It might be especially helpful to offer parents with lifetime anxiety disorders help with their coparenting relationship in order to dissolve the links between child fearful temperament and coparental undermining. Feinberg and colleagues (Feinberg & Kan, 2008; Feinberg, Kan, & Goslin, 2009) were the first to design an intervention directed at coparenting. Their studies demonstrate that the Family Foundations intervention (administered in 8 sessions, prenatally until 6 months after birth) is related to higher coparental support but not to lower undermining, and to lower infant soothability (part of the ‘difficult temperament’ dimension). Given that our results point to an especially important role of undermining coparenting in relation to child fearful temperament, future research needs to further investigate coparenting as a target in the treatment of both anxious parents and anxious children. More specifically, we recommend a focus on the development of an intervention that targets undermining coparenting.

CONCLUSION

The current study investigated the relations between coparenting and child fearful temperament and the current study was the first to investigate the role of parental anxiety disorder severity in relation to coparenting. We found that more undermining coparenting is related to more child fearful temperament. In addition, we found that more parental anxiety is related to more undermining coparenting. Interestingly, no results were found for supportive coparenting, leading us to conclude that it is especially undermining coparenting that is of interest in relation to child fearful temperament and parental anxiety. No differences between fathers and mothers were found in the current study.

Given the relations between parental anxiety disorder and undermining, and between undermining and child fearful temperament, we suggest that undermining coparenting might be one of the mechanisms that contribute to the intergenerational transmission of anxiety from parent to child. We therefore conclude that undermining coparenting should be considered in the treatment of parents with lifetime anxiety disorders and in the treatment of child anxiety. It remains unclear whether and why supportive and undermining coparenting relate differently to child fearful temperament and child anxiety, this needs to be addressed in future research.



Graphical representation of the associations tested in this thesis (adjustment of the model by Majdandžić et al., 2012). Dashed lines represent moderation effects. Lines in black are the effects that are tested in Chapter 3. Lines in grey are tested in other chapters.

CHAPTER

**The role of parental anxiety
in the predictive associations
between fearful temperament,
coparenting, and child
anxiety symptoms**

3

ABSTRACT

Objective

Anxious parents are more likely to have temperamentally fearful children, and a fearful temperament increases the risk of later child anxiety. Undermining and supportive coparenting behavior have been related to children's fearful temperament. We investigated coparenting as a mediator in children's development from fearful temperament to anxiety. Also, anxious parents may be more supportive and less undermining, or less supportive and more undermining than low-anxious parents' coparenting. Therefore, the current study aimed to investigate the role of parental anxiety as a moderator, resulting in a moderated mediation model.

Methods

We collected interview data on prenatal parental anxiety disorder severity ($N = 151$). After child birth, we observed infant fearful temperament at 1 year and supportive and undermining coparenting at 2.5 years in lab visits and home visits. At 4.5 years, both fathers and mothers reported on their child's anxiety symptoms.

Results

Overall, coparenting did not mediate the associations between infant fearful temperament and child anxiety. Supportive coparenting was unrelated to infant fearful temperament and child anxiety symptoms and parental anxiety did not play a role in these associations. For high-anxious parents, higher infant fearful temperament predicted less undermining coparenting, and in turn, higher undermining coparenting predicted higher child anxiety. On the other hand, for low-anxious parents, infant fearful temperament was unrelated to undermining coparenting, and higher undermining coparenting related to less child anxiety.

Conclusions

Our results point to the role of parental anxiety disorders in the associations between infant fearful temperament, coparenting, and child anxiety. We conclude that researchers and practitioners need to attend to the role of parental anxiety in the associations between coparenting and anxiety development.

INTRODUCTION

Child anxiety disorders are the most common form of psychopathology in childhood (Wittchen et al., 2011). It has been established that already in infancy, fearful temperament serves as a risk factor for the development of later child anxiety (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Given that child anxiety increases the risk for poor outcomes in children (such as more anxiety problems later in life, psychopathology other than anxiety such as conduct disorder and depression, drug abuse and poorer educational outcomes; Beesdo-Baum & Knappe, 2012; Bittner, Egger, Erkanli, Costello, Foley, & Angold, 2007; Woodward & Fergusson, 2001), it is important to investigate factors that can discontinue the development from infant fearful temperament to later anxiety.

Parental anxiety is a predictor of child anxiety: anxiety runs in families, which means that anxious parents are at an increased risk to have an anxious child (Hettema, Neale, & Kendler, 2001). The role of heritability in the transmission of anxiety from parents to children is small (Hettema et al., 2001), however, leaving a role for environmental factors in the explanation of the intergenerational transmission of anxiety (Bögels & Brechman-Toussaint, 2006; Murray, Creswell & Cooper, 2009). Thus, family characteristics other than parents' own anxiety may influence the development of child anxiety over time. One of the factors that may play a role in the transmission of anxiety is coparenting (Majdandžić, de Vente, Feinberg, Aktar, & Bögels, 2012).

The coparenting relationship is defined as “the ways that parents and/or parental figures relate to each other in the role of parent” (Feinberg, 2003, p. 96). Coparenting behaviors are usually studied as the extent to which parents undermine or support their partner's role as a parent (McHale, 1995; Belsky, Putnam, & Crnic, 1996). Supportive coparenting behaviors include affirmation of the partner's parenting choices, whereas undermining behaviors include criticism and blaming of the partner's parenting (Belsky, Woodworth, & Crnic, 1996; Feinberg, 2003; McHale, 1995; Weissman & Cohen, 1985). Minuchin (1974) referred to coparenting as the family's executive subsystem, thereby proposing that coparenting might be the mechanism underlying change (i.e., development) in the family system.

Given that coparenting has been proposed to be the mechanism underlying changes in the family system (Minuchin, 1974), coparenting may serve as a mediator in child development (Feinberg, 2003; Teubert & Pinquart, 2010). If family processes unfold through the quality of the coparenting relationship, it might be the case that child development, specifically the development from being a fearful infant to being an anxious child, occurs through the quality of the coparenting relationship. Hence, coparenting may serve as a mediator in the development from infant temperament to child anxiety. Up until now, research established that coparenting mediates the associations between marital conflict and parenting behavior (Bonds & Gondoli, 2007; Floyd, Gilliom, & Costigan, 1998; Margolin, Gordis, & John, 2001; Pedro, Ribeiro, & Shelton, 2012; Sturge-Apple, Davies, & Cummings, 2006), and between marital violence and child anxiety (Katz & Low, 2004). This latter study found that when

parents with high levels of marital violence were undermining in coparenting their children, children were at an increased risk to be anxious. Another study investigated coparenting as a mediator in the associations between parental anxiety and family maladjustment (Delvecchio, Sciandra, Finos, Mazzeschi, & DiRiso, 2015) and found that high parental anxiety through poor coparenting related to more family maladjustment. These studies lend support to the hypothesis that coparenting serves as a mechanism in the way family characteristics affect both family and child outcomes. Up until now, however, research has not investigated whether coparenting is also an important factor through which anxiety development unfolds. Therefore, the current study aimed to investigate the mediating role of coparenting in children's development from a fearful infant to an anxious child.

Several studies investigated the direct associations between child fearful or difficult temperament and coparenting. In families with 5-month-olds to 5-year-olds, children's difficult temperament was found to correlate with less supportive coparenting (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Gordon & Feldman, 2005; Laxman et al., 2013; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007; Van Egeren, 2004) and more undermining coparenting (Cook, Schoppe-Sullivan, Buckley, & Davis, 2009; Katz & Low, 2004; Lindsey, Caldera, & Colwell, 2005; Metz, Majdandžić & Bögels, 2016). In 3.5-month- to 4-year-olds, researchers found that high supportive coparenting in infancy predicts lower levels of later difficult child temperament (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Laxman et al., 2013) and that higher undermining coparenting in infancy predicted more later child anxiety (McHale & Rasmussen, 1998). One study found that higher child difficult temperament predicted less later supportive coparenting, demonstrating that child behaviors also predict later coparenting behaviors (Davis et al., 2009). In contrast to these findings, one study found that high levels of undermining predicted a decrease in children's fearful temperament (Belsky et al., 1996) and some studies did not find cross-sectional (Stright & Bales, 2003) or predictive associations (Metz et al., 2016) between coparenting and child difficult or fearful temperament. Even though most research suggests that high levels of support and low levels of undermining are related to less (precursors of) child anxiety, the direction of effects is not clear from all studies. A reason for these divergent results may be due to other factors that play a role in the direct associations between coparenting and child outcomes.

Several scholars have pointed out that the associations between coparenting and child behaviors may be moderated by family factors such as parental anxiety (Feinberg, 2003; Majdandžić et al., 2012; McHale et al., 2004). Majdandžić et al. (2012) theorized that anxious parents' coparenting differs from the coparenting of non-anxious parents, thereby suggesting an additional pathway in the intergenerational transmission of anxiety. The authors proposed that parental anxiety can influence coparenting in the following ways: parental anxiety may lead to more supportive coparenting (because the anxious parents' increased insecurity in parenting leads this anxious parent to follow the lead of their partner,

or because the anxious parent calls for more support), or to more undermining coparenting (because the anxious parents' impulses to protect the child may increase undermining of the less non-anxious parent, or anxious parents may be critical and undermining of their partner; Majdandžić et al., 2012). Empirical studies indeed found that parental anxiety was related to less self-reported supportive coparenting (Delvecchio et al., 2015) and to more self-reported undermining coparenting (Metz et al., 2016). Moreover, empirical evidence demonstrated that the combination between fathers' high negative emotionality (a construct involving the experiences of fear, anger, and anxiety; Krueger, Caspi, Moffitt, Silva, & McGee, 1996) and high difficult child temperament resulted in more undermining coparenting (Laxman et al., 2013). This result supports the notion that parental anxiety may serve as a moderator in the associations between coparenting and child outcomes. Therefore, we explored whether parental anxiety moderated the associations between infant fearful temperament, coparenting quality, and child anxiety.

The combination of the theoretical assumption that coparenting serves as a mediator in family development (Feinberg, 2003; Teubert & Piquart, 2010) and that the associations between coparenting and family development may be moderated by parental anxiety (Feinberg, 2003; Laxman et al., 2013; Majdandžić et al., 2012) led us to propose a moderated mediation model (Preacher, Rucker, & Hayes, 2007; see Figure 1). In this moderated mediation model, we investigated the mediating role of observed coparenting in the development from early infant fearful temperament into later child anxiety, and the moderating role of parental anxiety disorder severity in these relations. We hypothesized that high infant fearful temperament at 1 year predicts less supportive coparenting and more undermining coparenting at 2.5 years, and high supportive coparenting and low undermining coparenting at 2.5 years predict less child anxiety symptoms at 4.5 years. We explored the mediating role of coparenting in the associations between infant fearful temperament and child anxiety symptoms, as well as the moderating role of parental anxiety disorder severity in the associations between infant fearful temperament, coparenting, and child anxiety.

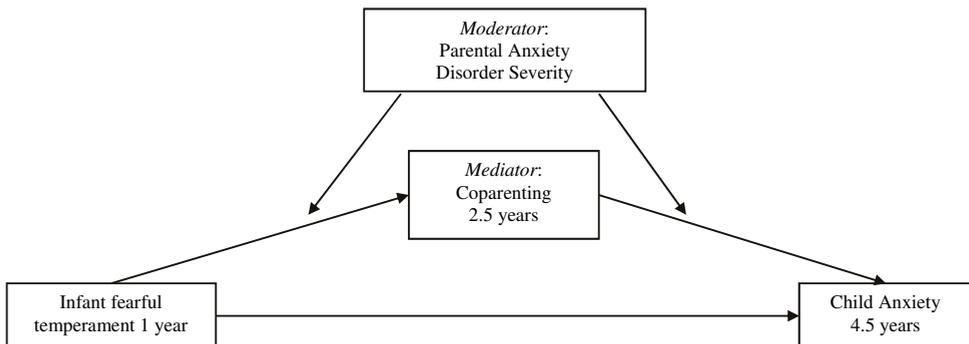


Figure 1: Graphical representation of the moderated mediation model.

METHOD

Participants

The current study is part of an ongoing longitudinal investigation (The Social Development of Children). Couples expecting their first child were recruited through advertisements in magazines and flyers distributed by midwives. Before child birth, the sample consisted of 151 families. The Department of Psychology's ethical approval was obtained and written informed consent was received from all participants. Families received a 20 euro gift voucher after finishing every measurement. At the prenatal measurement, father's age was 34.5 years ($SD = 5.4$) and the average educational level of fathers was 6.5 ($SD = 1.7$) on an 8-point scale from 1 (*primary education*) to 8 (*university*); fathers' average income level was 4.6 ($SD = 1.3$) on a 7-point scale from 1 (< 500 euros) to 7 ($> 5,000$ euros). Mothers' average age was 31.6 ($SD = 4.2$), mothers had an educational level of 7.0 ($SD = 1.2$), and mothers' average monthly income level was 4.0 ($SD = 1.4$).

In the current study, we focused on data from the prenatal measurement, and from measurement occasions when the child was 1 year, 2.5 years and 4.5 years old. At 1 year ($M = 12.4$ months, $SD = 0.72$), 125 families participated; at 2.5 years ($M = 30.1$ months, $SD = 0.53$), 123 families participated; at 4.5 years ($M = 53.9$ months, $SD = 0.57$), 110 families participated. Attrition was mainly due to couples indicating that they did not have enough time to participate.

At the prenatal measurement, the average relationship duration was 6.1 years ($SD = 3.70$) and 98% ($n = 148$) of parents were married or living together; 2% ($n = 3$) indicated an "other" marital status. At the 1 year measurement, 93.6% ($n = 117$) of parents were married or living together; 0.8% ($n = 1$) indicated an "other" marital status, 0.8% ($n = 1$) of parents were divorced, and 4.8% ($n = 6$) of couples did not report their marital status. At the 2.5 year measurement, 91.1% ($n = 112$) of parents were married or living together; 2.4% ($n = 3$) indicated an "other" marital status, 1.6% ($n = 2$) of parents were divorced, and 4.9% ($n = 6$) of couples did not report their marital status. At the 4.5 year measurement, 91.8% ($n = 101$) of parents were married or living together; 1.8% ($n = 2$) indicated an "other" marital status, 2.7% ($n = 3$) of parents were divorced, and 3.6% ($n = 4$) of couples did not report their marital status. Of all children, 82 (54.3%) were girls; of 2 families (1.3%) the child's gender was unknown.

Procedure

At the prenatal measurement, parents separately visited our University research lab to complete a clinical semi-structured interview assessing their anxiety disorders and we collected biographical data as well as questionnaire data about parents' relationship satisfaction and their own anxiety. When children were 4 months, 1 year and 2.5 years old, fathers and mothers separately came to the lab with their child to conduct structured tasks, completed a home visit with several tasks, and filled out a number of questionnaires about

their child and their parenting behaviors. At 4.5 years, fathers and mothers came to the lab separately and filled out questionnaires; no home visit was conducted. In the current study, we used observations of infant fearful temperament at 1 year, observations of triadic play (coparenting) in the home visit at 2.5 years, and questionnaire data about the child's anxiety symptoms at 4.5 years.

Measures

Parental anxiety disorder severity

At the prenatal measurement, parents' level of anxiety severity was assessed through the Anxiety Disorder Interview Schedule (ADIS; DiNardo, Brown, & Barlow, 1994), a semi-structured clinical interview based on the DSM-IV criteria for anxiety disorders. Four trained and experienced interviewers assessed fathers' and mothers' current and lifetime anxiety disorder status. A trained psychologist recoded 10% of the data to establish interobserver reliability. Interobserver agreement for all ADIS diagnoses, based on absence or presence of the specific disorder, was 97.55% (range 90%-100%, $SD = 2.95$).

In the ADIS, for every disorder, severity of the diagnosis is reflected in a severity score. Participants indicated whether they experienced anxiety for the following disorders: panic disorder, agoraphobia, social phobia, generalized anxiety disorder, post-traumatic stress disorder, and obsessive compulsive disorder (following DSM-IV criteria). Disorders that occurred within the past 6 months were categorized as current anxiety disorders; disorders that occurred more than 6 months ago were categorized as past anxiety disorders. For every indicated anxiety problem, participants received a severity score ranging from 1 – 8, according to ADIS guidelines. Severity scores of 4 and above are considered clinical. Following Simon, Bögels and Voncken (2011), we summed severity scores of past and current anxiety disorders, resulting in a lifetime score of parental anxiety disorder severity. Mothers' past and current anxiety disorder severity were correlated, $r = .49$, $p < .001$, and fathers' past and current anxiety disorder severity were also correlated, $r = .47$, $p < .001$. The continuous score of lifetime severity reflects both the number of the diagnosed anxiety disorders and their impact on participants' lives (Simon et al., 2011). The intraclass correlation for the interobserver reliability of mothers' lifetime severity scores was .95 and for fathers' lifetime severity scores .99. Because mothers' and fathers' scores of anxiety disorder severity were highly correlated, $r = .45$, $p < .001$, we aggregated mothers' and fathers' anxiety disorder severity into one score for parental anxiety disorder severity.

Infant fearful temperament

At 1 year, we assessed infant fearful temperament with 11 tasks from well-known standard laboratory instruments to assess fearful temperament (Aktar, Majdandžić, de Vente, & Bögels, 2013). All tasks were conducted by a female experimenter while the parent was sitting behind the child. The experimenter instructed the parent to remain neutral (except

if the child's reaction necessitated soothing). Three tasks were from the Laboratory Temperament Assessment Battery (Lab-TAB; Goldsmith & Rothbart, 1996): Unpredictable mechanical toy (a large, remote controlled toy train drove across the table towards the child three times), Stranger approach (a male stranger talked to, approached and picked up the child who was seated in a high chair), and Masks (the experimenter appeared from behind a curtain successively showing three masks; a grandmother, a tiger, and a black robot). Four discomfort tasks were used (Kochanska, Coy, Tjebkes, & Husarek, 1998): Ice (an ice cube was held against the foot and the neck of the child), Lemon (the child was given a spoon of diluted lemon juice), Spray (water was sprayed on the child's face), and Blender (the child was exposed to the noise of a blender for 30 seconds). In the Truck task (Calkins, Fox, & Marshall, 1996; Fox, Henderson, Rubin, Calkins, & Schmidt, 2001), a female stranger came into the room, played with a toy truck with blocks, and invited the child to join. Three unpredictable mechanical toy tasks were conducted at the home visit, modelled after Rothbart (1988): Buzzing animal (a small vibrating animal toy was placed within arm's reach distance of the child), Ambulance (a toy ambulance with light and sound rode towards the child), and Horse (a neighing toy horse approached the child).

In each task, the following child behaviors were coded across time intervals (see Goldsmith & Rothbart, 1996): latency to first fear response (except in Truck and the home visit tasks), intensity of facial fear, intensity of bodily fear, intensity of escape, and intensity of distress vocalizations. In addition, several task-specific behaviors were coded (e.g., latency to touch toy in relevant tasks; gaze aversion in Stranger Approach; distance to the stranger in Truck). The scores were averaged across coding intervals, then standardized and averaged for each task. Six observers were trained by a master coder to code the 11 tasks. To establish inter-observer reliability, the master coder coded 20% of each observer's data pool. Average inter-observer reliability (intraclass correlation) of coded variables across tasks was good: .82 ($SD = .11$; range .61 to .98). Internal consistency across child behaviors for each task was good, ranging from .70 to .91. Internal consistency across tasks was .79; because of this high internal consistency, we aggregated the 11 scores into one score for infant fearful temperament.

Coparenting

Coparenting was assessed through a structured play task, which was conducted during the home visit. Two trained graduate students visited families in their own homes to conduct a series of tasks, one of which was a play task to assess coparenting. Father, mother and child performed a claying task in which they were instructed to individually make a part of an animal and then to put the animal together with the three of them. This task was chosen, because it induces a joint goal in the triad and thereby elicits collaborative efforts between parents in the presence of their child. Students ended the task when families were taking longer than 8 minutes to finish the animal.

Coparenting was scored based on a coding protocol by Cowan and Cowan (1996), which consisted of the scales: pleasure, warmth, cooperation, displeasure, coldness, anger and competition (Schoppe, Mangelsdorf, & Frosch, 2001). Previous research that used the coding system of Cowan and Cowan (1996) collapsed these 7 scales into the two broader dimensions of supportive coparenting (an average of pleasure, warmth and cooperation) and undermining coparenting (an average of displeasure, coldness, anger, and competition; Altenburger, Lang, Schoppe-Sullivan, Dush & Johnson, 2015; Farr & Patterson, 2013; McHale, et al., 2004; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). In these previous studies, Cronbach's alpha for the dimensions was high (Schoppe et al., 2001). Because the high internal consistencies indicate that the scales measured the same dimension, we collapsed the scales into the two general dimensions of support and undermining before coding the data.

Coders assigned one score for support and one score for undermining to every family based on the entire interaction, taking into account the behaviors developed by Cowan and Cowan (1996) described above. Supportive and undermining coparenting were scored on a scale from 1 (*absent to very rare*) to 5 (*very much*). Supportive coparenting reflected the amount of pleasure parents had during the triadic interaction, the amount of warmth they expressed to each other, the extent to which parents collaborated with each other, and the extent to which they were involved with each other during the task. Undermining coparenting scores reflected the amount of displeasure parents expressed regarding their partner's interaction with the child; detachment from the partner; patronizing of the partner; hostility towards the partner; and competition over the child's attention. Coding was performed by a trained graduate student and the first author, and 16% ($n = 17$) of the data was double coded for reliability. The interobserver reliability (ICC) for supportive coparenting and for undermining coparenting was .75.

In addition to these scores, a third coparenting construct was measured: cohesion. This measure was based on the extent to which the family collaborated during the coparenting interaction and the extent to which the triad appeared balanced in the sense that parents responded to their partner's needs and requests. We added this construct to measure the quality of the coparenting interaction, and the family cohesion in one measure. The interrater reliability for cohesion was good, $ICC = .76$. Cohesion and supportive coparenting were highly correlated, $r = .81, p < .001$; therefore, cohesion and support were aggregated into one score of supportive coparenting.

Child anxiety symptoms

The total score of the Dutch version of the revised Preschool Anxiety Scale (PAS-R, Edwards, Rapee, Kennedy, & Spence, 2010) was used to measure children's anxiety symptoms at 4.5 years. Through 30 items, the PAS-R measures five anxiety disorders: social anxiety, generalized anxiety, separation anxiety, specific phobias, and OCD. In line with DSM-5

and with earlier use of the scale, the two items measuring OCD were not included (Broeren, Muris, Diamantopoulou, & Baker, 2013; Edwards et al., 2010). Examples of items are “My child is afraid of loud noises” and “My child worries about doing the right thing”. Items were rated on a 5-point Likert scale from 1 (*not at all true*) to 5 (*very often true*). The scale has good construct validity and internal consistency (Edwards et al., 2010). Reliability in the current study was good; Cronbach’s alpha = .88 for mothers’, and .92 for fathers’ ratings. Mothers’ and fathers’ ratings of their child’s anxiety symptoms were correlated ($r = .42, p < .001$) and were averaged to obtain one measure of child anxiety symptoms.

Data Analysis Plan

First, we inspected drop out. Then, Pearson’s correlations were performed to investigate the associations between infant fearful temperament at 1 year, observed coparenting at 2.5 years, child anxiety at 4.5 years, and parents’ prenatal anxiety disorder severity.

To test the moderated mediation model, we constructed path models (see Figure 1). We followed Preacher and colleagues (2007) in the statistical definition of the models. In the moderated mediation model, our aim was to test the indirect effect from infant fearful temperament through coparenting on child anxiety, and to test whether this indirect effect differed at different values of parental anxiety disorder severity. Moderated mediation effects were estimated by calculating the indirect effect from infant fearful temperament through coparenting on child anxiety symptoms, depending on different values of parental anxiety disorder severity (see Preacher et al., 2007).

We constructed separate path models for supportive coparenting and undermining coparenting. All models were fully saturated; therefore, no fit indices were calculated and only significant paths were interpreted in the analyses. Path models were analyzed in R (version 3.3.0) using the lavaan package (Rosseel, 2012). Full Information Maximum Likelihood (FIML) estimation was used to estimate the models. FIML assumes that missing data are missing at random; our data met this criteria (MCAR test, $\chi^2(36) = 47.34, p = .098$). All predictor variables were standardized before entering them into the path models. Model paths were considered significant at the $\alpha = .05$ level.

Some studies have found that the associations between infant temperament, coparenting, and child anxiety differ for fathers and mothers (Gordon & Feldman, 2008; Lindsey, Caldera & Colwell, 2005; Van Egeren, 2004). One study found that only fathers’ negative emotionality was a significant moderator in the associations between children’s difficult temperament and coparenting (Laxman et al., 2013). Therefore, we conducted post-hoc analyses to investigate whether our results differed when running two separate models for fathers’ and mothers’ anxiety disorder severity.

RESULTS

Preliminary Analyses

Before analyzing our data, we inspected whether families who dropped out differed on descriptive variables from families who did not drop out. After the prenatal measurement, 26 families (17.11%) dropped out; after the 1 year measurement, 2 families dropped out (1.60%); and after the 2.5 year measurement, 13 couples dropped out (10.57%). Hence, in total, 41 families (27.15%) dropped out of our study between the prenatal measurement and the 4.5 years measurement. When comparing these dropped out families to families who did not drop out, we found that mothers who dropped out had a lower salary ($M = 3.33$, $SD = 1.07$) than mothers who did not drop out ($M = 4.21$, $SD = 1.40$), $t(140) = 3.60$, $p < .001$. We found no differences between couples who did and did not drop out on parents' age, relationship duration, fathers' income, parents' educational level, child gender, or the key study variables (infant fearful temperament, and coparenting).

Table 1 displays the correlations between all key study variables, as well as means and standard deviations. We investigated differences between boys and girls on these key study variables through t-tests and found no significant differences ($p < .05$). In the current sample, 61.60% ($n = 93$) of mothers had one or more lifetime anxiety disorders, and 42.38% ($n = 64$) of the fathers had one or more lifetime anxiety disorders.

Table 1 Means, Standard Deviations and Correlations of the Key Study Variables.

	1.	2.	3.	4.	5.
1. Parents' Anxiety Disorder Severity					
2. Infant fearful temperament 1 year	-.12				
3. Support 2.5 years	-.02	.16†			
4. Undermining 2.5 years	-.05	-.12	-.21*		
5. Child Anxiety 4.5 years	.13	.16†	.09	-.18†	
M (SD)	6.75 (6.73)	0.00 (1.00)	3.04 (0.78)	2.50 (0.93)	1.96 (0.45)
N	151	120	110	118	110

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

Note: The score of infant fearful temperament is a composite of several tasks consisting of aggregated Z-score of coded variables, see Method.

Path Analyses

Supportive coparenting

First, we tested the path model that addressed the associations between infant fearful temperament, supportive coparenting and child anxiety symptoms (Figure 2). With regard to the direct effects, we found a trend demonstrating that high infant fearful temperament at 1 year was related to more child anxiety symptoms at 4.5 years ($p = .075$). We found no

associations between infant fearful temperament at 1 year and supportive coparenting at 2.5 years and between supportive coparenting at 2.5 years and child anxiety symptoms at 4.5 years ($p = .128$, and $p = .577$, respectively).

With regard to the moderation effects, we found that parental anxiety disorder severity did not moderate the path from infant fearful temperament at 1 year to supportive coparenting at 2.5 years ($p = .486$). We also found no moderation effect of parental anxiety disorder severity in the path from supportive coparenting at 2.5 years to child anxiety symptoms at 4.5 years ($p = .211$). Finally, we tested the moderated mediation effects to investigate whether the indirect effect from infant fearful temperament at 1 year through coparenting at 2.5 years related to child anxiety symptoms at 4.5 years depended on parental anxiety disorder severity. We found no evidence for moderated mediation, as we found no significant indirect effects for families with parents with high (2 *SD* above the mean; $\beta = -.05$, $p = .463$), average ($\beta = .00$, $p = .598$) and low (2 *SD* above the mean; $\beta = .00$, $p = .987$) levels of parental anxiety disorder severity. Thus, coparenting did not mediate the associations between infant fearful temperament at 1 year and child anxiety symptoms at 4.5 years, and the mediation effect did not depend on parents' anxiety disorder severity.

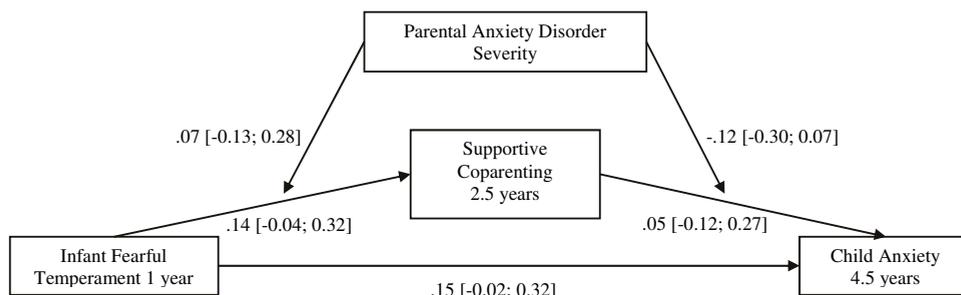


Figure 2. Path model representing the moderating role of parental anxiety on the relations from infant fearful temperament at 1 year to supportive coparenting at 2.5 years and on the relations from supportive coparenting at 2.5 years to child anxiety at 4.5 year. Between brackets, 95% confidence intervals are displayed.

* $p < .05$

As a post-hoc analysis, we once reran the models separately with mothers' anxiety disorder severity, and once with fathers' anxiety disorder severity. We found that the outcomes remained highly similar when running separate models for mothers' and fathers' anxiety disorder severity: direct, indirect, and moderation effects remained unchanged.

In sum, we did not find indications that infant fearful temperament predicts later supportive coparenting, or that supportive coparenting predicted later child anxiety symptoms. In addition, we did not find the expected moderation effects of parental anxiety in the associations between infant fearful temperament, supportive coparenting, and child anxiety symptoms. Hence, supportive coparenting was unrelated to infant fearful

temperament and child anxiety symptoms and parental anxiety did not play a role in these associations.¹

Undermining coparenting

Second, we tested the path models that addressed the associations between infant fearful temperament at 1 year, undermining coparenting at 2.5 year, and child anxiety symptoms at 4.5 years (Figure 3). We again found that more infant fearful temperament at 1 year predicted more child anxiety symptoms at 4.5 years ($p = .044$). We found no direct effect from infant fearful temperament at 1 year to undermining coparenting at 2.5 years ($p = .234$), and also no direct effect from undermining coparenting at 2.5 years to child anxiety symptoms at 4.5 years ($p = .103$).

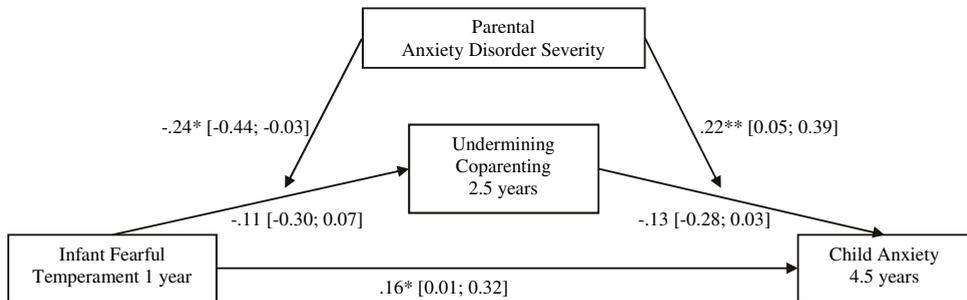


Figure 3. Path model representing the moderating role of parental anxiety on the relations from infant fearful temperament at 1 year to undermining coparenting at 2.5 years and on the relations from undermining coparenting at 2.5 years to child anxiety at 4.5 year. Between brackets, 95% confidence intervals are displayed.

* $p < .05$.

With regard to the moderation effects, we found that parental anxiety disorder severity moderated the relation between infant fearful temperament and undermining coparenting (see Figure 4 for a graphical representation) in the following direction: for parents with high scores on anxiety disorder severity (2 *SD* above the mean), higher infant fearful temperament at 1 year was related to less undermining coparenting at 2.5 years ($\beta = -.55$, $p = .008$), and for parents with average and low scores on anxiety disorder severity, infant fearful temperament did not relate to undermining coparenting ($\beta = -.11$, $p = .234$, and $\beta = .36$, $p = .134$, respectively). Thus, only in families in which one or both parents had high scores on anxiety disorder severity, higher infant fearful temperament at 1 year predicted lower scores on undermining coparenting at 2.5 years. In families in which parents had average to low scores on anxiety disorder severity, infant fearful temperament at 1 year did not predict undermining coparenting at 2.5 years.

¹ All discussed associations in the model for supportive coparenting was reran with parent-reported infant fearful temperament. Fearful temperament was measured using a composite score of fathers' and mothers' reports of their infants' temperament, a scale from the Revised Infant Behavior Questionnaire (IBQ-R; Gartstein & Rothbart, 2003).

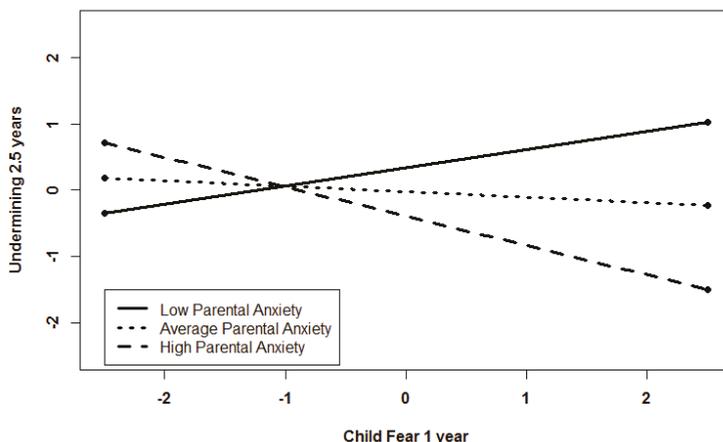


Figure 4. Graph of the interaction between parental anxiety disorder severity and infant fearful temperament at 1 year as predictors of undermining coparenting at 2.5 years. Low parental anxiety = 2 *SD* below the mean; average parental anxiety = the mean, high parental anxiety = 2 *SD* above the mean.

We also found a moderation effect of parental anxiety disorder severity on the association between undermining coparenting at 2.5 years and child anxiety symptoms at 4.5 years (see Figure 5 for a graphical representation). For parents with high scores on anxiety disorder severity, we found a trend that higher undermining coparenting at 2.5 years was related to higher child anxiety symptoms at 4.5 years ($\beta = .31, p = .099$). For parents with average scores on anxiety disorder severity, undermining coparenting at 2.5 years and child anxiety at 4.5 years were unrelated ($\beta = -.13, p = .103$). Unexpectedly, for parents with low scores on anxiety disorder severity higher scores on undermining coparenting at 2.5 years were related to less child anxiety symptoms at 4.5 years ($\beta = -.57, p = .002$). Thus, we found opposite effects for parents with high and low scores on anxiety disorder severity: whereas higher undermining coparenting is related to more child anxiety symptoms in families with one (or two) parents with high anxiety disorder severity, higher undermining coparenting is related to *less* child anxiety symptoms in families with low anxiety disorder severity.

We tested the moderated mediation effect, to investigate whether the indirect effect from infant fearful temperament at 1 year through coparenting at 2.5 years related to child anxiety symptoms at 4.5 years. We did not find evidence for this hypothesized moderated mediation effect: we found no significant indirect effects for families with parents with high (2 *SD* above the mean; $\beta = -.18, p = .161$), average ($\beta = .01, p = .335$), or low (2 *SD* above the mean; $\beta = -.21, p = .179$) parental anxiety disorder severity. Thus, coparenting did not mediate the associations between infant fearful temperament at 1 year and child anxiety symptoms at 4.5 years.

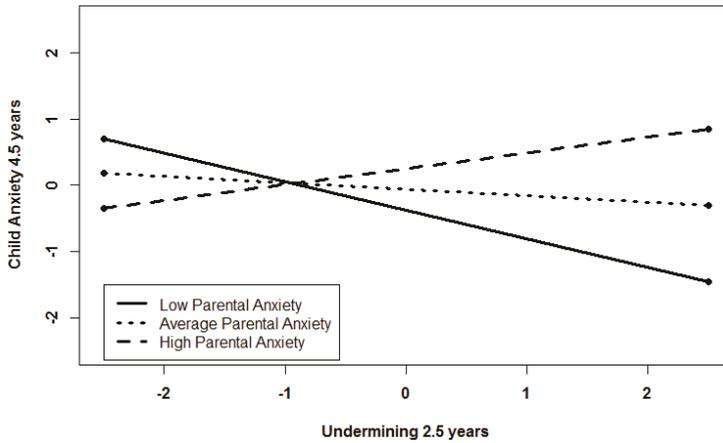


Figure 5. Graph of the interaction between parental anxiety disorder severity and undermining coparenting at 2.5 years as predictors of child anxiety at 4.5 years. Low parental anxiety = 2 SD below the mean; average parental anxiety = the mean, high parental anxiety = 2 SD above the mean.

When rerunning all models separately with mothers' anxiety disorder severity, and with fathers' anxiety disorder severity as post hoc analyses, we found that the moderation effect of mothers' anxiety disorder severity on the association between infant fearful temperament at 1 year and undermining coparenting at 2.5 years reached significance ($\beta = -.28, p = .010$), as was the case for the aggregated parental anxiety disorder severity score. For fathers, this effect was in the same direction, but it did not reach significance ($\beta = -.10, p = .262$). Hence, it appears that mothers' anxiety disorder severity is a stronger moderator in the association between infant fearful temperament and undermining coparenting than fathers' anxiety disorder severity. For the second moderation effect of mothers' versus fathers' anxiety disorder severity on the association between undermining coparenting at 2.5 years and child anxiety at 4.5 years, we found a trend for mothers in the same direction as in the model with the aggregated parental anxiety score ($\beta = .15, p = .063$); for fathers, we found a significant effect in the same direction as in the model with the aggregated parental anxiety score ($\beta = .20, p = .017$). Hence, for the interaction effect of parental anxiety disorder severity with undermining, results mainly remained the same running separate models for mothers' and fathers' anxiety disorder severity compared to the model with the aggregated score of parental anxiety disorder severity, with slightly stronger effects for fathers' anxiety disorder severity.

In summary, our results indicate that parents with higher levels of anxiety disorder severity whose infants display higher fearful temperament at 1 year display lower undermining coparenting at 2.5 years. This effect was stronger for mothers than for fathers. In turn, lower levels of undermining coparenting at 2.5 years in anxious parents may relate to less child anxiety at 4.5 years. On the other hand, for parents with low levels of anxiety disorder severity undermining coparenting does not depend on infant fearful temperament,

but higher levels of undermining at 2.5 years, rather than lower levels, predict less child anxiety at 4.5 years. We did not find indications that the relation between infant fearful temperament at 1 year and child anxiety symptoms at 4.5 years is mediated through undermining coparenting at 2.5 years.²

DISCUSSION

In the current study, we investigated the role of coparenting as a mediator in the association from infant fearful temperament to child anxiety, and the moderating role of parental anxiety in these associations. We found that higher observed infant fearful temperament predicted higher later parent-reported child anxiety. We found no associations from infant fearful temperament to supportive coparenting, or from supportive coparenting to child anxiety; neither did we find evidence for a mediating role of supportive or undermining coparenting in the development from infant fearful temperament to child anxiety, nor did we find evidence for parental anxiety disorder severity as a moderator in the associations between infant fearful temperament, coparenting and child anxiety. However, we did find that parental anxiety disorder severity moderates the associations between infant fearful temperament and undermining coparenting, and between undermining coparenting and later child anxiety. These interaction effects revealed that parents with high levels of anxiety disorder severity who had a highly fearful child became more undermining coparents, whereas the undermining coparenting of parents with low levels of anxiety disorder is unaffected by the infants' fearful temperament. In addition, parents with high levels of anxiety disorder severity who were undermining had children who became more anxious over time, whereas parents with low levels of anxiety disorder severity who were undermining had children who became less anxious over time.

In contrast with previous studies, we found no associations between infant fearful temperament and supportive coparenting, and between supportive coparenting and child anxiety. Others did find associations between fearful or difficult temperament and supportive coparenting in 5-month-olds, both cross-sectionally (Gordon & Feldman, 2008) and longitudinally (Davis et al., 2009; Laxman et al., 2013). Interestingly, the studies in which associations between child temperament, supportive coparenting, and child anxiety were significant used questionnaire data for only child fearful temperament/child anxiety, or also for coparenting. More in line with our results and our methodology, one study only found associations between observed infant fearful temperament and observed undermining coparenting, but not with supportive coparenting (Belsky, Putnam, & Crnic, 1996). One explanation for the differences in findings is thus that the associations between infant

² All discussed associations in the model for undermining coparenting were replicated in a second analysis in which fearful temperament was measured using a composite score of fathers' and mothers' reports of their infants' temperament (IBQ-R, Gartstein & Rothbart, 2003). Only the interaction effect between infant fearful temperament and parental anxiety disorder severity as a predictor of undermining coparenting became non-significant ($\beta = -.04, p = .763$) in the model with parent-reported fearful temperament.

temperament and coparenting differ due to methodology, as has been suggested before (Van Egeren & Hawkins, 2004). It could also be the case that, in fact, supportive coparenting is not related to infants' fearful temperament, as previous research mostly investigated the associations with the broader construct of difficult temperament and negative affectivity.

We also did not find a moderation effect of parental anxiety disorder severity in the associations between infant fearful temperament, supportive coparenting, and child anxiety. Hence, we can conclude that these three constructs were unrelated for all parents, independent of their anxiety disorder severity. In line with this finding, Laxman et al. (2013) also found that negative emotionality did not moderate the associations between parent-reported child difficult temperament and observed supportive coparenting. Hence, it may be the case that parental anxiety (and the related construct of negative emotionality) is unrelated to the associations between supportive coparenting and child behaviors. This is also in line with the lack of direct effects between supportive coparenting and parental anxiety in previous research (Metz et al., 2016). Hence, supportive coparenting may not be influenced by parental anxiety, which can also explain why parental anxiety does not moderate the associations between supportive coparenting and child behaviors.

With regard to undermining coparenting, we found that the associations between infant fearful temperament and undermining coparenting differed depending on parental anxiety disorder severity: only for parents with high levels of anxiety disorder severity, high fearful temperament in infancy predicted less undermining coparenting in toddlerhood, whereas fearful temperament and undermining coparenting were unrelated in families with parents with low to average levels of anxiety disorder severity. Thus, it may be so that couples in which one or both parents have high anxiety disorder severity are more sensitive to the anxious behaviors of their infant, and therefore adjust their coparenting in such a way that they become less undermining over time. Our results run in the opposite direction as results found in previous research on negative emotionality (Laxman et al., 2013): here, a difficult temperament related to more undermining coparenting if the father was high on negative emotionality, whereas we found that a fearful temperament relates to less undermining coparenting if one of the parents is highly anxious. One difference between our study and that of Laxman et al. (2013) was that we used observations of infant fearful temperament, whereas Laxman et al. (2013) used parent reports of child difficult temperament. Note however that when we re-analyzed our data with parent-reports of infant fearful temperament, we did not find a moderating effect of parental anxiety in the associations between infant fearful temperament and undermining coparenting, while we did find this effect with observed fearful temperament. Hence, our results suggest that the moderation effect of parental anxiety on the associations between infant fearful temperament and undermining coparenting differs for observed versus parent-reported infant temperament. This could be because parents' reports about their infants' fearful temperament depend on the parents' own parental psychopathology (Briggs-Gowan, Carter, & Schwab-Stone, 1996;

Treutler & Epkins, 2003). However, also with parent-reported infant fearful temperament, we did not replicate Laxman et al.'s (2013) effect that fathers' negative emotionality in combination with infant difficult temperament related to more undermining coparenting. Other differences between our study and that of Laxman et al. (2013) are that we studied parental anxiety, rather than the broader construct of negative emotionality, and that we used a clinical interview to assess anxiety, rather than parent-reports. These differences could also underlie differences in outcomes.

In post-hoc analyses, we analyzed models for mothers' and fathers' anxiety disorder severity separately. Contrary to Laxman et al (2013), we only found significant effects for mothers' parental anxiety disorder as a moderator in the association from infant fearful temperament to undermining coparenting, but not for fathers' parental anxiety disorder severity. Thus, not only did the direction of effects differ between our study and that of Laxman et al. (2013), we also found stronger evidence for an influence of mothers' anxiety, whereas Laxman et al. (2013) only found associations with fathers' negative emotionality. Interestingly, Laxman et al. (2013) found that higher levels of mothers' negative emotionality correlated with *lower* levels of undermining coparenting, whereas the authors found a trend in the direction that fathers' negative emotionality correlated with higher levels of undermining coparenting. Thus, it could be so that mothers' anxiety or negative emotionality are related to less undermining, whereas fathers' anxiety and negative emotionality relate to more undermining. This could then also explain why mothers' anxiety in combination with infant fearful temperament is related to less undermining, whereas this was not expected based on Laxman et al.'s (2013) outcome for fathers' negative emotionality. However, these results need to be interpreted with caution, as we did not replicate Laxman et al.'s (2013) findings and are the first to report these results; further research is needed to establish the nature of the differences between fathers' and mothers' anxiety in the associations between infant fearful temperament and undermining coparenting.

We not only found that parents' anxiety disorder severity played a role in the associations between infant fearful temperament and undermining, but we also found that parents with high and low anxiety disorder severity differed in the associations between undermining coparenting and later child anxiety: for parents with high levels of anxiety disorder severity, we found a trend that high levels of undermining coparenting related to more child anxiety over time, whereas for parents with low levels of anxiety disorder severity, high levels of undermining coparenting related to *less* child anxiety over time. Here, we did not find differences between fathers and mothers. Our results suggest that if parents are undermining in a family environment without an anxious parent, children become less anxious over time. On the other hand, in a family which is undermining and has an anxious parent, the child becomes more anxious over time. Hence, it may be the case that the combination of a highly undermining coparenting relationship with a highly anxious parent results in a more anxious child. This is in line with the reasoning of Majdandžić et al. (2012),

who suggested that an unsafe family environment can provoke anxiety in the child. The finding that children become less anxious over time in families with low levels of parental anxiety disorder severity who display high levels of undermining is surprising, given the general findings that more undermining is related to more infant fearful temperament and child anxiety (Cook et al., 2009; Lindsey et al., 2005; McHale & Rasmussen, 1998; Metz et al., 2016). However, longitudinal associations from undermining coparenting to child anxiety were only found by McHale and Rasmussen (1998). Hence, evidence on these longitudinal associations is still scarce. In line with our findings, it has been theorized that undermining coparenting can serve to toughen up children (Belsky et al., 1996; Park, Belsky, Putnam, & Crnic, 1997). These authors found that children who were highly fearful at 10 months were less fearful when they were 3 years old if parents were observed to be highly undermining (Belsky et al., 1996). Therefore, these authors suggested that it may be the case that more harsh coparenting can serve to make children more resilient and less likely to become anxious over time. Our results add to this finding that it may only be the case that undermining coparenting of non-anxious parents serves this beneficial outcome in children initially at risk for developing anxiety, whereas anxious parents' undermining coparenting can have detrimental effects on children's anxiety development, in line with the majority of empirical findings.

Taking the two moderating effects of parental anxiety disorder severity in the associations between infant temperament and child anxiety together, we found indications that parent couples who are highly anxious before the birth of their first child (either one or both parents) and then give birth to an infant that is predisposed to develop anxiety because of a high fearful temperament at the age of 1 year, in time learn to adapt to the needs of their sensitive infant by undermining their partner less when the child is 2,5 years of age. Possibly, when their children (of now 4,5 years) have moved away from their original anxious predisposition and have developed less anxiety when their parents did less undermining coparenting, and have moved towards their anxious predisposition and have developed more anxiety when their parents did more undermining coparenting. For parents who were not anxious before the birth of their child, it appears that these couples' undermining is unaffected by their child's temperament at 1 year; when these parents are undermining at 2.5 years, this protects their child from developing anxiety when they are 4.5 years old.

The current study was the first to investigate the mediating role of coparenting in the developmental trajectory from infant fearful temperament to child anxiety. Contrary to expectations, we found that in all parents, supportive and undermining coparenting did not mediate the relationship from infant fearful temperament to child anxiety. Hence, our results do not support the notion that change in family outcomes occurs through coparenting, as family systems theory proposed (Minuchin, 1974; Weissman & Cohen, 1985), and our results do also not support the idea that the mediational process through

coparenting differs for highly anxious and low-anxious parents. However, we did find that infant fearful temperament, coparenting, and child anxiety are related, and that these effects are moderated by parental anxiety. Thus, family member anxiety and coparenting do appear to be interrelated.

The current study carries several strengths. First of all, we collected longitudinal data which included observations of both infant fearful temperament and coparenting and we used these observational data to predict clinical symptom levels of child anxiety. Moreover, we reanalyzed all models with parent-reported fearful temperament, which enabled us to identify possible differences in the associations between observed versus parent-reported infant fearful temperament and coparenting. We also investigate parents' anxiety disorder severity before child birth, which made it possible to identify prenatal parental anxiety disorder severity as a risk factor in the development of child anxiety symptoms at 4.5 years, and we investigated fathers' and mothers' anxiety disorder severity separately. In addition, we were the first to investigate the theorized role of coparenting as a mechanism of change in the development of child anxiety. Through advanced statistical modeling, we investigated the role of parental anxiety in the associations between infant fearful temperament, coparenting, and child anxiety. This enabled us to investigate the complex dynamics that are at play in the intergenerational transmission of anxiety.

Our study also had some limitations and results should be interpreted with these limitations in mind. First, our data concern a fairly homogeneous sample of highly educated parents. This means that our results cannot be generalized to clinical samples. Furthermore, we used a prenatal measure of parents' anxiety disorder severity, which enabled us to study parents' trait anxiety unaffected by the infants' characteristics; however, it is likely that parental anxiety changes in the light of the child's characteristics, as the transmission of anxiety is a transactional process (Majdandžić et al., 2012), which means that it may be the case that parents' anxiety severity after birth is a more direct moderator of the associations between infant temperament, coparenting, and child anxiety.

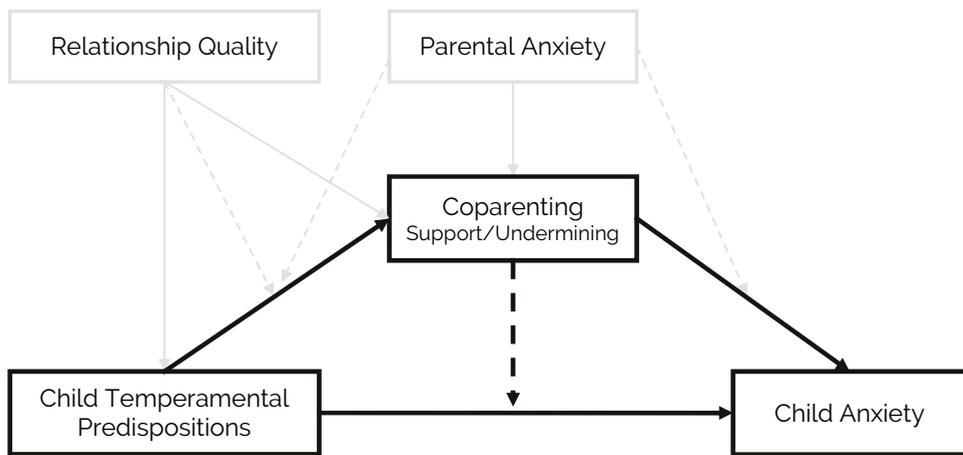
Our findings lead us to propose several implications for future research and practice. First, research should investigate parent samples with clinical anxiety levels, because our results suggest that it may be especially in those samples that the role of undermining coparenting has detrimental effects on the development of child anxiety. Moreover, these studies need to investigate whether our results can be replicated in a clinical sample, and also whether supportive coparenting plays a more significant role in high risk samples. Second, future research is needed to investigate the longitudinal associations between parental anxiety, (precursors of) child anxiety, and coparenting, as it may be the case that the transactional processes between coparenting, parental anxiety, and child anxiety change over time. It can also be the case that concurrent measures of parental anxiety show stronger relationships with coparenting and child anxiety, than our prenatal measure. Third, more research is needed on the role methodology plays in the associations between coparenting and infant

fearful temperament. Our results suggest that the way fearful temperament is measured influences the associations with coparenting. Also, the way coparenting is measured may affect the results in these associations. To understand the way coparenting relates to child outcomes, comprehensive research on the influence of methodology on research findings in this area is needed. Finally, we were the first to investigate the mediating role of coparenting in the development of child anxiety; future research is needed to replicate and to elaborate our findings.

With regard to practice, in the treatment of adult anxiety it is important to take into account that parents' anxiety disorders can be associated to the way they cooperate in their parenting, and this can again influence the development of anxiety in their child. Also in the treatment of child anxiety, practitioners should attend to the possible associations with undermining coparenting and parental anxiety, as these two factors can be explanatory in the development of child anxiety. With regard to prevention, it may benefit children if pregnant couples with at least one anxious partner are informed about the possible risks that their undermining behaviors can have on their child. Research demonstrated that prenatal programs can improve coparenting quality after birth (Feinberg & Kan, 2008; Feinberg, Jones, Kan, & Goslin, 2010) and it may be especially useful to offer these kinds of programs to anxious parents.

CONCLUSION

This study investigated the role of coparenting in the developmental trajectory from infant fearful temperament to child anxiety, as well as moderating effects of parental anxiety disorder severity in these associations. We conclude that parental anxiety plays a significant role in the associations between infant fearful temperament, undermining coparenting, and child anxiety. Highly anxious parents adapt to their infant's fearful temperament by becoming less undermining. If anxious parents are undermining, this may serve as a risk factor in the development of child anxiety, whereas undermining coparenting of low-anxious parents may serve as a protective factor in the development of child anxiety. Based on these findings, we recommend researchers and practitioners to attend to the role of parental anxiety in the associations between coparenting and children's development of anxiety.



Graphical representation of the associations tested in this thesis (adjustment of the model by Majdandžić et al., 2012). Dashed lines represent moderation effects. Lines in black are the effects that are tested in Chapter 4. Lines in grey are tested in other chapters.

CHAPTER

**When Father Steps Forward
and Mother Steps Back:
the Moderating Role of
Simultaneity in Coparenting in
the Development of Anxiety
in 4- to 30-Month-Olds**

4

ABSTRACT

Objective

Infants' negative affectivity is the strongest predictor of child anxiety. Coparenting might influence this development by weakening this association in the case of supportive coparenting, or by strengthening this association in the case of undermining coparenting. When parents act together they can display coparenting behaviors simultaneously (both parents being supportive or undermining), or divergently (only one parent being supportive or undermining). We investigated whether coparenting at 1 year moderated the relation between infant negative affectivity at 4 months and child anxiety at 2.5 years.

Methods

Supportive, neutral, and competitive coparenting behaviors were assessed at a micro-level in observations of 116 couples when changing the clothes of their infant. Since parents' undermining coparenting was sporadic, only simultaneous and divergent supportive coparenting were investigated. Infant negative affectivity and child anxiety were rated by both parents.

Results

Children's negative affectivity predicted child anxiety. Only parents' divergent supportive coparenting moderated the relation between negative affectivity and anxiety: only mothers being supportive strengthened the association, while only fathers being supportive weakened this association.

Conclusions

Interaction patterns in which fathers step forward, by being supportive in their coparenting, and mothers step back, by leaving space for father, might serve as a protective factor in the development of child anxiety for infants at risk.

INTRODUCTION

Relationships are important determinants of child development: positive mother-child relationships and secure attachment predicted positive child outcomes (e.g., Colonesi et al., 2011; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989; Rutter, 1990) and positive father-child interactions were associated with less child internalizing problems (Möller, Nikolić, Majdandžić, & Bögels, 2016; Rinaldi & Howe, 2012). More recently, researchers have begun to study not only the content of interactions, but also the way in which people interact (Harrist & Waugh, 2002). For example, researchers found that whether parents and their child were displaying positive affect at the same time (i.e., mutual positive affect) predicted children's self-control and communicative competence when children were 3 years old (Lindsey, Cremeens, Colwell, & Caldera, 2009), and the display of mutual negative affect in mother-child interactions predicted more internalizing problems in 5-year-olds (Harrist, Pettit, Dodge, & Bates, 1994). These studies illustrate that not only the content of interactions matters with regard to child development, but also the qualitative patterns of interactions.

Next to the dyadic mother-child and father-child relationship, another important relationship in the family environment is the coparenting relationship. Coparenting is defined as “the ways that parents and/or parental figures relate to each other in their role as parents” (Feinberg, 2003, p. 96). Minuchin (1974) argued that, because parents regulate the family through their joint family management, coparenting interactions serve as the executive subsystem of the family. Thus, that parents regulate the way the family interacts through coparenting might be one of the mechanisms that influences child development. Coparenting is generally divided into supportive coparenting (i.e., affirming the partner's competencies as a parent and respecting the partner's parenting contributions; Feinberg, 2003) and undermining coparenting (i.e., criticism, disparagement and blaming of the partner's parenting; Belsky, Woodworth, & Crnic, 1996; McHale, 1995).

A meta-analysis demonstrated that supportive coparenting is related to less internalizing problems in children (such as anxiety and depression), whereas undermining coparenting is related to more internalizing problems in children (Teubert & Pinquart, 2010). Research relating coparenting to specific disorders, however, is rare. Coparenting has been hypothesized to play a role in the maintenance of anxiety disorders in families (Majdandžić, De Vente, Feinberg, Aktar, & Bögels, 2012), because a coparenting relationship characterized by high levels of undermining and low levels of support can provide an unsafe family environment, which may induce anxiety in the child. On the other hand, a coparenting relationship characterized by high levels of support and low levels of undermining might protect children from the development of anxiety. As early child anxiety increases the risk of later child anxiety disorder, the development of more anxiety problems, and depression, knowledge regarding the development of anxiety is important (Beesdo-Baum & Knappe, 2012). The quality of the coparenting relationship is an early

influence on children and may therefore be an influential factor in the development of child anxiety.

Research addressing the relations between coparenting and measures of child anxiety is scarce; most research has addressed child temperament. To our knowledge, only one study directly studied child anxiety and found that undermining coparenting in infancy related to less teacher-reported child anxiety at 4 years (McHale & Rasmussen, 1998). Temperamental negative affectivity (prone to the experience of negative emotions, often denoted difficult temperament; e.g., Watson & Clark, 1984) has been identified as a risk factor for the development of later child anxiety (Fox, Henderson, Marshall, Nichols, & Ghera, 2005; Hirshfeld, et al., 1992). Studies of child temperament and coparenting found that child negative affectivity in 3.5-month-olds to 3-year-olds is related to less supportive coparenting and to more undermining coparenting, and vice versa. These results were found both concurrently (e.g., Gordon & Feldman, 2008; Metz, Majdandžić, & Bögels, 2016; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007) and longitudinally (e.g., Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Laxman et al., 2013). One study with 3- to 5-year-olds found no direct associations between observed and self-report measures of coparenting and child temperament (Stright & Bales, 2003). In sum, global, content-based measures of coparenting have been related to negative affectivity; however, relationships between coparenting and child anxiety remain relatively unexplored.

Besides main effects between child temperament and coparenting, several studies have identified coparenting behaviors as a moderator in the association between temperamental characteristics and developmental outcomes. In a study of the development of 1- to 5-year-olds across the birth of a sibling, children high in negative affectivity showed an increment in internalizing behaviors (behaviors such as being shy, withdrawn, or moody) only when their parents were high on undermining before the birth of the second child (Kolak & Volling, 2013). No associations were found between negative affectivity and internalizing problems in children with parents low on undermining. Similar results have been found for child temperamental dysregulation (Altenburger, Lang, Schoppe-Sullivan, Dush, & Johnson, 2015) and externalizing behavior problems (Schoppe-Sullivan, Weldon, Cook, Davis & Buckley, 2009). The associations between coparenting and child temperamental characteristics are in line with the goodness-of-fit theory which entails that developmental outcomes can be predicted by an interaction between infant temperament and the infant's environment (Thomas & Chess, 1977). Also, Minuchin (1974) suggested that coparenting may be a determining factor in the (mis)match between infant temperament and family adjustment. In addition, the direct effects between coparenting and child outcomes are generally small (Teubert & Pinquart, 2010). Therefore, coparenting should not only be considered as a main effect, but also as a moderator in the study of child anxiety.

As a consequence of the focus on broad coparenting dimensions in coparenting research, studies on coparenting have thus far provided limited insight into the interaction patterns between mothers and fathers that constitute the quality of the coparenting relationship.

Definitions and operationalizations of coparenting strongly focus on the quality of the relationship and this quality is usually defined in terms of ‘supportive’ or ‘undermining’ coparenting (Belsky, Woodworth, & Crnic, 1996; Feinberg, 2003; McHale, 1995). Thus, up until now, coparenting research focused on the content of coparenting interactions (i.e., positive or negative), and not on the way coparents interact in terms of observable interaction patterns, such as timing of behaviors between partners (are they concurrent, consecutive, or unrelated) and flexibility. Therefore, in the current study we underwent a first attempt at inspecting the ways in which coparenting partners interact through measures of coparenting simultaneity and how this affects the development of anxiety in children.

A commonly used measure in research on interactional dynamics is synchrony, which can be defined as “an observable pattern of dyadic interaction that is mutually regulated, reciprocal, and harmonious” (Harrist & Waugh, 2002). Synchrony is a term that is used in several ways: some researchers refer to synchrony in terms of simultaneous or concurrent behaviors, whereas others refer to synchrony in terms of consecutive behaviors, for example, mother smiles and the infant follows this behavior with smiling as well (Harrist & Waugh, 2002). In the current study, we investigated the simultaneous, concurrent type of synchrony. Simultaneity between parents and their child has been found to be related to developmental outcomes such as self-regulation, symbol use and the capacity of empathy in childhood and adolescence (Feldman, 2007). Research on romantic relationships and general cooperation found that more simultaneous behaviors relate to more affective relationships, higher relationship satisfaction, and higher quality cooperation (Harrist, Pettit, Dodge, & Bates, 1994; Hove & Risen, 2009; Julien, Brault, Chartrand, & Bégin, 2000; Thomassin & Suveg, 2014; Valdesolo, Ouyang, & DeSteno, 2010). For example, couples who simultaneously changed their body position and body openness during conversation were more satisfied with their relationship than couples who differed in the timing of these behaviors (Julien, et al., 2000). An interesting result from research on simultaneity is that not only was the experience of this type of synchrony related to positive affiliation between persons, but that also the *perception* of the co-occurrence of behaviors in others by a third person was related to a more positive interpretation of the relationship by the observers (Miles, Nind & Macrea, 2009).

Even though simultaneity has been investigated in parent-child interactions and in interactions between romantic partners, to our knowledge the role of the co-occurrence of behaviors between parents in the presence of their child has not yet been studied. On the one hand, the results of previous research suggest that children who perceive their parents’ coparenting behaviors as highly simultaneous might obtain a positive view of their parents’ relationship, which in turn could affect their feelings of safety and reduce anxiety. On the other hand, highly simultaneous coparenting interactions may predict poorer child outcomes because it could indicate high dependence of partners on each other. Also, low flexibility in parent-child interactions has been indicated as a risk factor for the development of internalizing behavior problems (Hollenstein, Granic, Stoolmiller, & Snyder, 2004).

Highly simultaneous (and inflexible) coparenting might signal that parents are less capable of adjusting their behaviors to their child or that they are unable to give space to each other to interact with the child at an individual level.

The goal of the current study was to investigate whether coparenting behaviors and the simultaneity of coparenting contribute to the stability or change in the development from child negative affectivity to later child anxiety and to investigate the moderating role of coparenting in this development. Using longitudinal questionnaire data and observational measures of coparenting during a home visit when children were 1 year old, we investigated several associations. First, we investigated parents' observed coparenting in relation to infant negative temperament and to child anxiety. Second, as a qualitative measure of coparenting, we investigated parents' simultaneity in their coparenting behaviors in relation to infant negative temperament and child anxiety. We distinguished specific patterns of simultaneity in coparenting: simultaneous coparenting occurred when parents displayed the same coparenting behavior at the same moment in time, whereas divergent coparenting occurred when parents displayed different coparenting behaviors at the same moment in time. Third, we studied coparenting (behavior and simultaneity) as a moderator of the relation between infant negative affectivity and later child anxiety. In order to construct measures of coparenting simultaneity, we observed coparenting behaviors on a micro-level, as suggested by Gordon and Feldman (2008). In addition to coparenting, we coded infant emotionality to control for effects of the infant's emotional state during the task.

We firstly hypothesized that high infant negative affectivity relates to the later level of child anxiety, and that supportive coparenting behaviors at 1 year relate to less child anxiety at 2.5 years, whereas undermining coparenting behaviors relate to more later child anxiety. Secondly, we expected that for families with low coparenting quality (in terms of infrequent supportive behaviors and frequent undermining coparenting behaviors), the relationship between child negative affectivity and later child anxiety would be stronger than for families with high coparenting quality (in terms of frequent supportive coparenting behaviors and infrequent undermining coparenting behaviors). Lastly, we explored the direct effect and the moderating effect of coparenting simultaneity in relation to the development of child anxiety for the first time.

METHOD

Participants

In the current study (The Social Development of Children), 116 mothers, fathers and their first-born infants participated (60 girls)¹. The study is part of an ongoing longitudinal study on the antecedents of social anxiety in young children. Through advertisements in magazines

¹ In the longitudinal study of which our study is part, total *N*'s are: 4 months *N* = 139; 1 year *N* = 132; 2.5 years *N* = 124. Only families with data for measures used in the current study were included.

and flyers distributed by midwives, we recruited couples expecting their first child. Families received a gift voucher after finishing every measurement. The ethical committee approved the research and all participants provided written informed consent. One-hundred-sixteen families participated at child age 4 months ($M = 4.19$ months, $SD = 0.32$), 102 at 1 year ($M = 12.35$ months, $SD = 0.70$), and 106 at 2.5 years ($M = 30.07$ months, $SD = 0.44$). Dropout was mainly due to couples indicating that the research took too much of their time.

Fathers' age when children were 4 months old ranged from 22 – 59 years ($M = 33.80$, $SD = 5.35$), mothers' age ranged from 20 – 42 years ($M = 31.00$, $SD = 3.94$). Fathers and mothers were generally highly educated ($M = 6.92$, $SD = 0.96$ and $M = 7.18$, $SD = 1.02$ respectively), measured on a scale from 1 (*finished primary school*) to 8 (*finished university*). When children were 4 months old, 95% of couples were married, 2% of couples filled out “other”, and 5% did not fill out their marital status. At 1 year, 94% of couples were married, 1% of couples was divorced, 1% filled out “other”, 4% did not fill out their marital status. At 2.5 years, 84% of couples were married, 2% of couples were divorced, 3% of couples filled out “other”, and 11% did not fill out their marital status. Results of the models reported further on were the same for only married couples and all couples combined; therefore, we report all results for the whole sample.

Procedure

In the longitudinal study, parents participated in a prenatal measurement including an interview and several questionnaires. When children were 4 months, 1 year and 2.5 years old, fathers and mothers separately came to the research lab with their infant to conduct structured tasks, completed a home visit with several tasks, and filled out a number of questionnaires about their child and their parenting behaviors. In the current study, we used questionnaire data about temperament from the 4 month measurement, observations of coparenting from the home visit at 1 year, and questionnaire data about child anxiety from the 2.5 year measurement.

Measures

Negative affectivity

At 4 months, fathers and mothers completed the Revised Infant Behavior Questionnaire (IBQ-R; Gartstein & Rothbart, 2003). The IBQ-R assesses infant temperament from 3 months to 1 year and consists of 14 scales with 191 items which are rated on a 7-point Likert scale from 1 (*never*) to 7 (*always*). Parents were asked how often, during the past seven days, their child displayed specific behaviors. For the current study we created the dimension negative affectivity by averaging the following scales: sadness (14 items; e.g., “Did the baby seem sad when the caregiver was gone for an unusually long period of time?”), distress to limitations (16 items; e.g., “When placed on his/her back, how often did the baby fuss or protest?”), fear (16 items; e.g., “How often during the last week did the baby startle

to a sudden or loud noise?”), falling reactivity (reversed, 13 items; e.g., “When frustrated with something, how often did the baby calm down within 5 minutes?”), and soothability (reversed, 11 items; e.g., “When patting or gently rubbing some part of the baby’s body, how often did s/he soothe immediately?”). Cronbach’s α across these five scales of negative affectivity was .76 for mothers and .79 for fathers. Fathers’ and mothers’ scores for negative affectivity were significantly correlated ($r(93) = .40, p < .001$); therefore, a father-mother composite score was created.

Child anxiety symptoms

At 2.5 years, fathers and mothers completed the Dutch version of the revised Preschool Anxiety Scale (PAS-R, Broeren & Muris, 2008; Edwards, et al., 2010) to measure children’s anxiety symptoms. Using 30 items, the PAS-R measures five anxiety disorders: social, generalized, separation, specific phobias, and OCD. In line with DSM-V criteria, the two items measuring OCD were not included. This is also in line with previous use of the scale (Broeren, Muris, Diamantopoulou, & Baker, 2013; Edwards et al., 2010). The average of the remaining 28 items was used as a measure of child anxiety. Examples of items are “My child is afraid of loud noises” and “My child worries about doing the right thing”. Items were rated on a Likert scale from 1 (*not at all true*) to 5 (*very often true*). The scale has good construct validity and internal consistency (Broeren & Muris, 2008; Edwards et al., 2010). Cronbach’s α was .89 for mothers’ ratings and .93 for fathers’ ratings. Mothers’ and fathers’ ratings of their child’s anxiety were significantly correlated, $r(88) = .53, p < .001$; therefore a composite score was used.

Coparenting

Coparenting behaviors were assessed at 1 year using a task in which parents were asked to change the infant’s clothes. In order to assess parents’ coparenting in a natural but controlled setting, parents were instructed to change their child together into a clown’s suit, including trousers, a jacket (opening at the front), and a hat. Parents were instructed to dress up the child together, and to act the same way they would normally do. Changing clothes tasks have been used previously in coparenting research (e.g., Schoppe-Sullivan, Mangelsdorf, Brown & Sokolowski, 2007; Umemura, Christopher, Mann, Jacobvitz, & Hazen, 2015), in order to involve parents in a task that has a joint goal and thereby induces collaboration (Schoppe-Sullivan et al., 2007). Parents could freely choose whether they wanted to put the clothes over the child’s own clothing, or to first undress the child. Parents varied in the time it took them to dress their child from 51 seconds to 185 seconds ($M = 99.00, SD = 28.9$). Couples of trained graduate students conducted the home visits and videotaped the interaction with a handheld digital camera.

Coding coparenting

Coparenting behaviors were micro-coded using Observer XT 10.5 software (Noldus, Trienes, Hendriksen, Jansen, & Jansen, 2000), which allows for 1-second exactness. Coders assigned scores based on event-sampling, providing data on the duration of behaviors. Coding of the observations started as soon as the test leader finished the task instructions. Coding ended when parents put the last piece of clothing on the child and the test leader began to talk again in order to continue with the next task. Data were coded by three trained graduate level students (training reliability = $\kappa > .80$) and the first author. Observers coded both mothers and fathers in the same interaction. The order in which families were coded was randomized.

To our knowledge, the only previous study using micro-coding for coparenting was Gordon and Feldman (2008). We based our coding system on the system described by Gordon and Feldman (2008), which included the categories of Competitive, Neutral/Passive, and Mutual. Within Neutral/Passive, we distinguished neutral and passive behaviors as separate categories, and we added the behavioral category of cooperation. The behavioral categories were coded as follows:

- 1) Competitive – Competitive behaviors are behaviors that are clearly and explicitly negative towards the partner and interfere with the partner’s social attempts towards the child, such as disagreeing with the partner’s initiatives, ignoring or excluding the partner, and competing for the child’s attention.
- 2) Passive – Passive behaviors occurred when the parent was not engaged in the task (for example, on the phone or talking about the groceries). Because passive behaviors did not occur in our sample (for mothers in 0% of observations, $n = 0$; for fathers in 0.57% of all observations, $n = 2$), passive behaviors were not included in further analyses.
- 3) Neutral – Neutral behaviors occurred when the parent was engaged in the task, but was not performing any coparenting initiatives (for example, the parent is watching while their partner dresses the child).
- 4) Mutual – Mutual behaviors are behaviors that are clearly positive towards the partner and reinforce the presence of the partner, such as involving the partner in the interaction (“Daddy, can you put on the hat?”), giving compliments to the partner (“Mommy is always so good at making you smile!”), and talking about the triad (“Now, you, mommy and I are going to changes your clothes!”).
- 5) Cooperation – we extended the above described behavioral categories of Gordon and Feldman (2008) with the category of cooperative behaviors in order to create a mutually exclusive and exhaustive coding system, because some common behaviors were not captured in the described categories. Cooperative behaviors are behaviors that show responsivity to the partner, but that are not explicitly positive, such as asking and answering questions, agreeing, and going along with the partner’s initiatives.

Mutual behaviors were uncommon in our sample (2.35% of the time of all interactions). Because the categories of Mutual and Cooperative are both supportive coparenting behaviors (i.e., affirming the partner's competencies as a parent and respecting the partner's parenting contributions; Feinberg, 2003), we aggregated the two categories of Mutual and Cooperation into Supportive coparenting, $r(102) = -.057, p = .571$. This resulted in three categories, in line with Gordon and Feldman's (2008) coding system: Competitive, Neutral, and Supportive. For further analyses, we calculated the percentage of the total duration of the observation that the behavior occurred for every behavioral category. Due to the low occurrence of competition (0.89% of the time of all interactions), we used a dichotomous score of competition in the correlation analyses. This score reflected whether the behavior did or did not occur in the family. In the multivariate analyses, we did not include the dichotomous measure of competition.

Twenty-three percent ($n = 24$) of the data were double coded by all four coders to determine interrater reliability. Reliability was calculated across all coding categories together. Reliability of the coding scheme for coparenting behavior was good for mothers and for fathers ($\kappa = .69$ and $\kappa = .72$, respectively).

Simultaneity measures

We calculated the extent to which parents showed simultaneous coparenting behaviors using neutral and supportive coparenting behaviors. Coparenting simultaneity was computed using the nesting procedure (i.e., temporal co-occurrence) of Observer XT. Three types of simultaneity were identified:

- 1) *Simultaneous support (both parents supportive)* when both father and mother were performing supportive coparenting at the same moment in time (e.g., father holds the child's legs while mother puts on the pants, or mother dresses the child while father at the same time says "You are going to be a very beautiful clown, you see?!").
- 2) *Only mother supportive (mother supportive – father neutral)* when mother was supportive while father was neutral (e.g., mother puts on the child's pants because father asked her to do so while father is sitting next to mother and child, or mother asks father "Can you hold the hat?" while father is waiting for mother to put on the pants).
- 3) *Only father supportive (mother neutral – father supportive)* when mother was neutral while father was supportive (e.g., father answers a question mother asked while mother waits for father's answer, or father asks mother "Should I put on the trousers now?" while mother is sitting next to father and child).
- 4) *Simultaneous neutral (both parents neutral)* when both father and mother were present at the task, but were not initiating any collaborative behaviors (e.g., father and mother are discussing who should pick up the phone, or father and mother are watching the child as the child is exploring the clothes).

We did not include the ‘simultaneous neutral’ category in the analyses, because we were interested in the presence of simultaneity in coparenting, not in the absence of coparenting. For further analyses, for every type of simultaneity, we calculated the percentage of the total duration of the observation that the behavior type occurred.

Coding infant emotionality

During the coparenting task, we coded infants’ emotionality per observation in order to control for infants’ level of affect and pleasure during the dressing-up, because the infants’ state could influence the coparenting behavior of the parents. Infants’ emotionality was coded on a three-point scale: 1) *negative affect*: infant is crying, screaming or verbally stating that they do not enjoy the task, 2) *neutral affect*: infant is not expressing strong positive or negative emotions, and 3) *positive affect*: infant is laughing, smiling or verbally stating that they enjoy the task. Infant emotionality was coded by two trained undergraduate students using 28% ($n = 29$) of the data. Inter-rater reliability was excellent (intraclass correlation = .98).

Data Analyses

First, Pearson’s correlations were performed to test the associations between the study variables: child negative affectivity, child anxiety, cooperative coparenting, simultaneous coparenting (both supportive) and divergent coparenting (mother supportive – father neutral, and mother neutral – father supportive). For the dichotomous measure of competitive coparenting, we ran point-biserial correlations. Next, path analyses were performed to test relationships between negative affectivity, coparenting behaviors and simultaneity, and child anxiety, as well as moderation effects of coparenting behaviors and simultaneity on these relations. Path models were analyzed in R (version 3.3.0) using the lavaan package (Rosseel, 2012).

In the path models, paths were included based on our hypotheses that child negative affectivity predicted subsequent child anxiety, and that coparenting behaviors predicted subsequent child anxiety. To test the moderating role of coparenting in the relationship between infant negative affectivity and child anxiety, we included an interaction effect between negative affectivity and coparenting as a predictor of child anxiety. Thus, construction of path models was theory driven rather than data driven (i.e., paths were included based on hypotheses and not based on their statistical significance).

Before constructing the path models, missing data were inspected. Only families who completed the home visit at 1 year and at least one other measurement were included in the current study, resulting in a total of 102 families that were included in the path models.

We constructed three path models: one model testing the hypothesized associations for mothers’ and fathers’ supportive coparenting, one model testing the hypothesized associations for simultaneous coparenting, and one model testing the hypothesized

associations for divergent coparenting interaction patterns. Because all models were fully saturated, no fit indices were calculated and only significant paths were interpreted in the analyses. Full Information Maximum Likelihood (FIML) estimation was used to estimate the models. FIML assumes that missing data are missing at random; our data met this criteria (MCAR test, $\chi^2(65) = 83.9, p = .057$). All predictor variables were standardized before entering them into the path models. Model paths were considered significant at the $\alpha = 0.05$ level.

RESULTS

Descriptive analyses

The observed level of infant emotionality was unrelated to supportive coparenting, for mothers, $r(102) = .13, p = .212$ and for fathers, $r(102) = .15, p = .144$, and to coparenting simultaneity: for simultaneous coparenting, $r(102) = .13, p = .184$; for mother supportive – father neutral, $r(102) = -.05, p = .621$; and for mother neutral – father supportive, $r(102) = .02, p = .863$. Infant emotionality in the observations also did not relate to parent reports of the infants' negative affectivity, $r(102) = -.05, p = .660$, and to infants' level of anxiety, $r(102) = .07, p = .543$. Infant emotionality was therefore not included in further analyses.

Table 1 Descriptives of Proportions of Observed Coparenting Behaviors, Proportions of Coparenting Simultaneity, Child Negative Affectivity, and Child Anxiety

	<i>M</i>	<i>SD</i>	<i>Range</i>
Mother			
Supportive Coparenting	47.37	16.63	6.56 – 82.68
Neutral Coparenting	51.77	16.63	17.32 – 92.13
Competitive Coparenting	0.86	1.52	0.00 – 7.31
Father			
Supportive Coparenting	46.67	16.48	3.03 – 86.12
Neutral Coparenting	52.37	16.35	12.91 – 96.97
Competitive Coparenting	0.38	0.97	0.00 – 4.33
Child			
Negative Affectivity	2.69	0.41	1.89 – 3.82
Child Anxiety	1.73	0.40	1.05 – 2.86
Simultaneity			
Both parents supportive	39.85	17.15	0.00 – 77.39
Mother supportive – father neutral	04.75	03.45	0.00 – 17.76
Mother neutral – father supportive	04.48	03.49	0.00 – 15.26
Both parents neutral			

Descriptive statistics of the study variables are presented in Table 1. Competitive coparenting of mothers and fathers occurred in 36.27% and 18.63% of all observations, respectively. Neutral and supportive behaviors were observed in all (100%) observations. The correlations between the study variables are presented in Table 2. The score for supportive coparenting was highly correlated for mothers and fathers ($r(102) = .95, p < .001$); therefore, we constructed a composite score of mothers' and fathers' scores for supportive coparenting. This composite score was used in all further analyses. In addition, the correlations revealed that supportive coparenting and simultaneous coparenting were highly correlated, $r(102) = .98, p < .001$; therefore, we only presented the path model for the composite score of mothers' and fathers' supportive coparenting. In addition, supportive coparenting correlated with divergent coparenting; therefore, we added supportive coparenting as a covariate in the path model of divergent coparenting.

Table 2 Correlations between Proportions of Coparenting, Coparenting Simultaneity, Child Negative Affectivity, and Child Anxiety

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Proportions										
1. Mother Supportive Coparenting										
2. Mother Neutral Coparenting	-.99**									
3. Mother Competitive Coparenting	-.04	-.05								
4. Father Supportive Coparenting	.95**	-.95**	.03							
5. Father Neutral Coparenting	-.93**	.93**	-.03	-.97**						
6. Father Competitive Coparenting	.01	-.03	.22*	-.02	-.06					
Simultaneity										
7. Simultaneous support	.96**	-.96**	-.01	.98**	-.95**	.00				
8. Mother supportive – Father neutral	-.25**	.26**	-.05	-.12	.15	-.02	-.32**			
9. Mother neutral – Father supportive	.04	-.03	-.09	.19	.22*	-.02	-.24**	.29**		
Child										
10. Negative affectivity	.03	-.04	.19	.06	-.08	-.01	.10	-.24*	-.54*	
11. Child anxiety	-.01	.00	.14	.02	-.01	-.17	-.01	.09	.02	.27*

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

Preliminary analyses were conducted to investigate whether infant gender and parents' SES were related to measures of coparenting, child negative affectivity and child anxiety. Mothers of boys showed a significantly higher percentage of support than mothers of girls, $F(1, 99) = 5.18, p = .025$. Also, both mothers and fathers of boys showed a significantly lower percentage of neutral coparenting than mothers and fathers of girls, $F(1,99) = 5.06, p = .027$, and $F(1,99) = 4.35, p = .040$, respectively. Mothers' and fathers' supportive coparenting did not differ significantly, $t(101) = 1.32, p = .191$. Also, parents' neutral coparenting did

not differ significantly, $t(101) = -0.98, p = .330$. Correlation analyses revealed that when mothers had a higher educational level, mothers and fathers showed more supportive coparenting, $r(102) = .20, p = .040$ and $r(102) = .21, p = .030$, respectively, and mothers and fathers showed less neutral coparenting, $r(102) = -.20, p = .041$ and $r(102) = -.22, p = .024$, respectively, and parents displayed more simultaneous supportive coparenting, $r(102) = .20, p = .048$. Also, when mothers' income was higher, children were perceived as lower in negative affectivity, $r(102) = -.20, p = .049$. No significant relations were found with parents' age, fathers' educational level, and fathers' income ($p > .05$). Path models were conducted with and without child gender, mothers' educational level, and mothers' income level as control variables. Results stayed the same with and without control variables. For reasons of parsimony, we report the models without these control variables.

Path models

Supportive coparenting

The path model for supportive coparenting is presented in Figure 1. Negative affectivity was significantly related to child anxiety ($p = .006$). The hypotheses that infant negative affectivity would be related to less cooperative coparenting and that supportive coparenting in turn would be related to less child anxiety were not supported ($p = .748$ and $p = .972$, respectively). Also, supportive coparenting did not moderate the association between child negative affectivity and child anxiety ($p = .114$).²

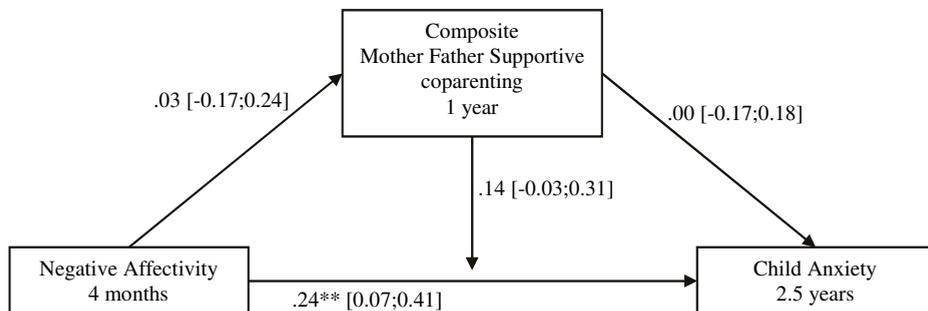


Figure 1. Path model examining the moderation of the composite score of mothers' and fathers' supportive coparenting in the relation between infant negative affectivity and child anxiety. Estimates are standardized beta coefficients (95% confidence intervals are given between brackets). * $p < .05$ ** $p < .01$

Divergent coparenting

In the second model (Figure 2), infant negative affectivity was again related to more toddler anxiety ($p = .002$). In this model, we found that more infant negative affectivity significantly

2 Results for the model of simultaneous coparenting were highly comparable to the results in the model of supportive coparenting.

predicted less divergent coparenting of the type ‘mother supportive – father neutral’ ($p = .016$) and also less divergent coparenting of the type ‘mother neutral – father cooperative’ ($p = .016$). We did not find main effects from ‘mother supportive – father neutral’ and ‘mother neutral – father supportive’ to child anxiety ($p = .273$ and $p = .726$, respectively); however, we did find moderation effects.

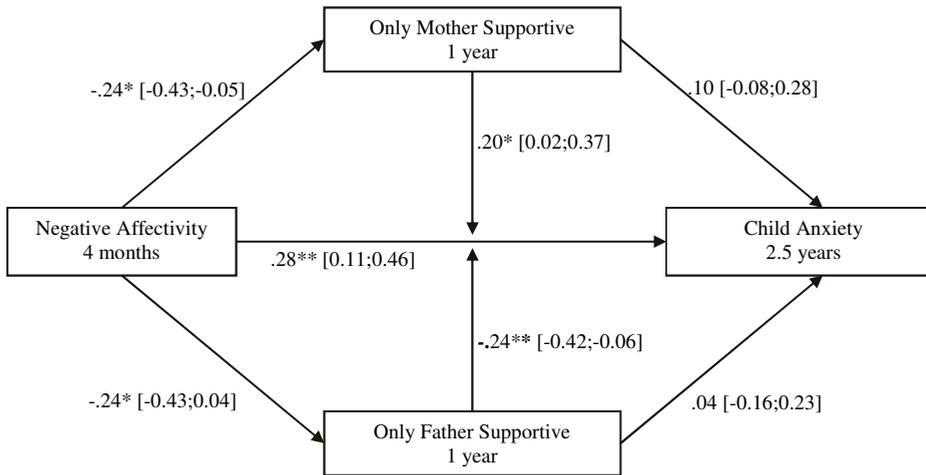


Figure 2. Path model examining the moderation of divergent coparenting behaviors (consisting of only mothers’ supportive coparenting while father is neutral, and only fathers’ supportive coparenting while mother is neutral) in the relation between negative affectivity and child anxiety. Estimates are standardized beta coefficients (95% confidence intervals are given between brackets). The composite score of mothers’ and fathers’ support is accounted for in the statistical model, but is not displayed in the graphical representation. * $p < .05$ ** $p < .01$

We found that both divergent coparenting of the type ‘mother supportive– father neutral’ and of the type ‘mother neutral – father supportive’ moderated the association between negative affectivity and child anxiety ($p = .030$ and $p = .009$, respectively). Probing of the interaction with ‘mother supportive – father neutral’ demonstrated that in families scoring 2 *SD* below the mean on this measure of divergent coparenting, negative affectivity and child anxiety were unrelated ($\beta = -.12$, $p = .592$). In contrast, in families with average scores and scores 2 *SD* above the mean on ‘mother supportive – father neutral’, negative affectivity was related to more child anxiety ($\beta = .28$, $p = .002$, and $\beta = .67$, $p = .001$, respectively). Thus, in families with coparenting interaction patterns characterized by ‘mother supportive – father neutral’, infant negative affectivity predicted more subsequent child anxiety than in families not characterized by this divergent coparenting.

Probing of the interaction with divergent coparenting characterized by ‘mother neutral – father supportive’ demonstrated that for families with scores 2 *SD* below the mean and

average scores, negative affectivity was related to more child anxiety ($\beta = .76, p < .001$ and $\beta = .28, p = .002$, respectively). In contrast, in families with scores 2 *SD* above the mean on ‘mother neutral – father supportive’, negative affectivity was unrelated to child anxiety ($\beta = -.20, p = .313$). Thus, in families with divergent coparenting characterized by the pattern ‘mother neutral- father supportive’, infant negative affectivity did not predict later child anxiety; however, in families in which this pattern occurred less, infant negative affectivity predicted more child anxiety.

DISCUSSION

The current study aimed to investigate whether coparenting predicts child anxiety and whether coparenting moderates the relationship between infant negative affectivity and child anxiety. Coparenting was conceptualized both in the regular way of fathers’ and mothers’ coparenting behaviors, and in terms of dyadic simultaneity between fathers’ and mothers’ coparenting behaviors. The main results were: (I) infant negative affectivity predicted later child anxiety; (II) the extent to which mothers and fathers supported each other while dressing up their 1-year old infant did not independently relate to either earlier infant negative affectivity, or later child anxiety, and did not moderate the relationship between negative affectivity and child anxiety; (III) simultaneous coparenting did not relate to infant negative affectivity or child anxiety and did not moderate the relationship between negative affectivity and later child anxiety; (IV) for the two patterns of divergent coparenting, we found moderation effects: a high occurrence of patterns characterized by mother supportive while father was neutral related to stronger associations between infant negative affectivity and child anxiety, whereas a high occurrence of patterns characterized by mother neutral while father was supportive related to weaker associations between infant negative affectivity and child anxiety.

In line with previous studies (Fox, et al., 2005; Hirshfeld, et al., 1992), we found that parents’ perceptions of infant negative affectivity at 4 months predicted perceptions of child anxiety in toddlerhood. Because of this relative stability from infant negative affectivity to later child anxiety, it is important to find mechanisms that can serve to discontinue the relationship from early negative affectivity to later anxiety. This is especially true because early childhood anxiety poses a risk factor for later childhood anxiety disorder, as well as for the diagnosis of another anxiety disorder, depression or substance abuse (Beesdo-Baum & Knappe, 2012). Our results provide some evidence that coparenting is one of the mechanisms that can serve to discontinue the development from infant negative affectivity to child anxiety. In further interpretation of our results, it should be noted that both the measures of infant negative affectivity and child anxiety were assessed as parents’ reports and should therefore be understood as parents’ perceptions of their child’s temperament and anxiety level.

Negative affectivity in infancy was not directly related to fathers' and mothers' individual coparenting behaviors, nor to simultaneous coparenting (i.e., mother and father cooperative at the same time), but it did predict less divergent coparenting. This may be explained by the fact that it is easier to parent a child who is low in negative affectivity than to parent a child high on negative affectivity (Davis et al., 2009; Laxman et al., 2013). That is, when children are relatively easy, parents may be more comfortable at handling the child on their own, thereby creating a pattern of taking turns (i.e., more divergent coparenting), rather than being involved in coparenting behaviors at the same time.

Unexpectedly, we did not find direct effects between coparenting and later child anxiety. However, given the small effects found in a meta-analysis on the associations between coparenting and child outcomes (Teubert & Pinquart, 2010), our results are not surprising. To our knowledge, only one other study investigated whether coparenting predicts child anxiety. This study found that global observations of undermining coparenting in infancy predicted more teacher-reported child anxiety at 4 years (McHale & Rasmussen, 1998). Our study differed in several ways from that of McHale and Rasmussen (1998): the children's age (4 months to 2.5 years in our study, compared with 9 months to 4 years in their study); the measurement of coparenting (micro-level observational data, compared to global observations); the task in which coparenting was assessed (a dress-up task, compared to a play task); and the measurement of child anxiety (parent ratings, compared to teacher-report). An explanation for the differences between the study results could be that global observational measures of coparenting as used by McHale and Rasmussen (1998) relate differently to child anxiety than the micro-level coding that we used. Global ratings assign one score to the whole triad, whilst in our study we attempted to investigate the interactive nature of mothers' and fathers' behaviors. Notably, McHale and Rasmussen (1998) only found associations between observed coparenting behaviors and teacher reports of child anxiety, but not with parent reports of children's internalizing problems, which is consistent with our findings.

We found an indirect effect between coparenting and child anxiety: we found a moderation effect for both patterns of divergent coparenting. Coparenting patterns characterized by mothers' cooperation during fathers' neutral behavior increased the risk of infant negative affectivity to develop into later child anxiety, whereas coparenting patterns characterized by mothers' neutral behavior during fathers' cooperation decreased this risk. Our results are in line with previous research on maternal gatekeeping, that is, maternal behaviors that inhibit a collaborative effort between men and women in family work (Allen & Hawkins, 1999). Studies have found that mothers who engage in gatekeeping behaviors create a sense of identity by dominating childcare because these mothers feel that childcare is their territory, which makes it difficult for these mothers to share childcare with their partner (Dienhart, 2001; Mendez, Loker, Fefer, Wolgemuth, & Mann, 2015). Accordingly, maternal gatekeeping has been related to less father involvement with infants in triadic

situations (Cannon, Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2008). Given the protective role of fathers' cooperative coparenting during mothers' neutral behavior as apparent from our results, maternal gatekeeping may be an underlying risk factor that can explain our results. In addition, these results strengthen our conclusion based on the result that high infant negative affectivity decreased the percentage of divergent coparenting interactions, that it might be the turn taking between parents that functions as a protective factor in the development of child anxiety. More specifically, it seems that the fact that father takes his turn is particularly important in this relationship, rather than that mother takes her turn in coparenting.

The moderation effects for divergent coparenting also point to a specific role of the father in the development of child anxiety (Bögels & Phares, 2008). Our results suggest that when mothers leave opportunity for fathers to be active and cooperative, or fathers themselves initiate coparenting while mothers are neutral, this can protect children from developing anxiety over time. Fathers' lack of active involvement in childcare may serve as a risk factor also because fathers have been suggested to matter more in the development of anxiety than mothers (Bögels & Perotti, 2011; Bögels & Phares, 2008). According to Bögels and Perotti (2011), fathers are evolutionarily specialized in the external protection of the family (such as the approach of dangerous and unfamiliar situations or humans), whereas mothers were specialized in the internal protection of the family (such as comforting and nurturing). In line, children have been found to interpret fathers' signals about threats as more salient than mothers' signals: 10-15-month-old infants expressed more anxiety in a visual cliff experiment when fathers gave anxious signals compared to mothers' anxious signals (Möller, Majdandzic, & Bögels, 2014). Being exposed to coparenting situations that are characterized by an interaction pattern in which fathers are supportive while mothers are neutral may protect against child anxiety development, because the exposure to fathers' behaviors, initiatives, and ways of handling coparenting interactions and childcare may serve as a salient example for children in handling new and anxiety-provoking situations. It should be noted that the occurrence of divergent coparenting of the type where father is cooperative was fairly low (<5%); hence, it appears that even rare behaviors can significantly predict child developmental outcomes. The negative association between simultaneous and divergent coparenting illustrates that families who display divergent behaviors are more diverse in the coparenting patterns they display. Thus, we suggest that those families in which divergent coparenting behaviors occur next to simultaneous behaviors are the families with protective characteristics when it comes to child anxiety.

In line with our finding that coparenting behaviors mainly function as a moderator rather than as a direct predictor of child anxiety, previous studies have also demonstrated that coparenting relates indirectly, rather than directly, to temperament and later behavior problems (Schoppe-Sullivan et al., 2009; Kolak & Volling, 2013). This evidence for the moderating role of coparenting underlines Minuchin's (1974) idea of coparenting as the

executive subsystem of the family which serves as a guiding and organizing role in the family: negative affectivity may be affected (or re-organized) by the coparenting dynamics, and the development of child anxiety is explained through these indirect effects.

Our study had several strengths. To our knowledge, this study was the first to investigate simultaneity in coparenting. We found that dyadic measures of divergent coparenting especially add to the knowledge about how coparenting relates to child anxiety. The measures of fathers' and mothers' separate coparenting behaviors capture how mothers and fathers behave towards each other, but they do not capture how the family system behaves. In line with Gordon and Feldman (2008), we therefore conclude that measures at the micro-level can contribute to the study of coparenting and child outcomes. By using a longitudinal research design spanning the period from infancy to toddlerhood, we demonstrated that coparenting plays a role in the development of child anxiety. In addition, we included parent reports of both fathers and mothers, and included a clinical measure of children's anxiety symptoms when they were 2.5 years old.

Some limitations of the current study should be taken into account when interpreting the results. First, changing clothes was used to observe coparenting and this is a parenting task that is usually performed by mothers (Geary, 2010). For a situation in which mothers' and fathers' involvement is more equally distributed, such as playing, results may be different. It could be that the impact of fathers' involvement is more salient in typical maternal tasks and that our results are therefore limited to these 'mother-dominated' areas of childcare. Note however that the child was dressed up to look funny for a picture, which is not the typical maternal dressing her baby situation, but rather exposing the baby to the outside world, which might be more a paternal role (Bögels & Phares, 2008; Paquette, 2004). Second, it is important to keep in mind that our sample concerns a relatively highly educated and non-clinical sample. In samples with more risk factors (such as poverty, severe marital problems, or severe parental psychopathology), it may be that simultaneous rather than divergent coparenting behaviors relate to better child outcomes. In our sample, the rate of supportive behaviors and simultaneous behaviors is very high; in an at risk sample, simultaneous coparenting patterns may be more rare and, therefore, more salient. Third, we were unable to include competitive coparenting in the path models, due to low occurrence in the current study. Fourth, both child temperament and anxiety were reported by parents rather than through independent sources such as through observation, which could be a confounding factor in the stability of child negative affectivity into later anxiety. However, we aimed to minimize the disadvantages of parental report by averaging fathers' and mothers' ratings in order to compute a more reliable measure of children's behaviors. In addition, it is likely that it is especially parents' perceptions of their child's behaviors that influence their coparenting, rather than 'objective' anxiety measures.

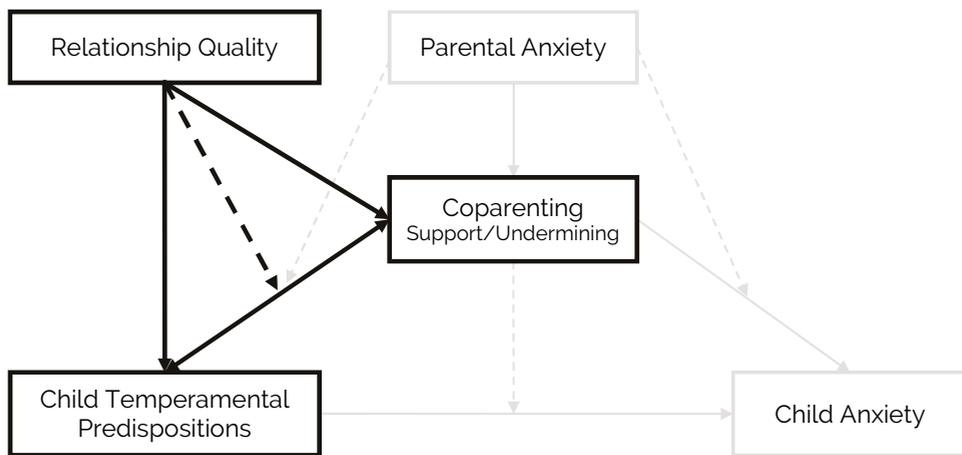
Based on our findings, we suggest several avenues for future research. Given the relations we found between coparenting and child anxiety, we suggest that future studies need to look

further into both the risk and protective functions coparenting behaviors can have on the development of child anxiety. Also, the differences in mothers' and fathers' coparenting behaviors should be looked into further. Future research should attempt to replicate our finding that mothers' coparenting behaviors serve as a risk factor, whereas fathers' coparenting behaviors serve as a protective factor in the development of child anxiety. In order to achieve this goal, research should not only focus on the global, triadic measures of coparenting, but also consider separate measures of mothers' and fathers' behaviors and especially dyadic measures that capture characteristics of the family system, rather than individual behaviors. Future research should look into these differences in order to replicate our effects and to investigate whether these patterns are meaningful. Also, coparenting should be investigated in samples or in tasks in which the extreme coparenting behaviors of mutuality and competition may be more often expressed, since we were not able to capture these behaviors in the current study. It may be that these more extreme positive and negative coparenting behaviors carry additional explanatory value in the development of child anxiety.

Our results carry clinical implications. Treatment practices of child anxiety should take into account that the way parents interact, and not only the positive or negative content of their interactions, can influence children's development of anxiety. Based on our results, clinicians may teach parents to let fathers engage more in coparenting; that is, being supportive also when the mother is not supportive at that moment. Also, clinicians' awareness of the possible detrimental effects of maternal gatekeeping may be important in the treatment of child and family functioning (Cannon et al., 2008).

CONCLUSION

Coparenting is often referred to as the 'executive subsystem of the family'. Indeed, the way parents interact with each other in the presence of their child indirectly influences the development of anxiety. When fathers are supportive in coparenting interactions, while mothers are neutral, this appears to protect highly negative infants from developing anxiety. Conversely, when mothers are supportive, while fathers are neutral, this seems to exacerbate the development from negative affectivity into later child anxiety. Fathers' support in the coparenting relationship therefore seems to be a protective factor in the development of child anxiety, whereas mothers' support may pose a risk factor in the development of child anxiety.



Graphical representation of the associations tested in this thesis (adjustment of the model by Majdandžić et al., 2012). Dashed lines represent moderation effects. Lines in black are the effects that are tested in Chapter 5. Lines in grey are tested in other chapters.

CHAPTER

5

**Prenatal Relationship
Satisfaction as a Moderator
of the Association between
Coparenting and
Negative Affectivity**

ABSTRACT

Objective

Couples with a high relationship satisfaction before child birth have been proposed to pull together when their child is high on negative affectivity, while couples with poor prenatal relationship satisfaction become less engaged with each other when their child is negative. We tested this hypothesis by relating prenatal relationship satisfaction and child negative affectivity to supportive and undermining coparenting. In addition, we investigated differences between fathers and mothers in these associations.

Methods

Couples pregnant with their first child reported on their prenatal relationship satisfaction ($N = 151$). When children were 4 months, 1 year, 2.5 years, and 4.5 years old, fathers and mothers reported on their own supportive coparenting, undermining coparenting, and their child's negative affectivity. We conducted multilevel analyses to test our hypotheses.

Results

Prenatal relationship satisfaction predicted as expected more supportive and less undermining coparenting for fathers and mothers. As expected, more child negative affectivity related to more undermining coparenting for fathers and mothers. Unexpectedly, for fathers more child negative affectivity related to *more* supportive coparenting; for mothers, we found no relationship between child negative affectivity and supportive coparenting. Relationship satisfaction did not moderate the association between child negative affectivity and supportive or undermining coparenting. Results were the same across all measurement occasions.

Conclusions

This study revealed that child negative affectivity predicted more undermining coparenting, regardless of parent gender or prenatal relationship satisfaction. Fathers' supportive coparenting appears to be sensitive to child negative affectivity in order to function as a buffer in the relationship between the mother and her negative child

INTRODUCTION

Coparenting, “the ways that parents and/or parental figures relate to each other in the role of parent” (Feinberg, 2003, p. 96), has been receiving growing attention in the study on child internalizing behavior problems such as anxiety and depression (Feinberg, 2003; Teubert & Pinquart, 2010). Coparenting is generally studied in terms of supportive coparenting and undermining coparenting. Support refers to affirmation of the other parent’s parenting behaviors, whereas undermining involves disparagement of the other parent, as well as criticism and conflict (Belsky, Woodworth, & Crnic, 1996; McHale, 1995; Feinberg, 2003). A meta-analysis revealed that supportive coparenting behaviors are related to less internalizing problems in children, whereas undermining coparenting behaviors are related to more internalizing problems in children (Teubert & Pinquart, 2010). These effects were found even after controlling for satisfaction with the romantic relationship, a construct that is closely related to, but different from, coparenting (Kitzmann, 2000; Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004).

A large part of coparenting research has focused on infants and their temperamental characteristics (constitutionally based individual differences in reactivity and self-regulation, Rothbart, 1989; Rothbart & Derryberry, 1981), especially negative affectivity. Negative affectivity is one of the three broad factors of temperament (next to surgency and effortful control; Gartstein & Rothbart, 2003; Rothbart, Ahadi, Hershey, & Fisher, 2001) and is defined as proneness to the experience and expression of negative emotions (Watson & Clark, 1984). Negative affectivity has been related to internalizing problems such as anxiety in children (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). To investigate how negative affectivity is related to coparenting, we studied the relations between child negative affectivity and coparenting from infancy until early childhood.

Findings on the association between child negative affectivity and coparenting have been mixed. Most commonly, negative affectivity was found to be related to less supportive coparenting (Davis, Schoppe-Sullivan, Mangelsdorf, & Brown, 2009; Gordon & Feldman, 2005; Laxman et al., 2013; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007; Van Egeren, 2004) and to more undermining coparenting (Laxman et al., 2013; Lindsey, Caldera, & Colwell, 2005; Metz, Majdandžić, & Bögels, 2016) in 3-month-olds to 3-year-olds. Other studies with 3-month-old infants, however, found that negative affectivity is related to more support and less undermining (Berkman, Alberts, Carleton, & McHale, 2002, as cited in Schoppe-Sullivan et al., 2004). In some studies, no associations between negative affectivity and support or undermining were found when children were 3 months to 4 years old (McHale et al., 2004; Solmeyer & Feinberg, 2011; Stright & Bales, 2003). Thus, previous research has demonstrated associations between child negative affectivity and coparenting, but the direction of results remains inconsistent across studies. A possible explanation for the diversity in the found associations between negative affectivity and coparenting may be that important moderators have been overlooked.

One of the moderators that may be in play in the associations between child negative affectivity and coparenting behavior is the gender of parents. Several studies found that it is especially fathers' coparenting behavior that is related to infant negative affectivity (Gordon & Feldman, 2008; Lindsey et al., 2005; Van Egeren, 2004). These studies revealed that when infants from 5 months to 15 months have higher negative affectivity, fathers' supportive coparenting is lower, whereas no significant associations were found for mothers' coparenting. In contrast, no differences between fathers and mothers were found in the relations between coparenting and child negative affectivity when children were 1 year old (Solmeyer & Feinberg, 2011). In a previous study on the same sample as the current study (but without the 4.5 years measures as these data were not yet available), we investigated the moderating role of parental anxiety in the associations between parent reported child fearful temperament and self-reported coparenting behaviors (Metz et al., 2016). In this study, we found no differences between fathers and mothers in the associations between coparenting and child fearful temperament: for all parents, undermining coparenting was related to more child fearful temperament when children were 4 months to 2.5 years old, and supportive coparenting was unrelated to child fearful temperament. Studies using observational measures of coparenting behaviors have not distinguished between fathers' and mothers' coparenting behaviors and have therefore been unable to investigate possible mother-father differences (e.g., Laxman et al., 2013; Schoppe-Sullivan, et al., 2007; Schoppe-Sullivan, Mangelsdorf, & Brown, 2009). Hence, thus far results are mixed with regard to the role of parent gender in the associations between child negative affectivity and coparenting; therefore, in the current study we explore the moderating role of parent gender further.

Another possible moderator in the association between negative affectivity and coparenting is couple functioning before the birth of the child. In a transactional model on the interaction between infant characteristics and couple characteristics, Crockenberg and Leerkes (2003) proposed that some couples may be less 'ready' to become parents than others, for example due to age, parents' psychopathology, poor economic situation, short duration of the relationship, or poor relationship satisfaction. Couples who are not ready to become parents are hypothesized to be influenced more strongly by negative affectivity in their infant, resulting in family malfunctioning; in contrast, couples who are ready to become parents are hypothesized to become closer to each other ('pull together') in response to high negative affectivity in their infant. Crockenberg and Leerkes (2003) have advised researchers to study prenatal measures of couple functioning as a moderator in the association between infant temperament and family outcomes, to ensure the use of a moderator that is not yet influenced by the infant's temperament. Especially from a prevention standpoint, identifying early indicators of poor coparenting-child functioning associations seems imperative.

In the current study we focused on prenatal relationship satisfaction as an indicator of early couple functioning. Previous research has demonstrated that relationship satisfaction is closely related to coparenting behaviors (Lindahl, Clements, & Markman, 1997;

Kitzman, 2000; Schoppe-Sullivan et al., 2004) as well as to child functioning (McHale, Kazali, Rotman, Talbot, Carleton, & Lieberson, 2004). To our knowledge, two previous studies have investigated the role of prenatal relationship satisfaction as a moderator in the association between coparenting and young infants' negative affectivity (McHale et al., 2004; Schoppe-Sullivan et al., 2007). Using a composite measure of self-report and observations for relationship satisfaction, Mchale et al. (2004) found a trend indicating that in families with 3-month-olds with high mother-reported negative affectivity, prenatal relationship satisfaction predicted more supportive coparenting, whereas in families with infants low on negative affectivity, prenatal relationship satisfaction was not related to supportive coparenting. No significant relations were found for undermining coparenting. Similarly, Schoppe-Sullivan et al. (2007) found that only for couples with low prenatal relationship satisfaction, more parent-reported infant unadaptability at 3 months was related to more observed undermining, and more observed infant unadaptability was related to less supportive coparenting. In contrast, only for couples with high prenatal relationship satisfaction, more parent-reported infant fussiness was related to less undermining. In sum, the findings of these two studies are in line with the idea that couples with high relationship satisfaction pull together in the event of a negative infant, whereas couples with a low relationship satisfaction drift apart (Crockenberg & Leerkes, 2003). However, results for supportive and undermining coparenting did not reveal the same pattern in the two studies, age of the child was restricted to early infancy, and the gender of parents was not taken into account. Therefore, replication of these results in a longitudinal study using measures for both fathers and mothers from infancy to early childhood is important.

Interestingly, past research suggests differences between fathers and mothers in the associations between relationship satisfaction and coparenting (Burney & Leerkes, 2010; Christopher, Umemura, Marin, Jacobvitz, & Hazen, 2015; Pedro, Ribeiro, & Shelton, 2015; Van Egeren, 2004), as was the case for the associations between child negative affectivity and fathers' versus mothers' coparenting. However, the nature of these differences remains unclear: one study found stronger associations between mothers' relationship satisfaction and coparenting in the family (Pedro et al., 2015), while others found especially strong associations between fathers' relationship satisfaction and coparenting in the family (Christopher et al., 2015; Van Egeren, 2004). Taken together with the earlier discussed role of parent gender in the relation between child negative affectivity and coparenting, these findings demonstrate the importance of investigating the role of parent gender as a moderator in the associations between relationship satisfaction and coparenting. Specifically, fathers and mothers may differ in the way their coparenting is affected by their prenatal relationship satisfaction. In addition, it may be the case that the way prenatal relationship satisfaction influences the association between child negative affectivity and coparenting (i.e., the moderation by prenatal relationship satisfaction of the association between child negative affectivity and coparenting) differs for fathers and mothers.

The aim of the current study was to extend previous research on the moderating roles of prenatal relationship satisfaction and parent gender on the association between negative affectivity and coparenting. We included both fathers' and mothers' perceptions of relationship satisfaction and their coparenting behaviors in order to investigate differences between fathers and mothers. In addition, to investigate whether earlier findings also apply to older children, we investigated a longitudinal sample spanning the developmental period from infancy to early childhood with measurements of coparenting and child negative affectivity at 4 months, 1 year, 2.5 years, and 4.5 years.

Based on the reviewed literature, we tested the following hypotheses: 1) higher prenatal relationship satisfaction predicts more supportive coparenting and less undermining coparenting at all ages of the children; 2) child negative affectivity is related to less supportive coparenting and more undermining coparenting across all ages; 3) in families with high prenatal relationship satisfaction, high child negative affectivity is related to more supportive and less undermining coparenting, whereas in families with low prenatal relationship satisfaction, high child negative affectivity is related to less supportive and more undermining coparenting; 4) in addition to these hypotheses, we explored whether differences exist between mothers and fathers in these associations.

METHOD

Participants

The current study is part of an ongoing longitudinal study (The Social Development of Children) and is an extension of previous research on the same sample from 4 months to 2.5 years in which we studied the moderating role of parental anxiety disorder in the associations between child fearful temperament and coparenting (Metz et al., 2016). We recruited couples who were pregnant with their first child through advertisements in magazines and flyers distributed by midwives. This resulted in a total sample of 151 families at the prenatal measurement. The Department of Psychology's ethical approval was obtained and written informed consent was received from all participants. Parents and their children completed five measurement occasions, of which one was when the mother was pregnant of the child. The other measurements were conducted when the child was 4 months old (M age of child = 4.2 months, $SD = 0.33$), 1 year old ($M = 12.4$ months, $SD = 0.72$), 2.5 years old ($M = 30.1$ months, $SD = 0.53$), and 4.5 years old ($M = 54.1$ months, $SD = 1.51$).

At the prenatal measurement, father's age was 33.6 years ($SD = 5.5$) and fathers' average educational level was 6.5 ($SD = 1.7$) on an 8-point scale from 1 (*primary education*) to 8 (*university*). Mothers' average age was 30.7 ($SD = 4.3$) and mothers' educational level was 7.0 ($SD = 1.2$). At the prenatal measurement ($N = 151$), the average relationship duration was 6.1 years ($SD = 3.6$) and 148 couples were married/living together; 1 couple was living apart, and 1 couple indicated a "different" relationship state. At 4 months ($N = 136$), 127

couples were married/living together, 2 couples indicated different, and 7 couples did not provide this information; at 1 year ($N = 130$), 122 couples were married/living together, 1 couple was divorced, 1 couple indicated different, and 6 couples did not provide this information; at 2.5 years ($N = 120$), 112 couples were married/living together, 2 couples were divorced/separated, 2 couples indicated different, and 4 couples did not provide this information; at 4.5 years ($N = 111$), 103 couples were married/living together, 4 couples were divorced/separated, 2 couples indicated different, and 2 couples did not provide this information.

Procedure

Before their child was born, parents separately visited the University research center to complete a clinical interview assessing anxiety disorders, and they completed several questionnaires about themselves, their relationship, and expectations about their child. When children were 4 months, 1 year, 2.5 years and 4.5 years old, mothers and fathers separately visited the research center with their child for observational measurements (not part of the current study) and parents also filled out several questionnaires about the child, about themselves and about their relationship in their own homes. The current study focuses on questionnaires about prenatal relationship satisfaction, coparenting and child temperament.

Measures

Relationship satisfaction

Relationship satisfaction was measured at the prenatal measurement with the *Partnerschaftsfragebogen* (PFB; Hahlweg, 1996), a 30-item questionnaire consisting of three scales: quarreling (e.g., “He/she keeps reminding me about mistakes I made in the past”), tenderness (e.g., “Before we go to sleep, we cuddle in bed”), and togetherness/communication (e.g., “He/she openly shares his/her thoughts and feelings with me”). Items are rated from 1 (*never/almost never*) to 4 (*very often*). We calculated a total score for relationship satisfaction by averaging all items (quarreling reversed). Cronbach’s α for mothers and fathers was .88.

Coparenting

When children were 4 months, 1 year, 2.5 years, and 4.5 years old, parents filled out the Dutch version of the revised Coparenting Scale (CPS; Karreman, van Tuijl, van Aken, & Dekovic, 2008; McHale, 1997; 1999; McHale, Kuersten-Hogan, Lauretti, & Rasmussen, 2000) to assess their coparenting relationship quality. This questionnaire measures the way in which parents rate their own coparenting behaviors towards their partner. The revised CPS consists of 18 items that are answered on a Likert scale from 1 (*absolutely never*) to 7 (*almost constantly/at least once an hour*). McHale (1997) used four scales: family

integrity, disparagement, conflict, and reprimand. McHale's original scales did not yield reliable measures in our sample; in order not to lose data, we performed a principal-component analysis with Varimax rotation to find a factor structure with a satisfactory fit to the data. Due to an error, 1 item from the original scale was not administered. Three items did not correlate with the other items in the factor analysis and were therefore removed. This procedure resulted in 14 items, which yielded two reliable factors: Undermining coparenting and Supportive coparenting. Both scales consisted of 7 items. See Metz et al. (2016) for a detailed description of scale construction.

We computed scale scores by averaging the corresponding items. The scale measuring Support consisted of items such as "How often in a typical week (when all three of you are together) do you make an affirming or complimentary remark about your partner to your child?". Cronbach's α for Support ranged from .85 to .86 for mothers across measurement occasions, and from .85 to .89 for fathers. The scale measuring Undermining consisted of items such as "How often in a typical week when you are alone with your child do you find yourself saying something clearly negative or disparaging about your partner to your child?". Cronbach's α for Undermining ranged from .75 to .79 for mothers and from .74 to .79 for fathers across measurement occasions.

Child negative affectivity

Child negative affectivity was assessed at each age with age-appropriate questionnaires stemming from the same approach to temperament (Gartstein & Rothbart, 2003; Rothbart et al., 2001). At 4 months and at 1 year, fathers and mothers completed the Revised Infant Behavior Questionnaire (IBQ-R; Gartstein & Rothbart, 2003). The IBQ-R assesses infant temperament from 3 to 12 months and consists of 14 scales with 191 items which are rated on a 7-point Likert scale from 1 (*never*) to 7 (*always*). Parents filled out how often, during the past seven days, their child displayed specific behaviors. In the current study we used the dimension Negative Affectivity. This dimension consists of the following scales: sadness (14 items; e.g., "How often did the baby seem sad when the caregiver was gone for an unusually long period of time?"), distress to limitations (16 items; e.g., "How often, when placed on his/her back, did the baby fuss or protest?"), fear (16 items; e.g., items, "How often did the baby startle to a sudden or loud noise?"), falling reactivity (reversed; 13 items; e.g., "How often, when frustrated with something, did the baby calm down within 5 minutes?"), and soothability (reversed; 11 items; e.g., "How often, when patting or gently rubbing some part of the baby's body, did s/he soothe immediately?"). The score of the negative affectivity dimension was calculated by averaging scale scores. At 4 months, Cronbach's α (based on scale scores) for negative affectivity was .76 for mothers and .79 for fathers; at 1 year, Cronbach's α for negative affectivity was .74 for mothers and .69 for fathers.

At 2.5 years, both parents filled out the short form of the Early Childhood Behavior Questionnaire (ECBQ; Putnam, Gartstein, & Rothbart, 2006). The ECBQ short form is a

parent-report measure of temperament in 1.5- to 3-year-old children and consists of 18 scales and 107 items. Parents filled out how often their child displayed specific behaviors in the last two weeks. Items were rated on a 7-point Likert scale from 1 (*never*) to 7 (*always*). In the current study, we used the dimension Negative Affectivity. To ensure comparability to the Negative Affectivity dimensions in the IBQ-R and the Children's Behavior Questionnaire (see below), we included the following scales in this construct: discomfort (10 items; e.g., "During everyday activities, how often did your child seem to be irritated by tags in his/her clothes?"), fear (11 items; e.g., "While at home, how often did your child show fear at a loud sound?"), sadness (12 items; e.g., "During everyday activities, how often did your child become sad or blue for no apparent reason?"), frustration (12 items; e.g., "When told that it was time for bed, how often did your child get irritable?"), soothability (reversed, 9 items; e.g., "When s/he was upset, how often did your child change to feeling better within a few minutes?"), and shyness (12 items; e.g., "When approaching big unfamiliar children playing, how often did your child watch rather than join in?"). The score of the negative affectivity dimension was calculated by averaging scale scores. Cronbach's α (based on scale scores) for mothers was .59, and for fathers .64.

At 4.5 years, we measured negative affectivity using the Children's Behavior Questionnaire Short Form (CBQ; Putnam & Rothbart, 2006; Rothbart et al., 2001). The CBQ short form is a parent-report measure of temperament for children aged 3 to 8 years. The questionnaire consists of 15 scales and 94 items. Parents filled out how true or untrue the descriptions were of their child's reactions during the past six months. Items were rated on a 7-point Likert scale from 1 (*extremely untrue*) to 7 (*extremely true*). In the current study, we used the dimension Negative Affectivity. To ensure comparability to the negative affectivity dimensions in the IBQ-R and the ECBQ, we included the following scales of the CBQ: anger/frustration (6 items; e.g. "My child gets angry when told s/he has to go to bed"), discomfort (6 items; e.g. "My child is quite upset by a little cut or bruise"), falling reactivity/soothability (reversed, 6 items; e.g. "My child is easy to soothe when s/he is upset"), fear (6 items; e.g. "My child is afraid of loud noises"), sadness (7 items; e.g. "My child cries sadly when a favorite toy gets lost or broken"), and shyness (6 items; e.g. "My child acts shy around new people"). The score of the negative affectivity dimension was calculated by averaging scale scores. We found that alpha (based on scale scores) was modest for mothers and fathers ($\alpha = .51$ and $\alpha = .57$, respectively).

At several of the measurement occasions, Cronbach's α was modest for at least one of the parents. This is probably due to the multidimensional nature of the construct of negative affectivity, which includes both 'internalizing' scales (e.g., sadness, fear), and 'externalizing' scales (e.g., anger). Because reliability and validity of the current temperament questionnaire battery is widely established (Gartstein & Rothbart, 2003; Putnam et al., 2006; Putnam & Rothbart, 2006; Rothbart et al., 2001), we followed past research in utilizing the construct of negative affectivity.

Statistical Analyses

Before analyzing the data, we inspected missing data and dropout by comparing families with complete data to those with missing data on demographic variables and study variables through *t*-tests. In the case of significant differences based on demographic variables ($p < .05$), we included these measures in the further analyses. Only when these measures changed the outcomes significantly, demographic variables were kept in the final models.

To account for the hierarchical nature of our data, we used multilevel analysis with a two-level structure: measurement occasions nested within families. The significance of effects was evaluated at $\alpha = .05$. All multilevel models included a random intercept. Parent (mother and father) and Child Age (four measurement occasions: 4 months, 1 year, 2.5 years, and 4.5 years) were entered as dummy variables, with mother and 4 months as reference categories. Models were analyzed using MLwiN version 2.24 (Rasbash, Charlton, Browne, & Cameron, 2014). Assumptions of multivariate normality and linearity were checked for all variables and were satisfactory. All independent variables were grand-mean centered before adding them to the models; this was done in order to ensure a meaningful interpretation of the intercept (Snijders & Bosker, 1999).

We constructed two sets of models: one model predicting supportive coparenting, and one model predicting undermining coparenting. In all models, we entered child age as a control variable. We first tested a main effect model including parent gender, prenatal relationship satisfaction, and child negative affectivity. Then, we added interaction effects one-by-one to test our hypotheses regarding differences between fathers and mothers, and between families with high and low relationship satisfaction. Last, we added the three-way interaction between parent gender, relationship satisfaction and child negative affectivity. Significant interaction terms ($\alpha = .05$) were kept in the final model. When significant, we plotted interaction effects and tested simple slopes, as described in Preacher, Curran, and Bauer (2006). We present main effects models without interactions, and the final models including only significant interaction effects.

RESULTS

Preliminary Analyses

At the prenatal measurement, 151 families were included in the study. After the prenatal measurement, 15 families did not participate in the further study. Because these families did not have data on the dependent variables (i.e., support and undermining), these families were excluded from all further analyses. During the following measurement occasions, six families dropped out after 4 months, 8 families dropped out after 12 months, and 11 families dropped out after 30 months.

We explored whether the 15 families that dropped out after the prenatal measurement differed from the families who did not drop out after the prenatal measurement. We found that prenatal relationship satisfaction did not differ between mothers and fathers who dropped out after the prenatal measurement ($M = 2.39$, $SD = 0.32$ and $M = 2.15$, $SD = 0.33$, respectively) and mothers and fathers who did not drop out ($M = 2.32$, $SD = 0.31$ and $M = 2.22$, $SD = 0.30$, respectively); for mothers $t(145) = -0.82$, $p = .414$, for fathers $t(144) = 0.78$, $p = .436$. On demographic variables, some differences were found. Mothers and fathers who dropped out after the prenatal measurement had a lower educational level ($M = 6.14$, $SD = 1.51$ and $M = 5.36$, $SD = 2.13$, respectively) than mothers and fathers who did not drop out ($M = 7.12$, $SD = 1.14$ and $M = 6.56$, $SD = 1.61$, respectively), for mothers $t(148) = 2.94$, $p = .004$, for fathers $t(147) = 2.60$, $p = .011$, and couples who dropped out after the prenatal measurement had a shorter relationship duration than included couples ($M = 3.32$ years, $SD = 1.78$ and $M = 6.35$, $SD = 3.67$, respectively), $t(148) = 3.04$, $p = .003$. Parents' age did not differ between families who did and did not drop out after the prenatal measurement.

For families who dropped out after the birth of the child (i.e., between 4 months and 4.5 years), we found no differences on educational level, parents' age, and relationship duration compared to families who did not drop out. However, mothers of dropped out families rated their child's negative affectivity as significantly higher ($M = 2.92$, $SD = 0.62$) than mothers of families who did not drop out ($M = 2.64$, $SD = 0.53$), $t(124) = 2.14$, $p = .035$. We found no differences on prenatal relationship satisfaction, supportive coparenting, and undermining coparenting. Because we did not find differences between dropped out families and families who did not drop out, we did not include demographic variables as covariates in the model.

Descriptive Analyses

In Table 1, descriptives for all study variables are displayed for the final sample. In Table 2, correlations between fathers' and mothers' scores are presented. Fathers' scores on child prenatal relationship satisfaction, negative affectivity, and coparenting were significantly correlated with mothers' scores. As hypothesized, higher prenatal relationship satisfaction was significantly correlated to more supportive and less undermining coparenting for both fathers and mothers. Prenatal relationship satisfaction was not correlated with child negative affectivity for both fathers and mothers. Further, contrary to our expectations, fathers' and mothers' supportive coparenting was unrelated to child negative affectivity. Both fathers' and mothers' undermining coparenting was significantly related to more child negative affectivity; note that associations were consistent over time for fathers, whereas for mothers we did not find significant associations between undermining and child negative affectivity at 4 months and at 4.5 years.

Table 1 Means, Standard Deviations and N's for the Study Variables

	Mother			Father		
	Mean	SD	N	Mean	SD	N
Marital Satisfaction	2.32	0.31	133	2.22	0.30	132
Negative Affectivity 4 months	2.69	0.55	126	2.75	0.54	125
Negative Affectivity 1 year	2.76	0.53	122	2.80	0.53	119
Negative Affectivity 2.5 year	2.83	0.52	116	2.90	0.50	111
Negative Affectivity 4.5 year	3.65	0.60	107	3.34	0.69	107
Support 4 months	5.20	0.87	118	4.92	0.91	115
Support 1 year	5.29	0.84	117	4.97	0.88	115
Support 2.5 year	5.27	0.70	115	5.13	0.82	110
Support 4.5 year	5.17	0.77	108	4.98	0.76	105
Undermining 4 months	2.24	0.71	117	2.01	0.65	116
Undermining 1 year	2.33	0.70	117	2.26	0.69	115
Undermining 2.5 year	2.57	0.67	115	2.47	0.68	110
Undermining 4.5 year	2.61	0.73	108	2.53	0.71	105

Table 2 Pearson's Correlations between Prenatal Relationship Satisfaction and all measures of Negative Affectivity, Support and Undermining.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Prenatal Relationship Satisfaction	.55**	-.14	.00	.03	-.18	.22*	.38**	.28**	.32*	-.31**	-.41**	-.34**	-.31**
2. Negative Affectivity 4 months	-.14	.52**	.49**	.31**	.39**	.13	-.04	.00	.04	.34**	.39**	.44**	.35**
3. Negative Affectivity 1 year	-.05	.50**	.51**	.37**	.36**	.17	.18	.14	.11	.22*	.26**	.29**	.13
4. Negative Affectivity 2.5 year	-.12	.32**	.31**	.32**	.41**	-.06	.06	-.13	-.01	.15	.20*	.17	.14
5. Negative Affectivity 4.5 year	.05	.28**	.17	.42**	.66**	.09	.07	.03	.10	.09	.28**	.24*	.28**
6. Support 4 months	.35**	-.07	-.07	-.13	-.13	.20*	.70**	.64**	.62**	-.04	.02	-.05	.22*
7. Support 1 year	.33**	-.02	-.08	-.12	-.04	.69**	.28**	.70**	.55**	-.08	-.02	.04	.07
8. Support 2.5 year	.34**	.07	.04	-.07	.02	.54**	.50**	.33**	.55**	-.09	-.11	.01	.07
9. Support 4.5 year	.27**	.21*	.04	-.02	-.06	.49**	.55**	.62**	.30**	.01	-.06	-.07	.06
10. Undermining 4 months	-.28**	.17	.12	.08	.04	.03	-.05	-.04	-.13	.25**	.58**	.57**	.42**
11. Undermining 1 year	-.24**	.24*	.27**	.15	.04	.06	.11	-.01	.07	.61**	.43**	.69**	.68**
12. Undermining 2.5 year	-.21*	.23*	.26**	.31**	.14	.11	.11	.02	.15	.49**	.65**	.48**	.61**
13. Undermining 4.5 year	-.15	.16	.19	.28**	.09	.01	.13	-.03	.23*	.43**	.65**	.71**	.42**

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

The upper triangle contains correlations between fathers' scores and the lower triangle contains correlations between mothers' scores; bold diagonal contains correlations between mothers' and fathers' scores

Multilevel Models

Supportive coparenting

Table 3 shows the results of the model in which relationship satisfaction and negative affectivity predict supportive coparenting. In the main effects model, we found that supportive coparenting significantly increased from 4 months to 2.5 year, but not from 4 months to 1 year and from 4 months to 4.5 years. Also, fathers rated their supportive coparenting as significantly lower than mothers did. In line with our expectations, prenatal relationship satisfaction predicted more supportive coparenting across all measurements from 4 months to 4.5 years. Unexpectedly, child negative affectivity did not predict supportive coparenting at 4 months, 1 year, 2.5 years, and 4.5 years.

Table 3 Parameter Estimates for the Multilevel Models of Supportive Coparenting Regressed on Prenatal Marital Satisfaction.

	Main effects model			Final model		
	β	SE	p	β	SE	p
Intercept	5.13	0.06	<.001	5.13	0.06	<.001
Age (1 year)	.07	0.06	.258	.07	0.06	.265
Age (2.5 years)	.17	0.06	.006	.16	0.06	.008
Age (4.5 years)	.07	0.08	.336	.07	0.07	.324
Parent Gender (Father)	-.21	0.04	<.001	-.22	0.04	<.001
Marital Satisfaction	.58	0.11	<.001	.56	0.11	<.001
Negative Affectivity	-.02	0.05	.676	-.12	0.06	.033
Parent Gender * Negative Affectivity				.22	0.07	.001

Note: Age was represented as three dummy variables with 4 months as the reference group; Parent Gender was represented as one dummy variable with Mother as reference group.

Interaction effects were included and tested step by step; significant interactions are included in the final model (see Table 3). First, the interaction between parent gender and negative affectivity was tested, and appeared significant ($\beta = .22, p = .001$; see Figure 1); we found that for mothers, child negative affectivity was unrelated to supportive coparenting ($\beta = -.07, p = .128$), whereas for fathers, more child negative affectivity was related to *more* supportive coparenting ($\beta = .11, p = .045$). Hence, we included this interaction in the final model. Next, we tested the interaction between parent gender and relationship satisfaction; the interaction revealed that the associations between relationship satisfaction and supportive coparenting did not differ for fathers and mothers ($\beta = .18, p = .222$). Next, we tested the interaction between relationship satisfaction and child negative affectivity and found a trend ($\beta = -.24, p = .063$). Given the lack of a significant result, we did not further probe this interaction effect and we did not include this effect in the final model. Finally, we tested the three-way interaction between parent gender, relationship satisfaction, and child

negative affectivity; we found that the different associations between negative affectivity and supportive coparenting for fathers and mothers were not dependent on prenatal relationship satisfaction ($\beta = -.17, p = .359$).

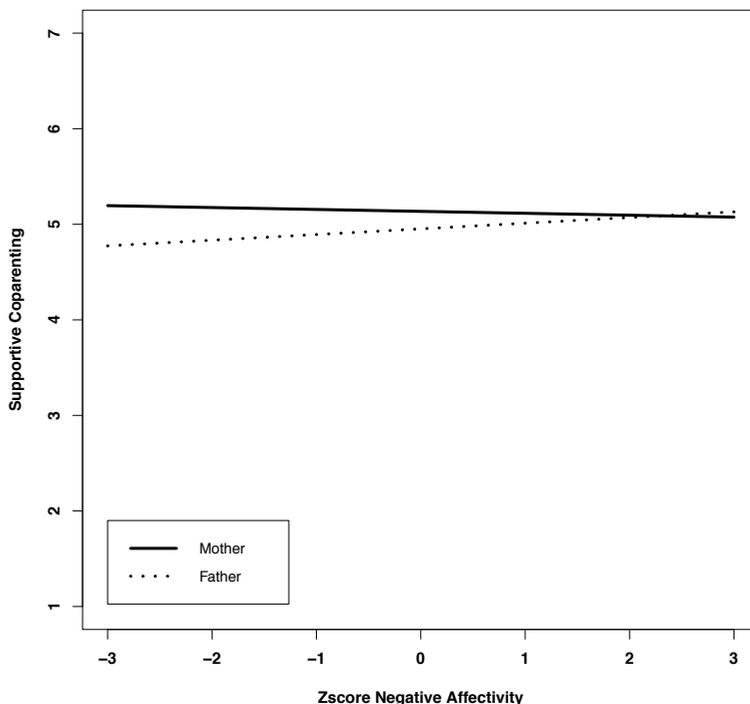


Figure 1. Interaction effect between child Negative Affectivity and Parent Gender as predictors of Supportive Coparenting.

Undermining coparenting

Table 4 shows the results of the multilevel analysis in which relationship satisfaction and negative affectivity predict undermining coparenting. For the main effects model, we found increases of undermining coparenting across all measurement occasions; this means that compared to 4 months, undermining coparenting was higher at all measurement occasions from 1 year to 4.5 years. Fathers rated themselves as less undermining than mothers. In line with our expectations, we found that higher prenatal relationship satisfaction was related to lower levels of undermining at 4 months, 1 year, 2.5 years and 4.5 years, and also that more child negative affectivity was related to more undermining coparenting at all measurement occasions.

Interaction effects were tested one by one. First, we tested the interaction between parent gender and child negative affectivity; this effect was not significant ($\beta = .05, p = .365$). Next, we tested the interaction between parent gender and relationship satisfaction;

the effect was not significant ($\beta = -.16, p = .190$). Next, we tested the interaction between relationship satisfaction and child negative affectivity; again, the effect was not significant ($\beta = -.00, p = .998$). Finally, we tested the three-way interaction between parent gender, relationship satisfaction and negative affectivity; this effect was also not significant ($\beta = -.18, p = .335$). Because of the absence of significant interaction effects, the main effects model in Table 4 is also the final model. Our results indicate that the association between child negative affectivity and undermining does not differ between fathers and mothers and does not depend on levels of prenatal relationship satisfaction.

After completing our analyses, we recalculated the models using a composite measure of fathers' and mothers' perception of child negative affectivity in order to reduce reporter bias. With these composite measures, all discussed results stayed the same. This supports the robustness and consistency of our findings and indicates that the correlations in our study are not solely due to the same person reporting on coparenting and child negative affectivity.

Table 4 Parameter Estimates for the Multilevel Models of Undermining Coparenting Regressed on Prenatal Marital Satisfaction.

	β	SE	p
Intercept	2.25	0.05	<.001
Age (1 year)	.13	0.05	.007
Age (2.5 years)	.35	0.05	<.001
Age (4.5 years)	.29	0.06	<.001
Parent Gender (Father)	-.16	0.03	<.001
Marital Satisfaction	-.53	0.09	<.001
Negative Affect	.18	0.04	<.001

Note: Age was represented as three dummy variables with 4 months as the reference group; Parent Gender was represented as one dummy variable with Mother as reference group.

DISCUSSION

In the current study, we aimed to further the understanding of the role prenatal relationship satisfaction plays in the association between child negative affectivity and coparenting. In an attempt to replicate earlier findings by McHale et al. (2004) and Schoppe-Sullivan et al. (2007), we investigated whether relationship satisfaction predicted coparenting and whether relationship satisfaction moderated the association between child negative affectivity and coparenting. We extended previous research by investigating the developmental period from infancy to early childhood and possible differences between fathers and mothers.

Our results show that 1) for fathers and mothers equally, higher prenatal relationship satisfaction predicts more supportive coparenting and less undermining coparenting; 2) only for fathers, higher child negative affectivity predicts more supportive coparenting; 3)

for fathers and mothers equally, higher child negative affectivity predicts more undermining coparenting; 4) no differences exist between couples with low and high relationship quality in the association between child negative affectivity and undermining coparenting; 5) no differences exist between fathers and mothers in the extent to which prenatal relationship satisfaction moderated the association between child negative affectivity and supportive and undermining coparenting.

The main aim of the current study was to test the model of Crockenberg and Leerkes (2003) proposing that couples with poor prenatal relationship satisfaction drift apart if they have a highly negative child, that is, are more undermining and less supportive coparents, whereas couples with a high prenatal relationship satisfaction pull together (i.e., are more supportive and less undermining) when they have a highly negative child. Indeed, McHale et al. (2004) and Schoppe-Sullivan et al. (2004) found that couples with high prenatal relationship satisfaction become more supportive and less undermining when they have a difficult child. We did not replicate these results. We found no moderating role of prenatal relationship satisfaction in the association between negative affectivity and undermining. Therefore, we conclude that the associations we found between child negative affectivity and coparenting are the same for all couples, regardless of relationship satisfaction.

The differences between our results (the lack of a moderation effect for relationship satisfaction) and previous results (McHale et al., 2004; Schoppe-Sullivan et al., 2007) may be explained by the fact that the two previous studies both used observations of coparenting in the triad, resulting in two overarching family codes for supportive and undermining coparenting, whereas we measured fathers' and mothers' supportive and undermining coparenting separately and with a questionnaire. Since the two previous studies did not distinguish between parent gender in coparenting behavior, their results could not reveal fathers' and mothers' separate coparenting behaviors in relation to child negative affectivity. Because several studies have found differences between the effect of mothers' and fathers' coparenting on child outcomes (e.g., Gordon & Feldman, 2008; Lindsey et al., 2005; Van Egeren, 2004), ignoring parents' gender in the study of coparenting may preclude the possibility to detect important gender-related coparenting processes.

Besides the moderating role of prenatal relationship satisfaction, we also investigated whether prenatal relationship satisfaction predicted coparenting behavior from early infancy until children were 4.5 years old. We found that for both fathers and mothers, higher prenatal relationship satisfaction was a strong and consistent predictor of more supportive and less undermining coparenting from 4 months to 4.5 years, as was expected. These results are in line with studies investigating prenatal relationship satisfaction and coparenting in early infancy (McHale et al., 2004; Schoppe-Sullivan et al., 2007). Thus, it appears that having a positive relationship satisfaction before the birth of the child sets the stage for positive coparenting dynamics, characterized by little undermining and high support. These effects persist into early childhood.

Contrary to our expectations, we found no differences between fathers and mothers in these associations, even though previous research did suggest differences in the way prenatal relationship satisfaction would affect fathers' and mothers' coparenting, with one study finding stronger effects for mothers (Pedro et al., 2015) and two studies finding stronger effects for fathers (Christopher et al., 2015; Van Egeren, 2004). Van Egeren (2004) and Christopher et al. (2015) used observational measures of coparenting in samples of 3-month-olds and 24-month-olds, while Pedro et al. (2015) used reports of the way parents perceived their *partner's* coparenting behaviors in a sample with 9- to 15-year-olds. Hence, it may be the case that differences in results are either due to differences in methodology, or due to differences in the age of children studied. Potential differences between fathers and mothers in the way their relationship satisfaction affects their coparenting behaviors need to be further investigated in future research.

We did find differences between fathers and mothers in the associations between their child's negative affectivity and their own supportive coparenting: fathers confronted with a highly negative child were more supportive to their partner, whereas mothers' support towards their partner did not depend on the level of negative affectivity of their child. In our previous study on the same sample we investigated the moderating role of parental anxiety disorder severity on the associations between child fearful temperament and coparenting when children were 4 months to 2.5 years old (Metz et al., 2016). Interestingly, in that study we did not find differences between mothers and fathers in the association between child fearful temperament (an aspect of negative affectivity) and coparenting. Therefore, it appears that only with the inclusion of prenatal marital satisfaction and with the broader construct of child negative affectivity (compared to fearful temperament in the previous study), there are differences between fathers and mothers in the association of negative affectivity and supportive coparenting.

The association between higher child negative affectivity and more support for fathers and the lack of an association for mothers were not in line with our hypotheses, as we expected higher child negative affectivity to predict *less* supportive coparenting (in both parents), in line with previous research (Davis et al., 2009; Laxman et al., 2013; Schoppe-Sullivan, et al., 2007). However, one previous study also found that more child negative affectivity was related to *more* supportive coparenting in both parents (Berkman et al., 2002). Interestingly, we only found this effect for fathers, which is in line with previous research showing that fathers' coparenting is affected more by child temperamental characteristics than mothers' coparenting (Gordon & Feldman, 2008; Lindsey et al., 2005; Van Egeren, 2004).

An explanation for the lack of a relation between mothers' supportive coparenting and child negative affectivity may be a ceiling effect: possibly, mothers are always highly supportive to their partner, whereas fathers' coparenting is more flexible and, therefore, fathers adjust their behavior to the family situation. This argument is in line with the idea

that “conventional social expectations give fathers greater leeway to choose whether and how to be involved in their children’s lives”, whereas mothers are expected to be equally involved regardless of the circumstances (Bornstein, Lamb, & Teti, 2002, p. 37). Hence, we propose that fathers’ coparenting efforts might be more adaptable to child characteristics than mothers’ coparenting efforts. Crockenberg and Leerkes (2003) have suggested that fathers’ involvement can serve as a buffer against the potentially negative impact of a temperamentally negative infant on parents. In line with Bornstein, Lamb and Teti’s (2002) reasoning, it might be that the unconditional care by mothers is only possible because fathers enable them to do so by regulating their engagement (i.e., support) based on family and child characteristics and thereby functioning as a buffer between mother and child.

With regard to undermining coparenting, we found that both mothers and fathers who perceived their child as higher in negative affectivity reported to show more undermining towards their partner throughout early childhood. These results are in line with our hypotheses and the general conclusion apparent from coparenting research that negative affectivity in the child relates to poorer coparenting quality (e.g., Laxman et al., 2013; Lindsey et al., 2005; Metz et al., 2016). It is interesting to note that we did not find any interaction effects for the relation between child negative affectivity and undermining coparenting: child negative affectivity predicted more undermining coparenting regardless of relationship satisfaction and for both fathers and mothers. Even though this association may partly be due to the fact that both coparenting and child negative affectivity were measured via parental reports, this still indicates that the perception parents have of their child’s temperament and their own coparenting is strongly related for all parents. Coparenting researchers have argued that parents’ own perceptions of coparenting quality may be an important indicator of family processes next to observations of coparenting quality (Feinberg, 2003; McHale, 1997). As McHale (1997) pointed out, this may be especially true for “certain coparenting processes that occur at low base-rates when families are under scrutiny by researchers”, such as undermining coparenting (p. 183). Moreover, it seems reasonable to assume that the ways parents perceive their coparenting and their child’s temperament are more influential determinants of their behavior than the way someone else (such as an observer) rates their behaviors. Hence, studying self-report has, besides several obvious drawbacks such as social desirability and subjectivity, several advantages and adds to the knowledgebase regarding coparenting.

Our study has several strengths. We used a longitudinal design with a fairly large sample, which enabled us to determine the associations between relationship satisfaction, child negative affectivity and coparenting from early infancy to early childhood. In addition, our study included mothers and fathers, which made it possible to address important and new questions regarding the differences between fathers and mothers in the studied associations. By using the advanced statistical technique of multilevel modeling, we were able to account for the interdependence within families. Finally, in line with recommendations

of Crockenberg and Leerkes (2003), we included a prenatal measure as a moderator in the association between child temperament and family functioning. By doing so, we were able to uncover whether couple characteristics that are not yet influenced by the child's temperament affect family functioning after birth. These results have important implications for prevention and practice, which will be discussed below.

Next to these strengths, our study has several limitations. First, our measures solely involve self-report by parents. Thus, correlations between child negative affectivity and coparenting are likely to be due in part to the fact that they were reported by the same person. However, as argued above, parents' perceptions of family characteristics are in itself meaningful determinants of their own behavior (Feinberg, 2003; McHale, 1997). Second, our sample involves relatively highly-educated, non-clinical families. Although our sample characteristics are comparable to most studies on coparenting, we do want to emphasize that associations between relationship satisfaction, child negative affectivity and coparenting may differ in more at-risk samples. This is especially true, because we found that couples who did not participate in the study had lower educational levels and shorter relationships, and couples who dropped out had children with higher scores on negative affectivity. It may be the case that, as argued above, mothers' supportive coparenting in our sample is always high, whereas in more at-risk samples, mothers' supportive coparenting is more variable and malleable and therefore more strongly related to child negative affectivity.

Our results carry several implications for research and practice. For research, the differences between fathers and mothers in the association between relationship satisfaction, negative affectivity and coparenting need to be studied more extensively. The same is true for the moderating role of prenatal relationship satisfaction, as results have been inconsistent so far. Especially observational studies of distinct father and mother coparental behaviors have been rare (Gordon & Feldman, 2008; Metz, Colonesi, Majdandžić, & Bögels, in preparation). Future observational studies are needed to understand whether the different results between our study and past research are due to differences between fathers versus mothers, or between observational versus questionnaire measures of coparenting. For practice, our results reveal prenatal relationship satisfaction as a highly stable and possibly meaningful predictor of later coparenting throughout early childhood. Given the high stability in these predictions, prenatal relationship functioning may be an important target for prevention interventions. Also, our findings imply that undermining coparenting may be especially sensitive to child negative affectivity, because undermining appeared to be related to child negative affectivity for all families regardless of parent gender and relationship satisfaction. The importance of coparenting in prevention has been demonstrated by the Family Foundations prevention program developed by Feinberg and colleagues (Feinberg & Kan, 2008; Feinberg, Jones, Kan, & Goslin, 2010). These researchers found that targeting the coparenting relationship before child birth related to more supportive coparenting and better child emotional adjustment in infancy and early childhood (Feinberg & Kan, 2008;

Feinberg et al., 2010). Also, undermining coparenting mediated the associations between program effects and child adjustment problems (such as anger and resistance to control) when children were 3 years old (Solmeyer, Feinberg, Coffman, & Jones, 2014). Thus, in line with our results, it appears that undermining coparenting may be an especially meaningful target in the prevention of child behavior problems.

CONCLUSION

The current study demonstrates that prenatal relationship satisfaction is an important predictor of coparenting from infancy to early childhood. This indicates that prenatal relationship satisfaction should be considered as a determinant of coparenting behaviors in research and may be an effective target in preventive interventions. We did not find support for the hypothesis that prenatal relationship satisfaction is a moderator in the association between child negative affectivity and coparenting. More research on these associations needs to be done in order to clarify which factors explain the discrepancy in findings between our and previous studies. In addition to these findings, we conclude that child negative affectivity relates to more undermining coparenting for all parents, regardless of their gender or their prenatal relationship satisfaction, whereas child negative affectivity only relates to more supportive coparenting of fathers. We hypothesize that fathers' supportive coparenting serves as a buffer to ensure a positive relationship between the mother and the child. Our results demonstrate the importance of distinguishing between mothers' and fathers' coparenting behaviors.

CHAPTER

General Discussion

6

The aim of this thesis was to empirically test the bidirectional associations between coparenting and family member anxiety and the differential role of fathers and mothers in these associations, as was proposed in a model by Majdandžić and colleagues (2012). The results suggest that (precursors of) child anxiety and coparenting are correlated (*Chapters 2 – 5*). Coparenting was associated with parental anxiety (*Chapter 2*) and parental anxiety moderated the association between coparenting and child anxiety (*Chapter 3*). In addition, parents' relationship satisfaction is a strong predictor of later coparenting quality (but not of later child anxiety; *Chapter 5*), and the associations between coparenting and (precursors of) child anxiety differ for fathers and mothers (*Chapter 4 and Chapter 5*). See Figure 1 for a graphical representation of the tested associations.

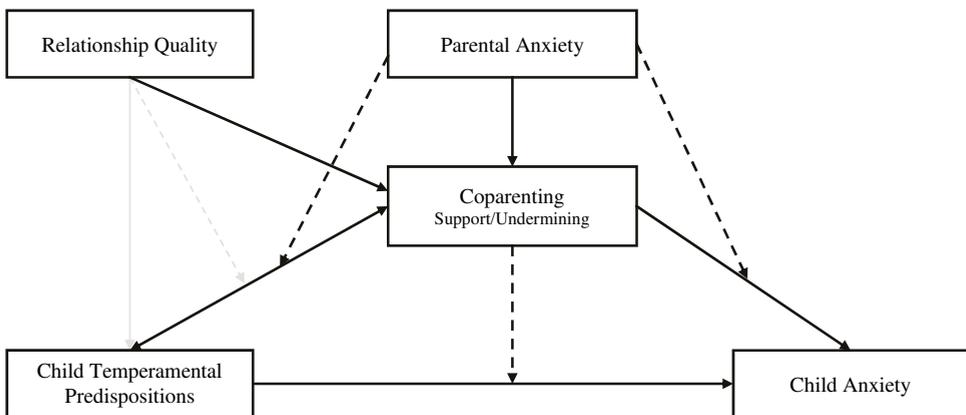


Figure 1. Graphical representation of the associations tested in this thesis. Dashed lines represent moderation effects. Lines in black are the effects for which evidence was found in this thesis; lines in grey are the effects for which no evidence was found in this thesis. Differences in the associations between supportive and undermining coparenting and between mothers and fathers are addressed in the text.

Associations between coparenting and (precursors of) child anxiety

Several scholars have pointed to coparenting as a central aspect in family processes (Minuchin, 1974; Weissman & Cohen, 1985). Specifically, it has been hypothesized that coparenting plays an important role in association with family member anxiety, as coparenting is a construct that ties the whole family together and can explain the transmission of anxiety from parents to their children (Majdandžić et al., 2012). In this thesis, we investigated the concurrent associations between coparenting and children's temperamental predispositions to anxiety (*Chapter 2 and Chapter 5*) and the longitudinal paths from infants' fearful temperament and negative affectivity to later coparenting, and from coparenting to later child anxiety (*Chapter 2, Chapter 3 and Chapter 4*).

Concurrent associations

With regard to the concurrent associations between coparenting and precursors of child anxiety, we found that children's higher parent-reported fearful temperament and negative affectivity related to higher self-reported undermining coparenting, and to fathers' but not mothers' higher levels of supportive coparenting when children were 4 months to 4.5 years old (*Chapter 2* and *Chapter 5*; this result is discussed more elaborately in the section about 'Differences between mothers and fathers'). Thus, coparenting and child fearful temperament are intertwined and covary with each other over time. Given that child fearful temperament and negative affectivity predict later levels of child anxiety, these findings give support to the hypothesis that coparenting plays a role in the development of child anxiety. It should be noted that both child temperament and undermining coparenting were stable over time (*Chapter 2*); hence, the discontinuation of either of these behaviors could discontinue the negative spiral between highly temperamentally fearful children and highly undermining parents. As infants are difficult to target in intervention, it seems intuitive to target the coparenting relationship in interventions. Studies have indeed demonstrated that targeting the coparenting relationship before birth and just after birth results in better child outcomes (Feinberg & Kan, 2008; Feinberg, Jones, Kan, & Goslin, 2010).

Predictive associations

When using questionnaire data, we found no evidence for predictive associations between parent-reported child fearful temperament and self-reported undermining coparenting when children were 4 months to 2.5 years old (*Chapter 2*). However, when using observations of infants' fearful temperament at 1 year and global observations of coparenting in the family while parents were claying an animal with their 2.5-year-old, we found that higher levels of fearful temperament predicted lower levels of later observed undermining coparenting, but only if one or both parents in the family were highly anxious (*Chapter 3*). Also, if one or both parents were highly anxious, higher levels of observed undermining coparenting at 2.5 years predicted higher levels of later parent-reported child anxiety when children were 4.5 years old, whereas higher levels of observed undermining coparenting predicted lower levels of later parent-reported child anxiety if parents were low-anxious (*Chapter 3*; this result will be discussed further on, in the section 'Parents' readiness to become (co) parents: parental anxiety and relationship satisfaction'). In this study, we also investigated the indirect effect of fearful temperament through coparenting on child anxiety; however, we did not find evidence for this hypothesized mediation effect (*Chapter 3*). Taken together, these results imply that predictive associations do exist between child fearful temperament, undermining coparenting, and child anxiety, and these results lend support to the role of coparenting in the development of child anxiety. However, we did not find evidence for the role of coparenting as a mechanism of change, as we did not find that anxiety development occurs through coparenting. Also, unexpectedly, we did not find associations between

supportive coparenting and child anxiety. It might be the case that supportive coparenting is unrelated to parent-reports of child anxiety and to observations of child fearful temperament, as previous research did not investigate child anxiety and mostly investigated parent-reports of child temperamental characteristics.

Next to global observations of coparenting, we observed coparenting at the micro-level while parents were dressing up their 1-year-old infant and investigated parents' simultaneous coparenting (i.e., both parents being supportive or undermining at the same time) and parents' divergent coparenting (i.e., one parent being supportive or undermining while the other parent was neutral; *Chapter 4*). We found that when parents perceived their 4-month-old child as high on negative affectivity, parents displayed higher levels of divergent coparenting at 1 year; for simultaneous behaviors, we did not find meaningful relations with negative affectivity. Thus, parents were more often supportive individually when the child was rated as having a less negative temperament. These results suggest that parents may be more confident in acting individually when they have a less negative infant, which could enforce turn-taking patterns between parents. We did not find direct associations between simultaneous coparenting at 1 year and child anxiety at 2.5 years, but we did find that in families in which it occurred often that father was supportive while mother was neutral, parents reported their children to be less anxious (*Chapter 4*; this result is discussed more elaborately in the section about 'Differences between mothers and fathers'). Thus, also here we found predictive associations from infant temperamental characteristics to later coparenting and from coparenting to later child anxiety, again supporting the notion that coparenting does play a role in the development of anxiety (Majdandžić et al., 2012).

To conclude, we found evidence for the concurrent associations between parents' perceptions of child negative affectivity and child fearful temperament for mothers' and fathers' self-reported undermining coparenting and for fathers' supportive coparenting (*Chapter 2* and *Chapter 5*). Also, we found longitudinal associations from observed and parent-reported child fearful temperament to observed undermining and divergent coparenting, and from observed undermining and observed divergent coparenting (*Chapter 3* and *Chapter 4*) to child anxiety. These results are in line with the hypothesis that coparenting relates to temperamental precursors of child anxiety and to child anxiety itself (Majdandžić et al., 2012). However, our results do not lend clear support to the idea that these associations are bidirectional: even though we found predictive associations from child temperament to coparenting and from coparenting to child anxiety, we did not find predictive associations from coparenting to child temperament or from child anxiety to undermining. Thus, it remains unclear whether the bidirectional associations between coparenting and child anxiety, as they were proposed by Majdandžić and colleagues (2012), exist. However, our results do lend support to the hypothesis that infants' temperament influences their parents' coparenting and also that this coparenting later on influences their children's anxiety symptoms. This implies that the interaction between coparenting and

child characteristics is indeed transactional and that practitioners need to take the dynamics between child characteristics and coparenting into account when treating child anxiety

Parents' readiness to become (co)parents: parental anxiety and relationship satisfaction

Even though we found that children who have a negative or a fearful temperament also have parents who display less optimal coparenting behaviors, several factors can moderate the relationship between coparenting and child temperament or anxiety. Crockenberg and Leerkes (2003) have proposed a transactional model in which the infants' temperamental characteristics interact with parents' readiness to become parents. The authors argue that some parents are more ready to become parents than others, for example because of a poor economic situation, parental psychopathology (such as anxiety), or a poor relationship quality before child birth. Those couples who are poorly equipped to become parents may drift apart when their newborn is highly negative in its temperament, because the problems that the couple already had make it difficult for the parents to work together collaboratively in this difficult situation. On the other hand, couples who are ready to become parents may pull together when their newborn infant is highly negative in its temperament, because they approach the challenge together and are capable of supporting each other throughout this challenge. Another explanation could be that too much adversity in a family (e.g., parental psychopathology and having a highly negative infant) may put too much pressure on the family and this may disable the parents to construct a functional and supportive coparenting relationship. Crockenberg and Leerkes (2003) emphasized that especially predictors measured before child birth can provide important information on the moderating role of couple function in the association between child negative temperament and coparenting behavior, because these prenatal measures are not yet influenced by the child's temperament. In this thesis, I investigated prenatal parental anxiety disorder severity and prenatal parental relationship satisfaction as moderators in the associations between child temperament, coparenting, and child anxiety.

Parents who reported higher levels of anxiety disorder severity in a clinical interview before child birth reported that they were more inclined to display undermining coparenting behaviors when children were 4 to 30 months old (*Chapter 2*). Parents' anxiety was unrelated to their supportive coparenting. Of note, when mothers were anxious, fathers reported to be less supportive (*Chapter 2*). On the other hand, parental anxiety was unrelated to observations of coparenting in a claying task when children were 2.5 years old (*Chapter 3*). The associations between parental anxiety (disorder) and coparenting were unexplored: thus far, only one previous study specifically related parental anxiety to lower levels of coparenting quality (Delvecchio, Sciandra, Finos, Mazzeschi, & DiRiso, 2015). Our results give partial support to the hypothesis that anxious parents are more undermining than non-anxious parents, as was put forward by Majdandžić and colleagues (2012). These

authors proposed several mechanisms through which anxiety may relate to coparenting, and suggested that parents may either become more supportive due to their own insecurities, or more undermining due to a lack of trust in their partner or the need to (over)protect their child (see *Chapter 1*). Our results are in line with the hypothesis that anxious coparents are prone to increased levels of stress, which can induce childrearing disagreements and, thereby, higher levels of undermining coparenting (Majdandžić et al., 2012). Majdandžić and colleagues (2012) also stressed the role of the non-anxious partner in the effects parental anxiety may have on their coparenting. Our results suggest that it may be the case that especially fathers become less supportive when they have an anxious partner. This suggests that couples in which the mother is anxious, both partners are more undermining and the father is less supportive of the mother. This may result in children's exposure to a family environment in which the father does not support the parental role of his anxious partner – thereby possibly making the anxious partner more insecure and anxious, which can result in even more undermining coparenting and more anxiety in the parent. In the current research, we did not investigate how the additive role of low support and high undermining affects the child's development, but it seems likely that these kinds of family interactions lead to a more unsafe family environment, thereby inducing anxiety in the child (Majdandžić et al., 2012).

We investigated the moderating role of parental anxiety disorder severity both in the associations from child fearful temperament to coparenting, and from coparenting to child anxiety. We found that parental anxiety disorder severity did not moderate the concurrent associations between parent-reports of child fearful temperament and self-reported supportive and undermining coparenting when children were 4 months old to 2.5 years old (*Chapter 2*). However, we did find that when observers rated a 12-month-old infant as highly anxious, and one or both parents were highly anxious, parents were observed to be less undermining when the child was 2.5 years old (*Chapter 3*). This result suggests that, contrary to our expectations, anxious parents may be highly sensitive to their children's high levels of fear, and thereby provide a less undermining coparenting environment. This result is not in line with the finding that self-reported undermining is higher for highly anxious parents. It may be the case that observed and self-reported coparenting attend to different family processes, which are differently affected by parental anxiety; however, this needs to be studied in the future. For now, we can only conclude that it remains unclear how parental anxiety relates to undermining coparenting.

Next to the moderating role of parental anxiety in the association from child fearful temperament to coparenting, we also investigated the moderating role of parental anxiety in the association from coparenting to later child anxiety (*Chapter 3*). Here, we found that undermining coparenting only related to higher levels of parent-reported child anxiety when fathers or mothers had higher levels of anxiety disorder severity, whereas undermining coparenting related to less later child anxiety when fathers or mothers had lower scores

on anxiety disorder severity (*Chapter 3*). These results suggest that, as expected, family member anxiety and coparenting are intertwined: anxious family members' undermining coparenting appears to influence the anxiety of the child in an adverse way, while the same coparenting behavior is a protective factor in families in which parents are not anxious. We hypothesized that parents' undermining coparenting serves as a stressor in the family environment; if this stressor is paired with the second stressor of having an anxious parent, children are more anxious, whereas if undermining coparenting is not paired with the stressor of having an anxious parent, children become less anxious. The finding that children of anxious parents become more anxious when their parents are undermining is in line with the reasoning of Majdandžić et al. (2012), who suggested that an unsafe family environment can provoke anxiety in the child. The finding that children become less anxious over time in families with low levels of parental anxiety disorder severity who display high levels of undermining seems to be in line with the hypothesis that undermining coparenting can toughen up children (Belsky, Putnam, & Crnic, 1996; Park, Belsky, Putnam, & Crnic, 1997). Our results add to this theory that it may be the case that only undermining coparenting of non-anxious parents serves this beneficial outcome in children initially at risk for developing anxiety, whereas anxious parents' undermining coparenting does have detrimental effects on children's anxiety development, in line with the majority of empirical findings (Cook et al., 2009; Lindsey et al., 2005; McHale & Rasmussen, 1998).

The second factor that we studied as an indicator of parents' readiness to become coparents was prenatal relationship satisfaction. We found that parents who had a high prenatal relationship satisfaction displayed more supportive coparenting and less undermining coparenting (*Chapter 5*). Thus, parents who had a high relationship satisfaction before they had their child appear to be more equipped to become supportive coparents. However, we did not find the hypothesized effect that parents with a lower relationship satisfaction become more undermining if they have a highly negative child (*Chapter 5*), even though others have found this effect (McHale, Kazali, Rotman, Talbot, Carleton, & Lieberston, 2004; Schoppe-Sullivan, Mangelsdorf, Brown, & Sokolowski, 2007). Possibly, relationship satisfaction only serves as a moderator when children are very young, because the association between coparenting and child temperament becomes more stable as the child gets older. It may also be the case that several methodological differences underlie the differences in findings, as discussed in Chapter 5.

The finding that supportive and undermining coparenting relate to child temperament even after controlling for romantic relationship satisfaction (*Chapter 5*) demonstrates that the unique part of the variation in couple functioning that consists of undermining and supportive coparenting (and not the common variation of coparenting with relationship satisfaction) is accounted for by child temperament. This suggests that parents' perceptions of child fearful and negative temperament are especially important in relation to their coparenting, more so than in relation to their relationship satisfaction. This gives support

to the idea that it is indeed coparenting, rather than romantic couple functioning, which is interconnected with child anxiety (Majdandžić et al., 2012). Additional support for this idea is provided by the lack of correlations between relationship satisfaction and child negative affectivity (*Chapter 5*). Coparenting may be an especially proximal determinant of child anxiety, because it captures the dynamics within the triadic family system (i.e., including father, mother and child) rather than only the dynamics within the romantic and dyadic couple relationship.

To conclude, we found that parents' anxiety disorder severity before the birth of the child as well as parents' relationship satisfaction before the birth of the child are important predictors of later coparenting behaviors. Parental anxiety predicted higher levels of undermining coparenting (*Chapter 2*) and high relationship satisfaction predicted higher levels of supportive coparenting and lower levels of undermining coparenting (*Chapter 5*). However, we did not find the hypothesized vulnerability of parents with high anxiety or low levels of relationship satisfaction to the negative temperament of their infant based on the transactional model of Crockenberg and Leerkes (2003). It appears that the adverse effects of parental anxiety and relationship satisfaction on coparenting apply to all families, not only to those families who have a highly negative infant.

Differences between mothers and fathers in the associations between coparenting and (precursors of) child anxiety

Fathers' parenting behaviors have been hypothesized to be especially important in the development of child anxiety (Bögels & Phares, 2008). This is based on the idea that fathers tend to focus on preparing children to interact with the world outside the family (Paquette, 2004), which may be especially important in the development of child anxiety (Bögels & Perotti, 2011). Mothers are hypothesized to focus more on the internal and caring world inside the family (Paquette, 2004). Due to these possible specializations of fathers and mothers, it has been hypothesized that fathers and mothers play a different role in the development of child anxiety (Bögels & Phares, 2008; Bögels & Perotti, 2011). Based on these theories, it may also be the case that fathers' and mothers' coparenting relates differently to child anxiety, and also that fathers' and mothers' own anxiety relates differently to their coparenting (Majdandžić et al., 2012; see also *Chapter 1*). We found that the associations between mothers' and fathers' anxiety disorder severity and coparenting did not differ (*Chapter 2* and *Chapter 3*). Thus, our results do not lend support to the hypothesis that fathers' anxiety is more strongly related to his coparenting than mothers' anxiety is related to her coparenting, or that anxious fathers' and mothers' coparenting relates differently to the child's anxiety. In this study, anxiety related in the same way to coparenting and associations with child fearful temperament and anxiety for both fathers and mothers.

Even though we did not find differences in the role of fathers' and mothers' anxiety disorder severity, we did find differences in the associations between fathers' versus mothers' coparenting and child temperament. Only for fathers, higher levels of negative affectivity in the child related to higher levels of self-reported supportive coparenting, whereas negative affectivity was unrelated to mothers' supportive coparenting (*Chapter 5*). Thus, fathers' supportive coparenting behavior may be especially sensitive to the (perceived) characteristics of the child. Previous research also illustrates that fathers are more sensitive to their child's temperamental characteristics than mothers (Bornstein, Lamb, & Teti, 2002; Möller, Majdandžić, & Bögels, 2014; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). We have suggested that fathers' increased supportive coparenting may serve as a buffer in the relationship between the mother and her negative child (*Chapter 5*). It could be that whereas mothers' supportive coparenting is always high, fathers' coparenting may be more variable and more susceptible to the environment (Bornstein, Lamb, & Teti, 2002). Even though fathers' levels of supportive coparenting were on average lower than mothers' levels of supportive coparenting, we did not find differences in the variance of fathers' and mothers' supportive coparenting (*Chapter 5*). Thus, fathers' coparenting has more possibilities to increase, but the lack of difference in variances does not support the idea that the range of fathers' coparenting behaviors is larger than the range of mothers' behaviors. An approach using a ratio between mothers' and fathers' coparenting behaviors may shed more light on these findings, as this can inform us about whether it is the absolute score of fathers' supportive coparenting that is of importance, or whether it is the relative part of coparenting behaviors that consists of fathers' support. It may be the case that only in those families in which fathers' coparenting behaviors reach a certain threshold of the total amount of coparenting behaviors, fathers' supportive coparenting carries salience in the development of child anxiety. Through this methodology, we could also gain more insight into the way coparenting behaviors are normally distributed between mothers and fathers and how these ratios relate to child development.

We found that the type of divergent coparenting in which fathers are supportive while mothers were neutral related to less child anxiety, whereas the type of divergent coparenting in which mothers were supportive while fathers were neutral related to more child anxiety (*Chapter 5*). Thus, while fathers' supportive coparenting (while mother is neutral) serves as a protective factor in the development of child anxiety, mothers' supportive coparenting (while father is neutral) serves as a risk factor in the development of child anxiety. Here, it appears that it is especially those fathers that are wanting to and capable of initiating or continuing coparenting interactions on their own who protect highly negative children from becoming anxious. On the other hand, the finding that mothers' supportive coparenting serves as a risk factor may be due to maternal gatekeeping, which are behaviors that hinder the collaboration with their partner (Allen & Hawkins, 1999). Given that the two categories of divergent behaviors were correlated ($r = .29, p < .001$), it may also be the case that parents

who involve in divergent behaviors are the type of parents who are capable of taking turns. Turn taking has been associated with higher satisfaction with coparenting (Dienhart, 2001), as has flexibility (e.g., Hollenstein, Granic, Stoolmiller, & Snyder, 2004). Also, turn taking may enable parents to respond in a more adaptive way to their child's needs.

To conclude, we found indications that it is especially fathers' supportive coparenting behavior (both self-reported and observed) that is related to positive outcomes of child negative affectivity and child anxiety (*Chapter 4* and *Chapter 5*). We found that mothers' supportive coparenting may serve as a risk factor in anxiety development (*Chapter 4*), but this was not confirmed in our other studies. Thus, fathers' supportive coparenting behaviors may serve as a buffer between the mother and the child, thereby ensuring a better relationship between the mother and the child, which can then lead to better child outcomes. On the other hand, it may also be the case that modeling of the father as a confident and supportive partner in coparenting relates to less anxiety in the child, as can be expected based on the idea that fathers play an especially important role in the development of child anxiety (Bögels & Phares, 2008; Bögels & Perotti, 2011).

Limitations

The studies in this thesis have some limitations and results should be interpreted within these limitations. Part of our results rely on associations between parents' self-reports of their own coparenting behavior and on parent reports of their child's fearful and negative temperament; the bidirectional associations between self-reports of coparenting and parent-reports of the child's temperament may be due to variability within the persons who were reporting (i.e., common method variance; Donaldson & Grant-Vallone, 2002), rather than due to variability in the true, underlying behavior. Furthermore, the current thesis focused solely on the associations between negative aspects of temperament, whereas the positive aspects of temperament (such as surgency and effortful control) may serve as protective factors in the development of psychopathology (Calkins & Fox, 2002; Rutter, 1985; 1987) and anxiety disorders specifically (Lonigan & Phillips, 2001). Also, positive affectivity was found to protect 9-to-12-year-olds of divorced parents from the adverse effects of negative parenting (Lengua, Wolchik, Sandler, & West, 2000), making the investigation of the positive aspects of temperament especially relevant to the associations between coparenting and child anxiety in divorced families. Another limitation is that our results are based on a highly educated and non-clinical sample, which limits the generalizability of our results. More at risk families may profit more from coparenting interventions than the families in our sample; therefore, research on coparenting and child anxiety in clinical and/or high-risk samples is called for.

Finally, the longitudinal design of the current study only gave us limited opportunities to investigate causality in the associations between coparenting and child outcomes; therefore, future research should aim to conduct experiments in which coparenting is manipulated to

reveal causal connections between coparenting quality and child anxiety. Another option is the collection of highly frequent observations of both coparenting and child anxiety. This methodology makes it possible to draw more inferences on the direction of effects between coparenting and child anxiety – or to conclude that the associations between coparenting and child anxiety are truly bidirectional. Development occurs over long periods of time – for example, we found that children’s negative affect predicts their development into a highly anxious child 2 years later (*Chapter 4* and *Chapter 5*). Underlying to this development on the time scale of years is the development of moment-to-moment events. These moment-to-moment events partly consist of the child’s experiences with its parents’ coparenting interactions. Uncovering the way that these moment-to-moment, micro-level coparenting events develop over time can contribute to a better understanding of the development of anxiety over the years. Methodology for the measurement of triadic interactions at a microlevel are available and have demonstrated how the interactions between father, mother and their adolescent son relate to the level of depression in the adolescent (Hollenstein, Allen, & Sheeber, 2016). Application of this methodology to coparenting interactions can provide exciting and highly relevant new insights into the development of anxiety. These kinds of findings can point to clear intervention targets and can thereby serve to change the developmental course of child anxiety over the years. For example, highly frequent measures of divergent coparenting interactions may reveal that the occurrence of divergent coparenting over time relates closely to the behavior of the infant in triadic interactions, highly anxious parents may display different interaction patterns than non-anxious parents, and families with infants who are highly anxious by the time they are 7 years may display different interaction patterns than families with infants who do not become anxious later in childhood.

Future research

Theoretically, our results carry several implications. We found that different measures of coparenting yield different results: parent-reported coparenting, global observations of coparenting, and micro-coded observations of coparenting all led to slightly different associations with temperament and anxiety. Therefore, we believe that future research should aim to understand which methodology measures which aspects of coparenting and which measures may be most meaningful in the study of child anxiety. Also, as an extension to the methodology in this thesis, I recommend to use measures in which parents’ perceptions of their partners’ coparenting are measured, since the satisfaction with the division of (co) parenting labor is an important indicator of coparenting quality (Feinberg, 2003).

In addition, the studies in this thesis lend partial support to the notion that fathers’ and mothers’ coparenting behaviors relate differently to (precursors of) child anxiety; future research should take these differences between fathers and mothers into account. The results indicate that the exposure to fathers’ supportive coparenting is especially important

with regard to child anxiety. Given that the current thesis concerned mainly intact couples (at 4.5 years, 4 couples were divorced, and 2 couples were together but not married), it remains unclear whether our results also extend to divorced couples. In the past decade in the Netherlands, divorced couples have shared child custody in 90% of cases (87 – 94%; CBS.nl); however, 74% of these children mostly live with their mother, 20% of children live as much with their father as with their mother, and 6% of children live mostly with their father (Spruijt & Kormos, 2010). This means that 80% of children grow up mostly with one parent, which may decrease the likelihood of their exposure to the patterns of simultaneity that matter in anxiety development (*Chapter 4*). Also, the supportive and buffering role of the father may change or disappear in children with divorced parents (*Chapter 4* and *Chapter 5*). In line with this, research found that living apart from the biological father poses a risk for child outcomes (Amato, 2000) and father involvement predicts child and adolescent adjustment (Vazsonyi, 2004; Williams & Kelly, 2005). Interestingly, adults who grew up in divorced families stated that they desired more father involvement (Fabricius, 2003; Fabricius & Hall, 2000; Finley & Schwartz, 2007). Thus, divorce may pose a threat to the paternal role in coparenting interactions and may jeopardize children's exposure to protective dynamics between fathers and mothers, thereby increasing the risk of the development of anxiety in children in divorced families. Future studies should address the associations between coparenting and anxiety in divorced families, because these families may be at an increased risk for high levels of undermining coparenting and family member anxiety.

Clinical Implications

Practically, our results imply that clinicians should pay special attention to undermining coparenting when treating both anxious parents and anxious children, since we found that undermining coparenting is associated to (precursors of) family member anxiety. Moreover, it has been demonstrated that coparenting interventions are especially effective in families who were at a higher risk for developing poor coparenting during pregnancy, as measured by low levels of observed prenatal couple functioning (Feinberg et al., 2016). Next, the role of paternal supportive coparenting should receive attention in the clinical practice, as it appears that these supportive behaviors may serve as a protective factor in the development of child anxiety. Research on the effects of intervention of coparenting is needed to confirm our findings and to establish the role of coparenting in the clinical practice. Moreover, research on interventions can shed light on the way the associations between coparenting and child anxiety are most effectively influenced. The results of this thesis suggest that the associations between coparenting and family member anxiety are transactional; thus, there may not be a cause and an effect in these associations. Practitioners and intervention researchers need to demonstrate which aspects in the associations between coparenting and family member anxiety are easy to address and to change, because a change in undermining may lead to a change in family member anxiety, and vice versa.

CONCLUSION

In conclusion, this thesis demonstrated that coparenting and child anxiety are related. As Majdandžić and colleagues (2012) suggested, the coparental relation plays a role in family member anxiety: children's and parents' anxiety symptoms relate to coparenting. Figure 1 represents the tested associations of the current thesis. In this figure, we placed coparenting at the center of family member anxiety, in line with our hypothesis that coparenting may be a mechanism in the transmission of anxiety. We found associations between child temperamental predispositions for anxiety to coparenting, from coparenting to child anxiety, and from parental anxiety to coparenting. These findings strengthen the idea that the interaction between coparenting and anxiety should be seen as a transactional process, in which family members' behaviors influence each other. We found that undermining coparenting is intertwined with high levels of child fearful temperament and negative affectivity for all families. However, we found that only for families in which one parent is highly anxious, undermining coparenting leads to higher anxiety in the child, demonstrating that especially anxious parents' coparenting is a risk factor for the development of child anxiety. Finally, especially fathers' supportive coparenting may serve as a protective factor in anxiety development. Therefore, future research and practice on anxiety need to take into account the role of coparenting and the specific roles of fathers and mothers in coparenting interactions, especially when parents themselves are anxious. Coming back to the introduction of this thesis, penguins appear to have found a coparenting dynamic which enables the female, the male and the penguin chick to survive the brooding process healthy. The results from this thesis demonstrate that also in humans, a functional dynamic in coparenting behavior in which both mother and father take their responsibility and leave opportunity to be a parent to their partner may yield the best outcomes for their child.

SUMMARY

Coparenting and Child Anxiety



In this thesis, I aimed to test several associations between coparenting and family member anxiety, as they were proposed in the model by Majdandžić, De Vente, Feinberg, Aktar, and Bögels (2012). Coparenting, the ways parents cooperate in their role as parents, has been hypothesized to play a role in the transmission of anxiety from parents to children, because parental anxiety may affect the way parents coparent, thereby affecting the development of child anxiety. This thesis aimed to disentangle the associations between coparenting and the development of child anxiety by studying longitudinal data on child temperamental predispositions to anxiety (i.e., fearful temperament and negative affectivity), coparenting, and child anxiety (*Chapters 2 – 5*). To uncover whether coparenting plays a role in the development of child anxiety, I also investigated whether coparenting mediates the association from infant fearful temperament to subsequent anxiety (*Chapter 3*) and whether coparenting moderates the associations between infant negative affectivity and child anxiety (*Chapter 4*). In addition, I investigated whether the prenatal factors of parental anxiety and parental relationship satisfaction were associated with coparenting, and whether these two factors moderate the associations between child temperamental predispositions to anxiety, coparenting, and child anxiety (*Chapter 2, Chapter 3 and Chapter 5*).

In Chapter 2, we analyzed longitudinal data of parent-reported child fearful temperament and self-reported coparenting when children were 4 months to 2.5 years old. We found that higher levels of undermining coparenting are associated with higher levels of child fearful temperament across early childhood, but we found no evidence of an association between supportive coparenting and child fearful temperament. Furthermore, we tested whether coparenting predicts later child fearful temperament, and whether child fearful temperament predicts later coparenting. We did not find support for these predictive associations between coparenting and child fearful temperament. We also found that parents with high levels of parental anxiety disorder severity display higher levels of undermining coparenting, but parents' anxiety was unrelated to supportive coparenting. We found that parental anxiety disorder severity did not moderate the associations between child fearful temperament and coparenting. Thus, in this study, undermining coparenting, but not supportive coparenting, was associated with both higher levels of parental anxiety disorder severity, and with higher levels of child fearful temperament.

In Chapter 3, we analyzed longitudinal data on the development of anxiety by studying observations of child fearful temperament at 1 year, observations of coparenting behavior at 2.5 years, and parent-reports of children's anxiety symptoms at 4.5 years. Prenatal measures of parental anxiety disorder severity were included as a moderator in the tested associations between child fearful temperament, coparenting, and child anxiety. We found no significant direct or moderated associations between child fearful temperament, supportive coparenting, and child anxiety symptoms. We did find that parental anxiety significantly moderates the associations between child fearful temperament and undermining coparenting, and between undermining coparenting and child anxiety symptoms. Specifically, we found that highly

anxious parents who have a highly fearful child are less undermining at 2.5 years, and if these anxious parents are highly undermining at 2.5 years, their child shows more anxiety symptoms at 4.5 years. In contrast, we found that if parents are low-anxious and display high levels of undermining coparenting at 2.5 years their child shows less anxiety symptoms at 4.5 years. We conclude that anxious parents appear to be more sensitive to their temperamentally fearful child by becoming less undermining. Further, anxious parents' undermining coparenting seems a risk factor for later child anxiety, whereas low-anxious parents' undermining coparenting appears to serve as a protective factor in the development of child anxiety. We suggest that the combination of having an anxious parent and undermining coparents may induce too much stress in the child's life, thereby leading to adverse outcomes, whereas undermining coparenting by non-anxious parents may serve to toughen the child up, thereby decreasing the risk of becoming anxious.

In Chapter 4, we analyzed parent-reports of infant negative affectivity at 4 months, observations of fathers' and mothers' coparenting simultaneity at 1 year, and parent-reports of child anxiety at 2.5 years. We investigated direct effects between infant negative affectivity, coparenting, and child anxiety symptoms, and the moderating role of coparenting in the associations from infant negative affectivity to later child anxiety symptoms. Parents' coparenting behaviors were categorized as coparenting behaviors that were performed simultaneously (i.e., both parents display the same coparenting behavior at the same time), or divergently (i.e., only mother displayed a certain coparenting behavior while father was neutral, or only father displayed a certain coparenting behavior while mother was neutral). We found that parents who perceive their child as high on negative affectivity at 4 months display less divergent coparenting behaviors. Also, we found that divergent coparenting of the type where father is supportive while mother is not displaying coparenting behaviors is protective in the development from high infant negative affectivity to later child anxiety symptoms; on the other hand, we found that divergent coparenting of the type where mother is supportive while father is not displaying coparenting behaviors is a risk factor in the development from high infant negative affectivity to later child anxiety symptoms. Thus, it appears that parents of highly negative infants are inclined to display less coparenting interactions in which only one parent is supportive, and that fathers' individual supportive coparenting serves as a protective factor in the development of child anxiety, while mothers' individual supportive coparenting may serve as a risk factor.

In Chapter 5, we studied the role of self-reported prenatal relationship satisfaction and infant negative affectivity as a predictor of self-reported coparenting when children were 4 months to 4.5 years old. Also, we investigated whether having low relationship satisfaction before birth in combination with having a child that is perceived as high on negative affectivity is related to less supportive and more undermining coparenting. We found that higher prenatal relationship satisfaction predicts higher levels of supportive coparenting and lower levels of undermining coparenting, from 4 months to 4.5 years. Also, we found

that if fathers perceive their child as high on negative affectivity, they are more supportive; for mothers, we did not find this association between child negative affectivity and their coparenting behavior. Contrary to expectations, we did not find that couples with low prenatal relationship satisfaction who perceive their child as high on negative affectivity display less supportive or more undermining coparenting behaviors than couples who had a child perceived as low on negative affectivity. We conclude that fathers' supportive coparenting when children are high on negative affectivity may serve as a buffer between the mother and the difficult child, and that prenatal relationship satisfaction is a strong and stable predictor of coparenting after the birth of the child, up until 4.5 years.

In conclusion (*Chapter 6*), this thesis demonstrates that (temperamental precursors of) child anxiety and coparenting are interrelated in some cases, but not in all. Specifically, we found evidence for significant associations between higher levels of child temperamental precursors of anxiety and higher levels of undermining coparenting, but not for supportive coparenting. Also, we found some evidence that child fearful temperament is a predictor of later coparenting, but this effect was not found in the opposite direction; coparenting did not appear to predict child fearful temperament. Because we did not study the effects from child anxiety (as opposed to temperament) to later coparenting, it is not possible to conclude from the current thesis whether the associations between coparenting and child anxiety are bidirectional, or possibly unidirectional. Furthermore, this thesis demonstrates that parental anxiety is intertwined with parents' coparenting: we found that highly anxious parents are more undermining than low-anxious parents, and we found that parents' anxiety disorder severity changes the associations between undermining coparenting and (precursors of) child anxiety. Finally, we found some evidence that it is especially fathers' supportive coparenting that is associated with children's negative affectivity and anxiety, rather than mothers' supportive coparenting. Moreover, fathers' supportive coparenting may serve as a protective factor in the development of anxiety. These results lead us to advise both researchers and practitioners to attend to the role of parental anxiety and coparenting in the treatment of child anxiety, and to attend to the different ways fathers' and mothers' coparenting may relate to child anxiety.

SAMENVATTING

Coparenting en Angst van het Kind



In dit proefschrift worden verschillende associaties tussen coparenting en angst binnen het gezin getoetst, zoals voorgesteld in het model van Majdandžić, De Vente, Feinberg, Aktar, en Bögels (2012). Coparenting, de kwaliteit van de samenwerking tussen ouders in hun ouderlijke rol, speelt een mogelijke rol in de overbrenging van angst van ouders naar hun kinderen, omdat angst van ouders van invloed kan zijn op de manier waarop zij samenwerking en deze samenwerking kan vervolgens van invloed zijn op de angstontwikkeling van het kind.

Het doel van dit proefschrift was om meer inzicht te bieden in de relaties tussen coparenting en angstontwikkeling bij kinderen door het bestuderen van longitudinale data over voorlopers van angst bij kinderen (namelijk angstig temperament en negatief affect), coparenting en angst van het kind (*Hoofdstukken 2 – 5*). Om te achterhalen of coparenting een rol speelt in de angstontwikkeling van kinderen hebben we ook onderzocht of de ontwikkeling van een angstig temperament bij baby's naar latere angst bij kinderen verloopt via coparenting (*Hoofdstuk 3*) en of de relatie tussen negatief affect bij baby's en latere angst bij kinderen verandert door coparenting (*Hoofdstuk 4*). Daarnaast hebben we onderzocht of de prenatale factoren van angst van de ouder en huwelijkskwaliteit gerelateerd zijn aan coparenting en of deze twee factoren functioneren van invloed zijn op de relaties tussen de voorlopers van angst bij het kind, coparenting en angst van het kind (*Hoofdstuk 2, Hoofdstuk 3 en Hoofdstuk 5*).

In Hoofdstuk 2 hebben we longitudinale rapportages van ouders over het angstig temperament van hun kinderen en ouderrapportages over hun eigen coparenting geanalyseerd gedurende de periode dat kinderen 4 maanden tot 2.5 jaar oud waren. We vonden dat hogere niveaus van ondermijnende coparenting gepaard gingen met hogere niveaus van angstig temperament van de kinderen op alle leeftijden. We hebben geen relatie gevonden tussen steunende coparenting en angstig temperament van kinderen. We hebben ook onderzocht of coparenting een voorspeller was van later angstig temperament van kinderen en of angstig temperament van kinderen een voorspeller was van latere coparenting. We hebben geen steun gevonden voor deze voorspellende relaties tussen coparenting en angstig temperament van kinderen.

In deze studie hebben we wel gevonden dat ouders met hoge ernst van hun eigen angststoornis hogere niveaus van ondermijnende coparenting lieten zien, terwijl de ernst van ouderlijke angststoornissen niet gerelateerd was aan het niveau van steunende coparenting. Daarnaast hebben we gevonden dat de ernst van de ouderlijke angststoornissen niet van invloed is op de sterkte van de relaties tussen coparenting en angstig temperament van kinderen. Concluderend vonden we in deze studie dat ondermijnende coparenting, maar niet steunende coparenting, gerelateerd is aan hogere niveaus van de ernst van ouderlijke angststoornissen en aan hogere niveaus van angstig temperament van kinderen.

In Hoofdstuk 3 hebben we longitudinale data bestudeerd van observaties van angstig temperament van kinderen op 1 jaar, observaties van coparenting op 2.5 jaar en

onderrapportages van angstsymptomen bij kinderen op 4.5 jaar. Daarnaast hebben we prenatale maten van ernst van ouderlijke angststoornissen gebruikt als moderator in de getoetste relaties tussen angstig temperament van kinderen, coparenting en angst van kinderen. We hebben geen significante directe effecten gevonden tussen angstig temperament van kinderen, steunende coparenting en angstsymptomen van kinderen. Bovendien vonden we ook geen moderatie-effect van ernst van ouderlijke angststoornissen in deze relaties. We vonden wel dat ernst van ouderlijke angststoornissen een significante moderator was in de relatie tussen angstig temperament van kinderen en latere ondermijnende coparenting en in de relatie tussen ondermijnende coparenting en latere angstsymptomen van kinderen. Specifieker, we vonden dat ouders met een hoge ernst van angststoornissen met een kind met een zeer angstig temperament elkaar minder ondermijnen als het kind 2.5 jaar is en dat ondermijnende ouders met een hoge ernst van angststoornissen kinderen hebben met een hoger niveau van angstsymptomen op 4.5-jarige leeftijd. In tegenstelling vonden we dat ouders met een lage ernst van angststoornissen en een hoog niveau van ondermijning juist kinderen hebben met een lager niveau van angstsymptomen op 4.5jarige leeftijd. Uit deze resultaten concluderen wij dat angstige ouders gevoeliger lijken te zijn voor het angstige temperament van hun kind en in reactie hierop minder ondermijnd worden. Bovendien lijkt ondermijnende coparenting van angstige ouders een risico te zijn voor de angstonwikkeling van kinderen, terwijl ondermijnende coparenting van niet-angstige ouders juist een beschermende factor lijkt te zijn voor de angstonwikkeling van kinderen. We stellen voor dat ondermijnende coparenting in combinatie met een angstige ouder voor te veel stress in het leven van het kind zorgt, waardoor het kind angstiger wordt op latere leeftijd, terwijl ondermijning van niet-angstige ouders juist kan dienen om het kind weerbaar te maken tegen de ontwikkeling van angstsymptomen.

In Hoofdstuk 4 hebben we ouderrapportages van het negatief affect van kinderen op 4 maanden, observaties van coparenting van vaders en moeders op 1 jaar en ouderrapportages van angst bij het kind op 2.5 jaar geanalyseerd. We hebben onderzocht of er directe relaties bestaan tussen negatief affect van baby's, coparenting en angstsymptomen van het kind en of coparenting functioneert als een moderator in de relatie tussen negatief affect van baby's en angstsymptomen van kinderen. We hebben coparenting gedragingen onderverdeeld in gedrag dat tegelijkertijd, ofwel simultaan, voorkwam (dat wil zeggen, beide ouders lieten tegelijk hetzelfde gedrag zien) en in gedrag dat ongelijkertijd, ofwel divergent, voorkwam (dat wil zeggen, moeder liet een bepaald coparentinggedrag zien terwijl vader neutraal was, of vader liet een bepaald coparentinggedrag zien terwijl moeder neutraal was).

We vonden dat ouders die met 4 maanden een hoog niveau van negatief affect bij hun baby rapporteerden minder divergente coparenting gedragingen lieten zien toen het kind 1 jaar was. Daarnaast vonden we dat divergente coparenting van het type waarbij vader steunend was terwijl moeder neutraal was een afzwakkend, beschermend effect had in de ontwikkeling van een negatief affect naar latere angstsymptomen van kinderen. Aan de

andere kant vonden we dat divergente coparenting van het type waarbij moeder steunend was terwijl vader neutraal was een versterkend effect had op de ontwikkeling van een negatief affect in de babytijd naar angssymptomen bij kinderen. Concluderend stellen wij dat het zo lijkt dat ouders van baby's met een hoog niveau van negatief affect geneigd zijn om minder coparenting interacties te laten zien waarbij slechts één ouder steunend is terwijl de andere ouder neutraal gedrag laat zien. Bovendien lijkt de steunende coparenting van vader terwijl moeder neutraal is als een beschermende factor te functioneren in de angstontwikkeling van kinderen, terwijl de steunende coparenting van moeder terwijl vader neutraal is mogelijk als een risicofactor functioneert in de angstontwikkeling van kinderen.

In Hoofdstuk 5 hebben we onderzocht wat de rol van prenatale relatietevredenheid van ouders (zelf-rapportage) is als voorspeller van zelf-gerapporteerde coparenting als kinderen 4 maanden tot 4.5 jaar oud zijn. Daarnaast hebben we bestudeerd of de relatie tussen coparenting en ouderrapportages van negatief affect van kinderen afhangt van de prenatale relatietevredenheid. We vonden dat hoge niveaus van prenatale relatietevredenheid een voorspeller zijn van hoge niveaus van steunende en lage niveaus van ondermijnende coparenting, van 4 maanden tot 4.5 jaar. Daarnaast vonden we dat wanneer vaders een hoog niveau van negatief affect bij hun kind rapporteren, deze vaders meer steunende coparenting laten zien dan vaders die een laag niveau van negatief affect bij hun kind rapporteren. Voor moeders vonden we geen relatie tussen hun coparentinggedrag en het negatief affect van het kind. In tegenstelling tot onze verwachting hebben we niet gevonden dat koppels met een lage relatietevredenheid gevoeliger waren voor het negatief affect van hun kind dan koppels met een hogere relatietevredenheid. We concluderen dat de steunende coparenting van vaders in reactie op het negatieve affect van hun kind mogelijk dient als beschermende factor in de relatie tussen de moeder en haar (moeilijke) kind. Daarnaast is prenatale relatietevredenheid een sterke en stabiele voorspeller van coparentinggedrag na de geboorte van het kind, ten minste tot kinderen 4.5 jaar oud zijn.

In conclusie (Hoofdstuk 6) laat dit proefschrift zien dat (voorlopers van) angst van kinderen en coparenting met elkaar zijn verbonden in sommige gevallen, maar niet altijd. We hebben significante relaties gevonden tussen hoge niveaus van negatief en angstig temperament van kinderen en hoge niveaus van ondermijnende coparenting, maar we hebben geen relaties gevonden met steunende coparenting. Daarnaast hebben we gevonden dat angstig temperament van kinderen een voorspeller is van later coparentinggedrag, maar we hebben geen relatie gevonden van coparenting naar later angstig temperament van kinderen. Aangezien we geen effecten hebben bestudeerd van angst bij het kind naar later coparentinggedrag kunnen we geen conclusies trekken over de richting van het effect tussen angst van het kind en coparenting. Het is mogelijk dat dit effect zowel van coparenting naar angst bij het kind (zoals aangetoond in dit proefschrift) als van angst naar coparenting loopt; hiervoor is vervolgonderzoek nodig.

Naast deze effecten hebben we gevonden dat de ernst van ouderlijke angst verbonden

is met coparentinggedrag van ouders: ouders die een hoge ernst van hun angst ervaren, ondermijnen elkaar meer dan ouders met een lage ernst van hun angststoornis. We vonden ook dat de ernst van ouderlijke angststoornissen van invloed is op de relatie tussen ondermijnende coparenting en (voorlopers van) angst bij kinderen. Ten slotte hebben we enig bewijs gevonden dat in het bijzonder het steunende coparentinggedrag van de vader, in tegenstelling tot het steunende gedrag van de moeder, verbonden is met het negatieve affect van kinderen en met angst van kinderen. Het steunende gedrag van de vader speelt mogelijk een beschermende rol in de ontwikkeling van angst bij kinderen, terwijl het steunende gedrag van de moeder mogelijk een risicofactor vormt voor de ontwikkeling van angst bij kinderen. Op basis van deze resultaten adviseren wij zowel onderzoekers als therapeuten om aandacht te besteden aan de rol van ouderlijke angst en coparenting in de behandeling van angst bij kinderen en om in het bijzonder aandacht te besteden aan de verschillende invloeden van het coparentinggedrag van vaders en moeders met betrekking tot angst bij kinderen.

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AND
CONTRIBUTIONS
OF CO-AUTHORS**



Chapter 2

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Marijke Metz prepared the manuscript and performed the data analyses, under the supervision of Mirjana Majdandžić and Susan Bögels. All authors contributed to the interpretation of the results and in reviewing the paper for submission. Mirjana Majdandžić and Susan Bögels contributed to the study design. Susan Bögels was project leader of the study.

Chapter 3

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